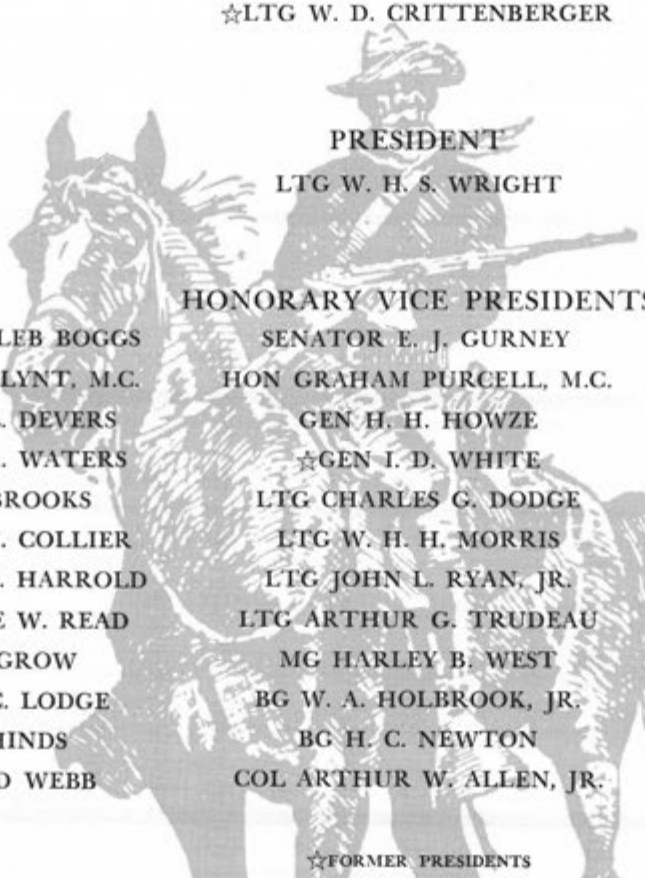
ARMOR

JULY-AUGUST 1969

THE UNITED STATES ARMOR ASSOCIATION

Established 1885 as The United States Cavalry Association

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



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ARMOR

The Magazine of Mobile Warfare

Volume LXXVIII | July-August 1969 | No. 4

ARTICLES

80TH ANNUAL MEETING

FEATURES

DEPARTMENTS

COVER

AN ORIGINAL INK AND ACRYLIC RENDITION BY CHIEF WARRANT OFFICER CHESTER F. JEZIERSKI ILLUSTRATES THE THEME —ARMOR ON THE GROUND AND IN THE AIR TEAMED TOGETHER FOR VICTORY. AFTER LOGGING MORE THAN 550 COMBAT FLYING HOURS, CWO JEZIERSKI WAS SERIOUSLY WOUNDED ON 2 APRIL 1968 WHILE PILOTING AN ARMED HELICOPTER DURING A COMBAT ASSAULT IN VIETNAM. HE IS NOW STATIONED AT FORT MEADE WITH THE 6TH ARMORED CAVALRY REGIMENT. CWO JEZIERSKI STUDIED ART AT THE RHODE ISLAND SCHOOL OF DESIGN.

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LETTERS TO THE EDITOR

Persistence Pays

Dear Sir:

Just received your letter attempting to re-establish contact and get my back issues to me. I regret the breakdown in keeping my address current. I did mail a change of address from Vietnam, but it was obviously lost in the mails. Assuming my membership had expired, I failed to follow through on any further changes.

On my return to the United States it is good to have my membership renewed and address correct.

ARMOR MAJOR

Fort Knox, Kentucky

Your help and understanding are truly appreciated. The staff goes to nearly ridiculous lengths to get ARMOR to members and subscribers. Perry Mason should envy some of the ingenious secret techniques used. It really hurts when we get the "You cretins deliberately misaddressed my ARMOR *to . . ." sort of letter.* THE EDITOR

Right

Dear Sir:

It is with *great* embarrassment that I send the inclosed check for a three-year membership in the best professional association.

Please admit a "wanderer from the fold" back into the Armor family. I've seen the error of my ways and seek forgiveness.

I, like the Armor commander in Europe (Letters to the Editor, *ARMOR*, March-April 1969), have been reading the unit fund copy. Here at this university the cadets get to read *ARMOR* first—so I had to wait my turn. Your articles are excellent and I can't afford the delay of three to four weeks to get a copy.

ARMOR MAJOR
Assistant PMS

Welcome to the fold! As Mark Twain said, "Always do right; this will gratify some people and astonish the rest." THE EDITOR

First In North Africa?

Dear Sir:

Perhaps you or your readers can help. Some time ago I heard the story below. Recently, it came to mind during a discussion of World War II tank action in North Africa.

It seems that in about June of 1942, when Rommel was finishing the Battle of Gazala and was about to take Tobruk, a small (about company size) American tank unit was sent to North Africa to gain experience in desert warfare. The unit supposedly was equipped with *M3* medium tanks. This unit should not be confused with the group of American technicians which went with the U.S. lend-lease tanks sent to the British.

If the foregoing is in fact true, then a U.S. tank combat unit was fighting alongside British forces in North Africa five months before the invasion.

WILLIAM J. TOTH

New Brunswick, New Jersey

We have searched our archives and have found nothing on this. Any and all help from ARMOR readers will be appreciated. THE EDITOR

Back Issues Needed

Dear Sir:

I need a number of issues to complete my collection and would appreciate hearing from anyone who has them available. Those needed are: all *Armored Cavalry Journal* before 1948; '48 except J-A; '49 all except J-F; *Armor* '50 J-F, M-J, N-D; '51 J-F; '52 J-A; '53 M-A; '54 all except J-A; '55 M-J, S-O; '56 all except S-O; '58 J-F, M-A, M-S, J-A.

JOHN E. PEARSON

6822 N. Ashland Ave
Chicago, Ill. 60626

In addition to the above request, we have a standing one from the Armor School Library which is seeking to acquire a second reference set of The Cavalry Journal, Armored Cavalry Journal and ARMOR. Readers whose needs can be filled by microfilm copies should obtain these directly from University Microfilms, 300 North Zeeb Road, Ann Arbor, Michigan 48106. THE EDITOR.

Kudos

Dear Sir:

ARMOR Magazine continues to be interesting and of superior quality in layout, design, content and printed quality.

West Paterson, N. J.

WILLIAM K. SCHOENFISCH

"Muck Out" To Move Out

Dear Sir:

Thank you very much for sending me a copy of the March-April 1969 *ARMOR* in which Operation "Muck Out" was featured. Surprisingly enough to some, this technique continues to prove quite useful.

We are now in the dry season and the armored cavalry and mechanized units are really coming into their own. It would be a delight for every armor-oriented officer and senior non-commissioned officer to observe the manner in which we can quickly turn the elements of many ground sweep formations toward the point of contact and destroy an enemy force every time we find one. Our armored people are having many opportunities and are proving themselves to be extremely worthwhile members of the combat team.

ELLIS W. WILLIAMSON
Major General, USA
Commanding

25th Infantry Division
APO San Francisco 96225

Brave (And Loyal) Rifles

Dear Sir:

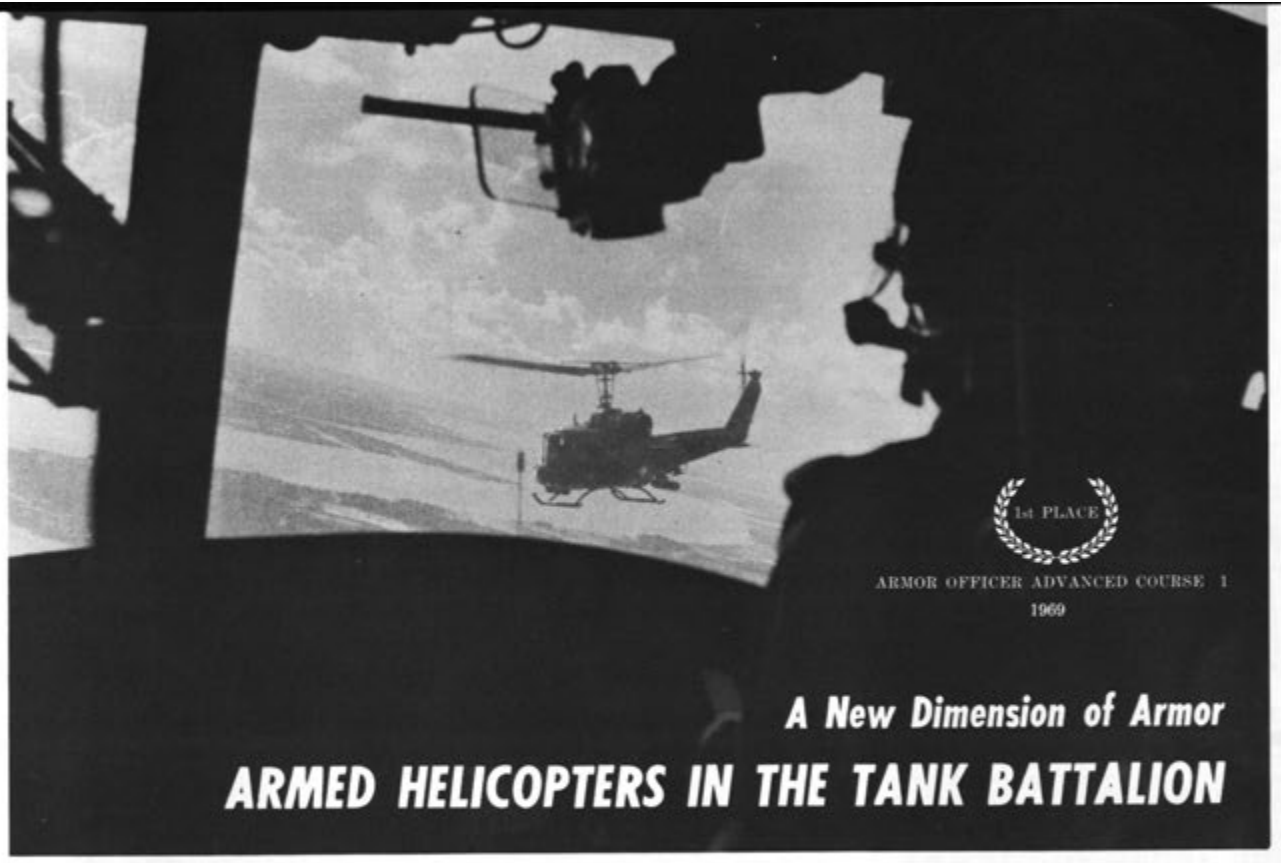
Some time ago I promised that you would see rapid progress on membership in the Armor Association by the members of the 3d Armored Cavalry. So far we have more than quadrupled membership. This increase is just a beginning, and you can be assured that additional gains will be made.

I was particularly impressed by the cover and contents of the March-April edition of *ARMOR*. I think that the magazine is a fine professional publication. I, personally, read it from cover to cover. It seems to me you have made important changes which make the magazine more directly useful to our people—particularly junior officers and senior NCOs.

Our regimental museum is in excellent shape after our return from Germany. But, as always, we can certainly use additional items which former members of the regiment may wish to donate. Additionally, we are in the process of activating a Drum and Bugle corps which we hope eventually to outfit in appropriate uniforms of by-gone days.

SIDNEY HACK
51st Colonel
Commanding

3d Armored Cavalry Regiment
Fort Lewis, Washington



A New Dimension of Armor

ARMED HELICOPTERS IN THE TANK BATTALION

by Major Sam A. Scavo

Helicopters *and* tanks! "Heresy" say some. "Absolutely," say others. Therefore, let us examine the significance of armed helicopters as part of "The Combat Arm of Decision," past, present and future.

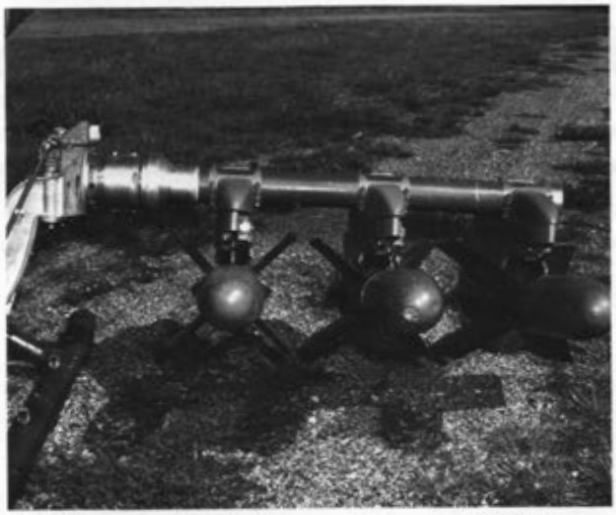
Armored warfare probably had its beginning as early as 3000 B.C. when the Sumerians—ancient inhabitants of lower Mesopotamia—first used animal-drawn vehicles in combat. When the Sumerians began to use these vehicles, later called chariots, someone discovered that they gave the user an advantage in relative combat power. This resulted from the fact that the chariot provided shielding to the weaponeer and, at the same time, increased his mobility. This, in turn, further reduced his vulnerability, and allowed him to move more rapidly through his opponents, striking all those who came within range of his weapon. Thus was born the axiom that success in combat requires superiority in relative combat power.

Although this axiom is one that is readily agreed to by military leaders the world over, a problem arises in man's inability to determine which effort will provide the greatest increase in combat power. Because of this, development of the tank was painfully slow. Even though tanks were being used by our allies in World War I, the United States did not have one armored vehicle at the time of our entry into the conflict. Immediately, however, we geared our production effort to manufacture the British heavy tank, the French light tank, and two designs of our own. Production of some 23,000 tanks was planned, but only about a thousand were completed by 1919. Enthusiasm waned rapidly after the Armistice of 1918 and the Tank Corps, created in January 1918, was soon abolished. The National Defense Act of 1920 assigned the tanks to the infantry. And, in 1922, the official role of tanks was defined as that of "facilitating the uninterrupted advance of the rifleman in the attack."

Armor (and the Army) continued to suffer at the hands of the shortsighted and the parsimonious through the twenties and thirties and only sporadic attempts were made to organize a mechanized force. One such attempt was in progress at Fort Knox when Germany invaded Poland in 1939. The role envisioned for this force, designated the 7th Cavalry Brigade (Mechanized), was a mechanized form of the traditional cavalry role of exploitation and raids on the enemy flanks and rear. Germany's success with the Panzer divisions stimulated progress and on 10 July 1940, the Armored Force was created. This brought all armored units under one command.

The capability and success of the Armored Force in World War II could not be denied. In 1945, there were 16 armored divisions in existence. But, by 1947, only one remained. Again armor was placed in the role of supporting the infantry, which in essence reverted to pre-1940 doctrine.

One of the primary reasons for this sudden de-



BELL HELICOPTER COMPANY

The M22 armament subsystem mounted on the *UH1B* helicopter. The missiles in photo are *SS11* rather than the more modern *AGM22B* missiles.

emphasis of armor was the development of effective man-portable antitank weapons. This breakthrough caused many to argue that the usefulness of the tank had been greatly reduced. However, armor continued to develop slowly and the Korean conflict in the early 1950's proved that the tank was neither obsolete nor excessively vulnerable. Thus armor was again recognized as a major combat force.

This mission of armor was previously stated in FM 17-1, *Armored Operations,* as "Armor conducts decisive, highly mobile, land environment warfare, primarily offensive in nature and characterized by a predominance of mounted combat, through use of both ground vehicles and aircraft." Although aviation is mentioned in the above guide, it is noteworthy that the description of armor found in the 1964 change to the manual includes *"armed* aircraft" and now reads: "Armor is a combined arms force designed to conduct mounted combat employing armor-protected vehicles and armed aircraft as a principal means of accomplishing a ground combat mission." Included in the same change is an addition to the definition of armored cavalry units to include the capability of "fighting with aircraft." These changes are significant in that they acknowledge the combat power afforded by organizational aircraft. So far though, roles and missions for the armed helicopter (especially one with an antitank capability) have not been finally determined by the various military services and the Department of Defense.

The armed helicopter concept became a part of the Army when the first machineguns were borrowed from a tank and rigged on an observation helicopter more than 15 years ago. At that time it was readily apparent that this was the basic concept necessary to give airmobile forces the fire support heretofore unavailable. In order to evaluate the concept, development began on armament kits to be mounted on existing utility and light cargo helicopters. Evaluations proved the basic concept sound and a provisional unit was formed and sent to Vietnam in 1962. Its mission was to provide enroute escort and suppressive fires in the landing zone for helicopter troop carriers conducting airmobile assaults. The operations of this unit were successful, and by 1963, each airmobile company (light) which was sent to, or organized in, Vietnam contained one platoon of armed helicopters.

During this same period, a guided missile was being evaluated to determine its value as an aerial antitank weapon. The system was adopted as the *M22* armament subsystem and was mounted on the *UH1B* helicopter. This subsystem is equipped with six *AGM22B* missiles which can defeat any known armor up to 3000 meters. With the addition of this system, the Army gained weapons systems on rotary wing aircraft which included an antitank capability, a light point target capability (*M16* automatic rifle), and an area suppression capability *(XM3).*

Defining roles and missions has caused the most difficulty in the development of the armed helicopter. Since the armed helicopter is designed primarily to provide air-to-ground fire support, it is constantly being compared to the Air Force close air support aircraft. This, of course, tends to create a controversy between the services and sets up a requirement for continuous monitoring and frequent decisions by the Department of Defense.

Determining whether the mission of providing aerial fire support for ground forces is within the normal prerogative of the Army or is the sole right of the Air Force, is not the purpose here. However, it is a pertinent consideration in that the roles and missions for the armed helicopter are not yet clearly defined. FM 1-110, *Armed Helicopter Employment* does not state a role per se, but the utilization paragraph reveals that the role of the armed helicopter is to give the ground commander a means by which he may supplement and extend firepower available to him from ground based weapons and close air support.

The tank battalion presently includes 54 medium tanks organized into three tank companies. The battalion is capable of conducting both offensive and defensive action, and its capabilities and limitations may be stated as follows:

LOCKHEED-CALIFORNIA COMPANY

An experimental *AH56A Cheyenne* prototype fires the *TOW* antitank missile in tests at Yuma Proving Ground, Arizona.

► The battalion is 100 percent mobile and can move more rapidly over most types of terrain. Limiting factors can be categorized as unfavorable terrain and adverse weather conditions. Tank units normally are not employed in terrain which consists mainly of steep slopes, marshy ground, or heavily forested areas. The primary meteorological conditions such as precipitation, fog, or darkness reduce the tank's mobility and target engagement range. For our purposes here, we must assume that the combat vehicles in the tank battalions have the means (light intensification devices, etc.) to move and to engage hostile targets at night.

► The firepower of the tank battalion has the following categories of organic weapons:

- Light Point Target: 7.62mm rifle, 7.62mm machinegun, caliber .50 machinegun, and 40mm grenade launcher.
- Heavy Point Target: 105mm tank gun.
- Area Support Weapon: 4.2 in. mortar.

For this discussion, the heavy point target system should be considered as the gun/launcher even though it has not been incorporated into the TOE. The gun/launcher fires either a guided missile or a conventional 152mm round. The effective range of the missile is classified; therefore, we will assume that it and the missile system on the armed helicopter are somewhat equal and give them an engagement range of more than a mile. The effectiveness of any of the above systems as it relates to their target categories is decreased when their acquisition capabilities are reduced by limited visibility.

The vulnerability of the combat elements of the tank battalion need not be discussed since their vulnerability can be accepted as the norm.

The armed helicopter used here for comparison is a system incorporating those state-of-the-art capabilities which might be produced in the near future. The system is referred to as the Advanced Aerial Fire Support System (AAFSS) in order to prevent confusing it with the armed utility helicopter (*UH1B*) which is in Vietnam today. The AAFSS would usually be employed in teams of two or more in order to provide mutual supporting fires. A specific unit, detachment, or team will not be described since it is not considered pertinent to this discussion. The AAFSS is to be capable of conducting or supporting both offensive and defensive actions. It is the result of the integration of four major subsystems: the aerial vehicle, armament, fire control, and avionics.

The AAFSS is planned for an operational speed range from 0 to 250 mph. Its mobility is not to be affected per se by terrain or meteorological conditions (i.e. marginal weather or darkness.) Improved electronic systems have greatly reduced the effects of these adverse conditions. If, for example, the weather were zero-zero (meaning that the ceiling is less than 50 feet and the visibility less than 200 meters) the AAFSS could take off and fly approximately 1000 miles to the rear if the situation so dictated. Darkness in itself should not restrict the aerial vehicles from moving about the battle area; thus we can say that darkness would not affect mobility. Night operations probably will require a minimum ceiling of 200 to 300 feet and a visibility of at least one-half of a mile. Visibility is a separate factor and the better the visibility, up to 15 miles, the greater the mobility.

As conceived, the AAFSS is capable of mounting a variety of weapons, but this comparison is limited to the categories previously established for the tank battalion. These include:

- A Light Point Target System: A 30mm gun

which has an armor piercing/high explosive round having a range in excess of 2500 meters.

- A Heavy Point Target System: A tube-launched, optically guided, wire controlled (TOW) missile with a range of more than a mile and capable of defeating any known armor.
- Area Support Weapons: 7.62mm machineguns or a 40mm grenade launcher alternatively mounted in the nose turret and 2.75 inch foldingfin aircraft rockets (FFAR).

This weapons array compares favorably with the systems organic to the tank battalion and is not unlike that of the tank in that it is designed as an integrated weapons system. The normal weapons mix for the AAFSS will be the 30mm gun, 7.62mm machinegun, and 2.75 inch FFAR; or, alternatively, the 40mm grenade launcher, 30mm gun, and TOW missiles. In an active situation with the latter weapons mix, the AAFSS can be expected to be very accurate with its TOW. The 30mm gun could add vehicles, personnel carriers, or self-propelled guns to the destroyed list. In addition, the 7.62mm machinegun or 40mm grenade launcher and 2.75 inch FFAR would be highly effective against personnel in the open or in armored vehicles.

LTC John L. Holladay of the United States Army Combat Developments Command Armor Agency had this to say, in a May-June 1965 article in *ARMOR*, about helicopter antitank guided missile systems: "We have thus far a very solid indication that the helicopter can survive in a *sophisticated environment.*" It is noteworthy that this statement was made in 1965 and referred to the helicopter then in existence, not to the AAFSS which is specifically designed for survival and should be much less vulnerable.

Without presenting a vulnerability study, a few explanations would appear to be in order. The AAFSS has a redundancy in dynamic control systems, armor protection for critical components and the crew, and the capability to fire two weapons systems simultaneously, independent of each other. For example, the pilot can engage antiaircraft guns or other threats with the 30mm gun system while the co-pilot/gunner is engaging a series of armored vehicles with the missile system. This in effect enhances the survivability of the AAFSS. But, if we accept the fact that the AAFSS is a thin skinned system with but light armor proof against .50 caliber hits, we must acknowledge that it is more vulnerable than the armor-protected elements of the tank battalion unless maximum advantage is taken of the system's speed, maneuverability, agility, and weapons flexibility.

The advanced armed helicopter is an effective form of combat power which can augment the combat power of the tank battalion. Its capabilities allow it to operate in the ground environment, to live in the field, and to be immediately responsive to the commander. Its firepower is extremely versatile and can be brought to bear on the enemy at the time and place of the commander's choosing. The addition of the advanced armed helicopter to the tank battalion would increase the relative combat power of the battalion. The major shortcoming of the advanced armed helicopter is its vulnerability. This can be offset to some degree by positioning it well to the rear when it is not being employed. Weather, to include limited visibility, also can be a major consideration in certain parts of the world. The advanced armed helicopter is capable of operating in marginal weather, but there will be occasions when operations will be restricted or even prohibited.

The development of the Armored Force was characterized by the reluctance to accept it for its true value. Once again, this appears to be the situation with respect to the armed helicopter. Today we appear to be reluctant to accept this mobility/firepower system that is available to us. In fact, we do not seem to realize that its capabilities should be developed and exploited, or its lack of value established by test, on the basis of performance rather than by judgemental evaluation.

MAJOR SAM A. SCAVO, Armor, was commissioned in 1962 from Indiana State College (Pennsylvania). He graduated from the Quartermaster Officer Basic Course in 1962 and was assigned to Fort Story, Virginia. In 1963, he attended the United States Army Aviation School. In 1964, he transferred to Armor and was assigned to Fort Irwin, California. Assignments to Vietnam and Germany followed. In 1968, he returned to the United States to attend the Armor Officer Advanced Course 69-1 from which he was graduated in April. He is now assigned to U.S. Army, Vietnam.

TOMORROW IS TOO LATE

2d PLACE

ARMOR OFFICER ADVANCED COURSE 1

1969

by Captain Arthur H. Kelley

Are you prepared to go into combat tomorrow morning? Could you function as a leader of men without any further mental or physical preparation? This is the tale of how just that did happen, and just that fast. It happened to me and I survived as you can tell, since it is I who am writing this article. I assure you though, that this would have been a lot easier if I had been in better shape.

There I sat fat, dumb and happy at Fort Sill, Oklahoma, when I received orders giving me a full 45 days to be at San Francisco International Airport. I stood six feet tall and three feet wide, (to be exact, I was 72 inches tall and 40 inches around) and weighed in at 232 loving pounds. I kept telling myself that I was in good shape—just a *little* heavy—and that I could lose a lot of weight before I got to RVN. As it really happened, I went on leave to take my wife and kids home, ate like a pig on vacation, and arrived at the airport weighing the same as I did when the orders came.

I departed from the airport for Saigon on a Pan Am champagne flight wearing civilian clothes and carrying my short sleeve khaki uniform over my shoulder. No sweat, by the time we landed, it would fit all right. A few hours out of Saigon, I put on my uniform and there I stood, 232 pounds of quivering flesh in a 180 pound uniform.

Upon reporting into the "Big Red One" headquarters, I was assigned to the 1st Battalion, 16th Infantry, as the recon platoon leader. A chopper took me to Lai Khe where I reported to the S1. While he was briefing me, the battalion commander walked up, welcomed me, told me to find a place to sleep, and to take a few days to find out how the battalion operated. The heat was already starting to affect me. I was wringing wet and tired.

It was starting to get dark, so the S1 found me a place to bed down for the night. There were two beds in the tent, but no one was there. One of the lieutenants was on R&R and the other was in the hospital recovering from wounds. I had quite a bit of trouble trying to sleep, but finally managed to doze off.

At 0500, someone shook me and said to mount up Recon and move to the airfield. The 2d Battalion, 28th Infantry was surrounded by two regiments of VC and we were going airmobile to help them. I asked where Recon was located. He pointed to three tents off to the south. While stuffing myself into my uniform, I ran out hollering for Recon to mount up, hoping that they had something to mount up on. As it turned out, they were well organized and well led by outstanding NCOs. I found the platoon sergeant, introduced myself and explained what I knew about the situation. He showed me where Operations was located and I headed there as fast as my fat legs would carry me.

At Operations I was filled in on the situation and told that the choppers were due in at BMNT plus 30 minutes. Recon was to move to the airstrip at BMNT. We had the first seven slicks on the south end. I went back to our assembly area and after introducing myself to the platoon, briefed them on the operation. In turn, they introduced me to an M16 rifle and showed me how to load and fire it. About this time, my extra weight was starting to make its presence known. I was already tired, even though I had not done anything yet.

Recon moved to the airstrip at BMNT and broke down into seven-man groups. The platoon sergeant briefed me on how to ride a chopper since I had never been on one. It was at about this time that I realized that this was not training but the real thing. If you made a mistake here it could cost lives, so I started being a *leader* instead of a confused fat man.

The choppers arrived on time and off we went. We landed on highway 13 about four Ks from Lai Khe and moved into a rubber plantation to the west. We had only gone about 150 meters when we encountered our first "Charlie." Not only was I huffing and puffing, but I was *scared!* We managed to kill a few VC and captured a few and eventually made it out to the 2d Battalion, 28th Infantry, where we stayed the night.

The next morning, we moved out to the north, and let me tell you, carrying all that weight was *something else*. We went 18Ks that day and, believe me, the only thing holding me up was will power. All my strength was gone. I wanted to just stop and call for a medevac, but everybody else was making it and I was not about to fall out. We made our way back to base camp, where trucks met us and took us back to our own area. Those trucks were the nicest things I had seen in a long time. When we got back to our area we had everything we left with except some ammunition and about 30 pounds of fat—mine.

This experience showed me that I was an unrealistic fool to pretend that I was ready to lead men in combat. I urge you not to make the same mistake. Don't wait for the orders to come to start preparing yourself. Start now! Establish and stay with a good physical conditioning program. Prepare yourself mentally by learning all you can about your job and how it's being done in RVN.

If you don't have to worry about whether you can make it because you're not prepared mentally or physically, then you can apply *all* your efforts to being an effective combat leader.

CAPTAIN ARTHUR H. KELLEY, Armor, served for nearly five years as an Army enlisted man and was then commissioned in 1964 on graduation from the Fort Benning OCS. After completing the Armor Officer Basic Course in 1965 he served with 4th Battalion, 30th Infantry(M) at Fort Sill as a platoon leader and staff officer. Next followed a tour in Vietnam as recon platoon leader, 1st Battalion, 16th Infantry, 1st Infantry Division and as a division staff officer. In 1967 he joined the 2d Armored Division where he served as a staff officer, company commander and battalion executive officer. An April 1968 graduate of the Armor Officer Advanced Course, he is now assigned to United States Army, Vietnam.

3d PLACE

ARMOR OFFICER ADVANCED COURSE 1
1969

A First Combat Experience

by Captain Wilbert R. Menix

During the dark early morning hours of 25 February 1967, I was making last minute checks and issuing final orders to the elements of my armored cavalry platoon. It seemed that this day was to be as routine as the previous ones since I had joined the 2d Platoon, Troop A, 1st Squadron, 11th Armored Cavalry Regiment. However, on this day, I was to become engaged in a deadly battle with a North Vietnamese force operating deep in the hot and humid jungles of Southeast Asia. I was destined to gain combat experience in both mounted and dismounted action.

The 11th Armored Cavalry Regiment then was involved in Operation *Junction City*. The 1st Squadron was operating north-northeast of Tay Ninh in an area of operation (AO) about 18 kilometers south of the Cambodian Border. So far, the 1st Squadron had not made contact with any VC or NVA forces.

As I moved from one ACAV to another, the platoon members were discussing the possibilities of finding the enemy, or at least evidence of the enemy, in the area. I wondered how the platoon would react under fire and what my reactions would be. My thoughts ended abruptly when I heard the troop commander's order, "Mount up and move out!" crackle over the radio.

My mission for the day was to assist an attached tank platoon and the 3d Platoon in searching and destroying in the southeast sector of the squadron AO. The troop commander, Captain John Votaw, directed that I start searching some 500 meters from our fire support base. The terrain, for about 2000 meters, was fairly level and open. It had several large clusters of jungle here and there. From the open area to the southeast edge of the squadron AO, the jungle was dense and tall.

We began the day by searching the clusters of jungle which dominated the left portion of the troop zone using mounted and dismounted techniques. By noon, my platoon had searched all the clusters of jungle. Nothing of significance had been found. The 3d Platoon, tank platoon, and troop command

group were operating to my right flank. Their operations had been equally unsuccessful.

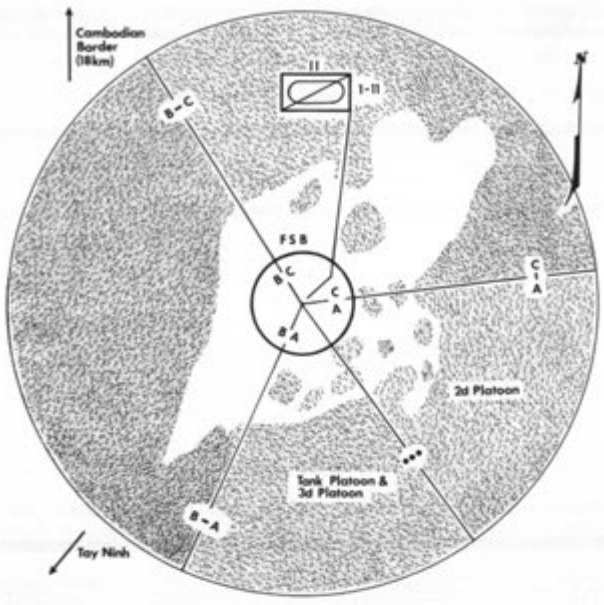
I moved my platoon to the northern edge of the jungle and was preparing to dismount. About then, the 3d Platoon began receiving fire from a VC recoilless rocket squad. I was ordered to keep my platoon mounted and to act as a blocking force for the troop.

As the minutes clicked into an hour, it was apparent that the wily VC had been successful in their hit and run tactics. The 3d Platoon was unsuccessful in locating the VC squad. The troop commander directed me to dismount as many members of my platoon as I could and to search the jungle area to the south. I dismounted 23 men including my platoon sergeant, PSG Mateo Arrendondo, and proceeded with them south into the jungle. Two men had been left behind on each of the eight platoon vehicles with the scout section leader in charge.

About 800 meters from the edge of the jungle, the point man located a complex network of communication wire. I divided the platoon into two groups and had each group start tracing the wire which had been laid on a well-used footpath. I led the other group south along the same path. After 15 minutes of fruitless searching, I ordered both groups to rendezvous where the wire had first been located. Arriving at our rendezvous point, I had the squads "clover-leaf" and search in the immediate area. One of the men located another path about 100 meters to the east. This path ran southeast and contained 12 strands of heavy gauge commo wire which intersected with the path where the first network of wire had been located. This was reported to the troop commander who immediately directed me to continue searching to the southeast.

The path was easy to follow even though the platoon moved parallel to it. Some 2000 meters deeper in the jungle, at about 1500, the point man stopped suddenly and called me forward. He had spotted a VC base camp well concealed under the canopy of the jungle. No one had to tell me that this was an active camp. The stench of rotten fish, human excrement, and baked rice hung heavily on the humid air.

I deployed the platoon to provide security. Then we moved cautiously into the base camp. Apparently, the VC had detected us and had abandoned the camp hurriedly. There was warm food on the makeshift tables, and fresh footprints led out of the camp in two different directions. After we had established security around the base camp, a search team checked each bunker and bamboo hut for documents



and weapons. When the search was completed, I had the platoon sergeant take a squad of men and start burning the huts and destroying the bunkers. The remainder of the platoon started moving back to the north edge of the base camp.

There seemed to be tension in the air. Somehow, I had a feeling that something was about to happen. I had an unusual sensation at the base of my neck. It was as if we were being watched by something or someone hidden from our observation. Some of the other members of the platoon remarked about having the same feelings. Something just wasn't normal.

Suddenly, before the destruction of the base camp was completed, the VC opened fire on us with automatic and semi-automatic weapons. Everyone instinctively hit the ground and returned the fire. Actually, the VC were firing from three directions. However, most of our suppressive fire was on the base camp. The enemy's fires seemed to be concentrated and to be coming from that direction.

Suddenly a blood-chilling thought flashed across my mind, "Sergeant Arrendondo and the demolition squad are in the base camp." Simultaneously, the squad leaders must have remembered the same thing. They attacked the camp spontaneously. Halfway through the base camp we spotted the demolition squad and the platoon sergeant crawling toward us. Two men were wounded. During this recovery of our comrades, the VC began to increase their rate of fire. I had the platoon fall back to the north edge of the base camp and tried to report to the troop commander. The only thing that I could hear over my radio was garbled instructions to develop my own

situation, and that the troop commander was enroute to my location.

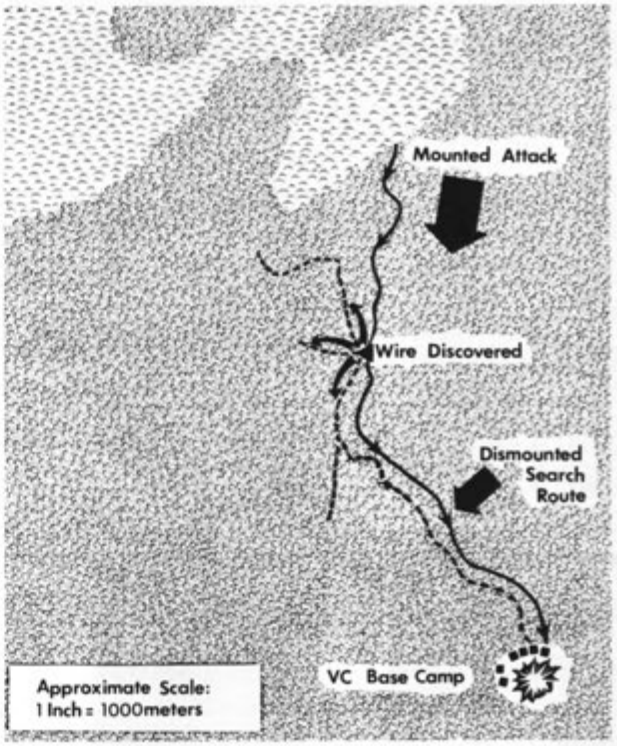
It was now about 1700. We were definitely heavily engaged with the VC. I radioed the mounted scout section leader, "Bobcat Two Three, this is Bobcat Two Six. Start moving the vehicles to this location. We are running low on ammo. Over."

He replied, "This is Bobcat Two Three. Roger. On the Way." The VC had maneuvered well to our flanks by this time. They seemed to be forming an ambush to encircle us. I ordered the platoon to move some 300 meters northeast of the base camp. We remained in contact with the VC during the move.

Suddenly the squadron commander's voice crackled over my radio, "Bengal One-Six Bravo, this is Bengal Six. Mark your position. Over." Several minutes elapsed and he again requested smoke to locate my position. I threw my last smoke grenades, but the smoke would not rise more than 12 feet off the ground due to the density and humidity of the jungle. The squadron commander, unable to locate our position, relayed my request for fire support from our fire base and assisted in guiding the ACAVs in our general direction. After doing all that he could for us, he called me on the radio and said, "Bengal One-Six Bravo, this is Bengal Six. Give them hell and good luck. You should link up with your vehicles in about five minutes. Out."

The platoon sergeant, although wounded, gave me an ammunition status report at this time. We had approximately 20 magazines of M16 ammo and two bandoleers of M79 ammo remaining. The troop commander informed me that he would join us in about 15 minutes. The VC fire seemed to have subsided and I decided to move in the direction of the platoon vehicles. No sooner had we started, than the sound of the ACAV engines broke through the din of firing.

Every man in the platoon mounted a vehicle, disregarding vehicle assignments. They requested permission to counterattack. I gave the order to hit the



VC with everything we had. The platoon seemed to erupt in a constant volume of fire and continuous movement. By the time the platoon had reached the base camp again, the troop commander, with the 3d Platoon, had joined our trail vehicle. We surprised the VC completely. By nightfall, they had deserted the area leaving 10 of their dead behind.

An hour later, after I had moved my platoon back to the squadron fire support base, I had time to think about everything that had happened during the day. We had engaged a reinforced NVA headquarters communication compound and had succeeded in defeating the enemy by using the tactics and techniques learned in repetitious training. I realized that my future judgement would be somewhat different because I had achieved combat experience.

CAPTAIN WILBERT R. MENIX was commissioned in Armor on graduation from the Fort Benning OCS in 1963. From then until April 1966 he served as a platoon leader, executive officer and troop commander in the 1st Squadron, 124th Cavalry, Texas Army National Guard. Entering on active duty he served in the Command and Staff Department, USA Air Defense School as an instructor. In 1967, he joined Troop A, 11th Armored Cavalry Regiment in Vietnam where he was a platoon leader, executive officer and troop commander. He recently graduated from the Armor Officer Advanced Course and is now attending Army aviation training prior to returning to Vietnam. It is an interesting coincidence that CPT Menix' troop commander in Vietnam, from whom he took over, was also an ARMOR author ("The Blackhorse Kicks Back," July-August 1967).

enter the need for
a vehicle that has
a high degree of mobility
in the same environment
as today's scouts
with the speed
and mobility
of aero scouts . . .

THE SCOUT VEHICLE OF TOMORROW

by Captain John D. Vance

The aggressor patrol leader glanced at his watch and signaled his men to increase the pace. He wanted to be back in the company area before daylight. It had been a successful night, the patrol had reached its objective and gathered valuable information. But now, in the gray half-light of dawn, enemy helicopters were hindering his return. Twice within the past hour he and his men had been forced to take cover as enemy gunships swept over his position. "An annoyance," he thought, "but no real danger." His men were well trained and the trees overhead afforded ample concealment. Moments later he lay watching in confusion as two strange looking aircraft darted away. Had he not heard the approach of the enemy aircraft? Had his men not taken cover as ordered? Yet four of his men were now dead and he lay wounded. He had little time to ponder his fate before two enemy gunships appeared and pounded his position.

Five minutes later an aggressor artilleryman saw two dark shapes glide swiftly overhead. Before he had finished radioing the report of his sighting, enemy artillery fire was falling on his unit. Still later, the pilot of an aggressor armed helicopter maneuvered too close to a strange aircraft he had seen skimming the tree tops below. As he watched, the aircraft disappeared into the gloom of the trees. Confused, he circled the area to continue searching. Then, a small heat-seeking missile found him.

Thus the United States Army's latest aero-scout vehicle made its combat debut.

The aero-scout vehicle taking part in the fictitious engagements just described does not exist today, nor does any air vehicle capable of performing in such a manner. The aero-scout team in the mythical engagement discovered the aggressor patrol and evaded the armed helicopter by flying below the treetops.

Since the introduction of aerial reconnaissance to the battlefield there have been major limitations to its effectiveness—limitations imposed by the very nature of the aerial vehicle itself. The helicopter is a tremendous step forward because it can operate at very low airspeeds and altitudes. But from it an observer cannot see beneath the trees, nor can the helicopter maneuver under the treetops. Attempts to integrate the helicopter into a true ground environment have too often ended with the disastrous union of rotor blade and tree.

Because of these and other limitations, the Army has left the majority of its scouts with both feet planted firmly on the ground or on a floor-board but a few feet from it. Mounted in light wheel or track vehicles, these men are the eyes and ears of the Army. But what good are the eyes and ears if they cannot be projected beyond the body? In today's mechanized and armored units just what is the difference in the mobility of the scouts and the maneuver battalions? Both move at the same speed and are stopped by the same barriers. How effective is a cavalry unit that cannot move faster than the main body which it is screening?

Enter the need for a new radically different scout vehicle—a vehicle that has a high degree of mobility, a vehicle that can operate in the same environment as today's scouts, and with the speed and mobility of aero scouts.

ARMOR OFFICER ADVANCED COURSE 1
1969

When such a scout vehicle is designed, what characteristics and capabilities should it have? Obviously it must be able to operate near the ground, beneath the trees when necessary. Assuming that the vehicle is to be a helicopter type craft, the rotor system must be protected from tree and wire strikes. This can be done by enclosing a single or coaxial rotor in a protective shroud, much as the rotor system of the Hiller Flying Platform was. The shroud need not be built to withstand a 60 knot head-on collision with an oak tree which is three feet thick. Rather, it can be made of a light material designed to withstand a low speed glancing blow. For example, it could consist of an aluminum skin backed with energy absorbing styrofoam. Just as a jeep brushes a tree and moves on with no more than a dented fender, the aero-scout vehicle must be able to pick its way through trees and brush. Pushing aside small bushes and tree limbs, it would move forward at reduced speed. If it should run into a tree, it could merely back off and then proceed in another direction.

The use of coaxial rotors or a hot cycle rotor system would eliminate the requirement for a tail rotor. Thus, the overall size of the vehicle would be dependent only on the diameter of the rotor. The turning radius would be the radius of the craft itself, allowing it to maneuver in extremely restricted areas.

Now that we have the proposed scout vehicle "down under the trees," we must put it to work. It must be able to move, see, and, if necessary, shoot. When we speak of movement, we normally envision distance and speed. The range of the scout vehicle would naturally depend on the operating time of the vehicle. A four to five hour fuel load should be sufficient in most situations. In any event, the speed and mobility of the vehicle would make returning to a refueling area a simple matter.

Because we have placed our vehicle in a semi-ground environment, the need for high speed is questionable. A range from zero to 60 knots should prove to be more than adequate. While under cover, the scout teams could operate at speeds as low as required to maneuver and to observe effectively. Upon moving into areas where cover and observation dictate a higher speed, the crew could accelerate rapidly, thus reducing the time the vehicle would be exposed. When high speed is required, it would be a simple matter to climb above the treetops and operate at maximum speed.

Surveillance and target acquisition devices being developed today are ideally suited for use on the aero-scout vehicles. With navigation, sighting and ranging systems similar to those designed for the *AH56A*, immediate and accurate reports can be relayed to fire support elements for rapid engagement of targets of oportunity.

The requirement to defend itself would dictate that the vehicle be armed. Ideally the armament system would be designed to accept a variety of weapons installed on common hard points and to use the same fire control system. Such a system would permit the commander to mission tailor his vehicles to counter targets offering the greatest threat, be it enemy air, armor, or infantry.

The same mission tailored concept could be applied to surveillance and communications systems. Mission tailoring would pay dividends in both cost and weight reductions. For example, all vehicles could be constructed to accept night vision devices, but each unit would be issued only a limited number of the devices to be installed quickly as needed.

The scout team could be built around this flexibility. One scout vehicle could carry sophisticated surveillance and navigation devices, while the other acted as the gun-ship of the team, mounting "shoot and forget" antitank or antiaircraft missiles.

The fact that there is a need for such a scout vehicle as that described above is readily evident when one examines the mobility differential of today's cavalry squadron and the remainder of the division. In what direction shall we look for the needed mobility? Perhaps the answer is to look up, but not above the treetops.

CAPTAIN JOHN D. VANCE, Armor, served as an Army enlisted man for three years prior to becoming a warrant officer Army aviator in 1963. While serving with the 4th Squadron, 12th Cavalry at Fort Carson in 1964, he received a commission in Armor. In 1966 he went to Vietnam where he was an armed helicopter pilot in the 173d Airborne Brigade. Following that, he had a one year tour in Europe before attending and graduating from Armor Officer Advanced Course 1-69. CPT Vance is now assigned to the 3d Aviation Company at Yuma Proving Ground, Arizona.

From The Armor Branch Chief...

the OUTLOOK for the FUTURE

by Colonel Roy W. Farley

A matter of proper concern for the young RA officer, and for those who are considering staying in the Army in an indefinite career status as well, are the prospects for their future after the current level of hostilities in Vietnam is terminated.

Most young officers in this category ask, "What can I expect in the post-Vietnam period?" "What about the rate of promotion?" And, "What about future assignments and advanced civil schooling?"

In this article, I will attempt to give you some of the answers to these questions as we see them here in Armor Branch. At the very outset I must make it clear that our crystal ball must, of necessity, be somewhat clouded because of our inability to predict future force levels and what challenges the armored forces of our country may be called upon to meet.

First, let's take a look at history. At the onset of the Vietnam buildup in 1965, there were 6700 Armor officers serving on active duty. In the intervening years, our strength has grown to its present level of 10,920. The Vietnam buildup, therefore, accounted for about 4000 additional Armor officers. This growth in the Armor branch essentially parallels the overall increase in the total strength of the officer corps which went from about 101,000 officers to its current 148,000 in the same period. It is interesting to note that, at this time, about one-third of Armor officers overall are Regular Army. This ranges from 97% of Armor colonels to 11% of Armor lieutenants.

It would seem reasonable to conclude that the bottom figure under any future reduction in force would not go below the 6700 authorized in 1965 and may be somewhat higher. I draw this conclusion from two factors. First, I expect the trend which was already evident in 1965 to place emphasis on conventional, as opposed to strategic, forces to continue. Second, within the Army force structure, Armor has the prime responsibility for development and implementation of the air cavalry concept. The nature of air cavalry units requires a higher density of Armor officers than in other aviation units of comparable size. We are the only combat arm authorized aviators who serve as air cavalry leaders in their primary branch MOS.

Further, as the trend toward mechanization of the US Army force structure continues, the officer trained in Armor is uniquely qualified to serve with, and command, mechanized units of all types both within and outside of his branch. While it is difficult to put all this together in a prediction, it does not seem unreasonable to forecast at this time a post-Vietnam US Army officer force somewhat greater than the 1965 level.

PROMOTION

As you are all aware, the Vietnam buildup generated a gradual reduction in total time in service for promotion to captain from 36 months at the start of the buildup, first to 30 months and then to its current 24 months total active Federal commissioned service. Concurrently, the time in grade required for promotion to each rank above captain was gradually reduced during the same period to where today, captains are promoted to major with about 38 months in the grade of captain, majors to lieutenant colonel with 39 months in grade, and lieutenant colonels to colonel with 60 months in grade. Obviously, this promotion rate under a post-Vietnam reduction in force would stretch out. How much? It is hard to predict.

The total number of field grade officers in each rank is controlled by the Officers Grade Limitation Act. Promotion zones are established by the Department of the Army to provide input to each rank based on the expected losses each fiscal year due to retirement, resignation, and relief from active duty. We should expect a gradual return to the 36 month total active duty criteria before promotion to captain; and, promotions to this rank would eventually be returned to centralized Department of the Army control on a fully qualified, competitive basis as was true before the Vietnam buildup. Beyond captain, the promotion rate would be a function of the factors previously mentioned operating within the total authorized strength of the officer corps.

Under any conditions, however, I predict that promotion opportunities will continue to be favorable. I base this conclusion not only on the increased size of the Army mentioned earlier, but also on my expectation that the Army will continue to progress in its efforts to maintain a young, vigorous officer corps. This will necessarily entail a system with adequate opportunity to achieve promotion without stagnation at any rank. It means promotion procedures designed to create senior officers early enough in their careers to give the government maximum return on its investment.

CIVIL SCHOOLING

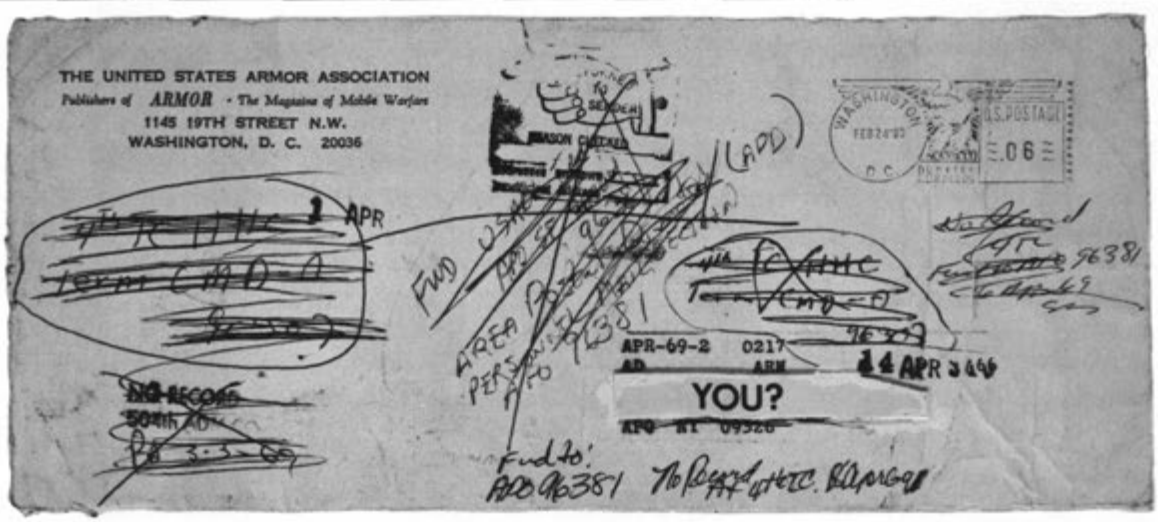
The Army, since 1945, has placed a high value on the educational level of its officer corps. The objective was, and still is, to have every officer a college graduate. Beyond this, we have devoted much in the way of funds and officer time to provide for training at civilian educational institutions which will meet our ever increasing requirements for officers with advanced degrees.

Obviously, Vietnam requirements have influenced achieving this objective with respect both to the funds available and to the inability of Armor Branch to stabilize officers long enough to attend civil schooling. We try, insofar as possible, to achieve complete equity among our junior officers in repetitive tours to Vietnam. As a result, we send very few officers to Bootstrap programs (wherein an officer completes his undergraduate work) for longer than six months TDY. And, our input to advanced degree programs is limited to meeting requirements for specific assignments to be filled by Armor officers. The selection of those officers who are put into advanced programs has been made even more competitive by limited funds. The Vietnam requirements have also reduced our ability to put many junior officers in stabilized tours of duty such as those at the U.S. Military Academy and with the ROTC.

In the post-Vietnam period, we should be in a much improved position as far as offering the career Armor officer opportunity for advanced civil schooling as well as providing those without a degree an opportunity to attend college for up to a year under the Bootstrap program.

SUMMARY

Overall, I think the outlook is extremely bright for the career officer. While promotions will slow, the opportunity should still exist for a satisfactory progression through the various ranks without stagnation. Stabilization will improve your family situation and make for increased opportunity for schooling. School funding should improve. The several pay plans now under study, or to be implemented in the near future, will provide a sound basis for an Army career that is financially adequate as well as professionally rewarding.



FOR SERVICE IN VIETNAM

PRESIDENTIAL UNIT CITATION

Unit	*Date of Action*	*General Orders*
1st Cavalry Division (Airmobile)	23 Oct 65—26 Nov 65	DA 40, 21 Sep 67
1st Squadron, 4th Cavalry	June 66—July 66	DA 31, 14 Jul 67
3d Squadron, 5th Cavalry	19 Mar 67—20 Mar 67	DA 3, 10 Jan 69
1st Battalion (-Company A), 8th Cavalry	21 Jun 66—22 Jun 66	DA 73, 27 Nov 68
1st Squadron, 9th Cavalry	2 Oct 66—24 Oct 66	DA 5, 27 Jan 69
1st Battalion, 12th Cavalry	2 Oct 66—3 Oct 66	DA 47, 12 Sep 68
Company A, 1st Battalion, 5th Cavalry	21 Jun 66—22 Jun 66	DA 73, 27 Nov 68
Company C, 1st Battalion, 5th Cavalry	2 Oct 66—3 Oct 66	DA 47, 12 Sep 68
1st Platoon, Company B, 1st Battalion, 69th Armor	9 Aug 66—10 Aug 66	DA 36, 18 Jul 68

VALOROUS UNIT AWARD

11th Armored Cavalry Regiment	31 Jan 68—5 Feb 68	DA 12, 5 Mar 69
1st Squadron, 4th Cavalry	31 Jan 68—31 May 68	USARV 1154 3 Apr 69
2d Battalion, 5th Cavalry	11 Mar 67	DA 54, 8 Oct 68
3d Squadron, 11th Armored Cavalry	19 Jun 67—21 Jul 67	DA 1, 8 Jan 69
Troop A, 3d Squadron, 5th Cavalry	31 Jan 68	DA 5, 27 Jan 69
Troop C, 3d Squadron, 5th Cavalry	2 Feb 68—3 Feb 68	DA 1, 8 Jan 69
Company B, 2d Battalion, 8th Cavalry	16 May 66—17 May 66	DA 17, 23 Apr 68
Troop B, 1st Squadron, 9th Cavalry	9 Aug 66—16 Aug 66	DA 17, 23 Apr 68

MERITORIOUS UNIT COMMENDATION

3d Squadron, 11th Armored Cavalry	13 Sep 66—31 May 67	DA 32, 2 Jul 68

PRESIDENTIAL UNIT CITATION—ALLIED UNIT

Republic of Korea Army 9th Company, 1st Cavalry Regiment	9 Aug—10 Aug 66	DA 40, 9 Aug 68

VIETNAMESE CROSS OF GALLANTRY WITH PALM

Troop A, 1st Squadron, 4th Cavalry	8 Jun 66	DA 46, 3 Sep 68
1st Battalion, 7th Cavalry	14 Nov 65	DA 46, 3 Sep 68

The United States Armor Association 80th Annual Meeting

Fort Knox, Kentucky, 15–17 May 1969

THURSDAY, 15 MAY 1969

1830 Reception and Buffet at Quarters 1

FRIDAY, 16 MAY 1969

0800 Honors Ceremony at the Court of Honor

MORNING SESSION AT THE WAYBUR THEATER

0830 OPENING REMARKS by General John K. Waters, 22d President of The United States Armor Association

0835 KEYNOTE ADDRESS "Europe: Armor in Evolution" by General James H. Polk, Commander-in-Chief, U. S. Army, Europe

0905 "Armor Today" by Major General James W. Sutherland, Jr., Commanding General, U. S. Army Armor Center

0920 SEMINAR "Mounted Combat Operations in Vietnam" Introduction by Brigadier General William W. Cobb, Assistant Commandant, U. S. Army Armor School
"The Battle of Binh An" by Major Ralph B. Garretson, Jr.
"The Battle of An Bao II" by Captain Timothy J. Grogan
"Operation Blackhawk" by Lieutenant Colonel Robert W. Mills
"The ACV in Vietnam" by Major David G. Moore
"Blackhorse Operations" by Colonel George S. Patton
Discussion

1100 "Patton Museum Progress" by the Honorable Andrew Broaddus, Vice President, Cavalry-Armor Foundation

1110 The Business Meeting

1200 Luncheon at the Brick Mess

1300 Mounted Reconnaissance Tactical Demonstration and New Equipment Display at Dorrets Run Range by the U. S. Army Armor School, U. S. Army Aviation School, 194th Armored Brigade and the U. S. Army Armor and Engineer Board.

1600 Tour of Richardson Hall by the Automotive Department U. S. Army Armor School

1845 The Banquet—Address "Some Thoughts on Wild-eyed Radicals and Perceptive Leadership" by Major General George P. Seneff, Jr., Director of Operations, United States Strike Command

SATURDAY, 17 MAY 1969

0830 Executive Council Meeting

1100 Dedication of Eisenhower Avenue

Opening Remarks

by General JOHN K. WATERS,

President, The United States Armor Association

GENERAL POLK, GENERAL SUTHERLAND, DISTINGUISHED GUESTS AND FELLOW MEMBERS OF THE UNITED STATES ARMOR ASSOCIATION:

It is always a great pleasure to be able to assemble together at Fort Knox. I know that I speak for all when I express our appreciation to General Sutherland, General Cobb and the many here who have made this meeting possible and have honored us so impressively.

This year, it is especially gratifying, and inspiring, to become part of the enthusiastic and dynamic atmosphere that prevails here at the Home of Armor. Those of us from "out of town," so to speak, already have been rapidly engrossed in active discussion indicative of the lively thought which characterizes the Armor Center today. History shows that Armor was born of new ideas, many of which originated here at Fort Knox. And Armor today is growing and prospering, and will continue to grow and prosper, largely because of those forward looking minds present here today.

We regret that our Honorary President, General W. D. Crittenberger, is not able to join us. General Crittenberger tried hard to arrange his schedule so that he could be here. He regrets that a prior commitment to take part in the ceremonies at West Point, honoring former Secretary of State Dean Rusk with the Thayer Award, makes his attendance here impossible. Were he not one of those who helped to establish the Thayer Award and were not Mr. Rusk one of his former officers, General Crittenberger would be with us. However, he sends his greetings and best wishes to all. General Clarke, General Dodge, the Executive Vice President of AUSA, General Robinett, and a host of others likewise send their good wishes.

We are greatly honored to have as our keynote speaker that senior Armor commander whose command includes the greatest concentration of armor units in our Army today.

General Polk was born into an Army family. He was graduated from the United States Military Academy in 1933 and commissioned in the Cavalry. Prior to World War II, he served in two Cavalry regiments and attended the Cavalry School. When the United States entered World War II he was an instructor at West Point. Following attendance at the Command and General Staff School, he assumed command of the 6th Cavalry Reconnaissance Squadron (Mechanized) of the 106th Mechanized Cavalry Group. Later, as group executive officer he participated in the Normandy beachhead operation, the St. Lo breakout and the Third Army drive across France.

In September 1944, he became commander of the 3d Cavalry Group which he led with distinction until the war in Europe ended and through the early occupation days until December 1945. The 3d Cavalry consistently spearheaded the drives of General Walton H. Walker's XX Corps of the Third Army. General Polk was decorated for gallantry three times, once personally by General Patton.

General Polk returned to the United States to become Chief of Tactics at the Ground General School at Fort Riley. In 1948, after graduating from the Armed Forces Staff College, he served for three years in the G2 Section, General Headquarters, Far East Command. During the Korean War he served with X Corps as G2 through three campaigns.

Following graduation from the National War College in 1952, General Polk was an instructor at the Army War College for three years. Then followed over two years with the 3d Armored Division, first at Fort Knox and then in Europe, as commander of two combat commands, chief of staff and assistant division commander.

In July 1957, General Polk began a two-year tour as Assistant Chief of Staff for Plans and Operations, Land Forces Central Europe at NATO Headquarters in France. Next, he returned to the United States to become Director of the Policy Planning Office in the Office of the Assistant Secretary of Defense for International Security Affairs.

August 1961 marked the beginning of a series of key command assignments in Europe—Commanding General of the 4th Armored Division, United States Commander in Berlin, and Commanding General of the V Corps. Following a short tour as Assistant Chief of Staff for Force Development on the Army Staff, General Polk returned to Europe in December 1966 to become Deputy Commander-in-Chief, US Army Europe. On 1 June 1967, he was promoted to general and became Commander-in-Chief, US Army Europe and Commanding General of Seventh Army—his present position.

It is a great honor and pleasure to present General James H. Polk.

Europe: Armor In Evolution

by General JAMES H. POLK

Commander-in-Chief, U. S. Army Europe

GENERAL WATERS, GENERAL SUTHERLAND, FELLOW MEMBERS AND MY MANY FRIENDS:

It is always a great pleasure to come back to the Home of Armor. It is a particular pleasure for me this time with the post looking so beautiful and in such good hands. It gives me a wonderful opportunity to see many old friends, to discuss some of our mutual concerns and, in a rather limited way, to bring you up to date on the United States Army in Europe in 1969. In many respects this is a report on what is certainly the largest concentration of Armor in the field.

Some years have passed since many members in this audience have left Europe. On the other hand, I see many familiar faces who have departed only recently. If I am repeating for some of you, please excuse me. But it is true that in recent years there have been numerous changes in our organizations, in our weapons, and perhaps most important, in the capabilities of our probable enemy. I would say also that certain new defensive concepts in tactics are devolved principally through the NATO Council. We have some new equipment and modern armored vehicles in place and more to come. I think it is correct to say also that the demands of Vietnam have had a considerable impact on us in Europe.

So this morning I'll attempt to tell you in capsule form what is going on in Europe today, that is, to attempt to enhance your understanding of where we are, and where we expect to be in the near future.

First of all, I am sure that this audience understands that the U. S. Army in Europe is a sophisticated, mechanized, armored army. Of course you know it now has two corps, four and one-third divisions, two armored cavalry regiments, numerous corps troops and air defense units, and a variety of logistical and administrative troops. Included are some 1600 operational tanks. With reserves, there are altogether about 2150 tanks. This large force really comprises the heart of NATO.

Under the Reforger concept, two brigades of the 24th Division plus the 3d Cavalry and some of our logistical and support base were redeployed to the United States. However, their armor and their heavy equipment is stored in dehumidified warehouses in Europe—and these are ready for fast issue. We practiced this last January and it worked far beyond our best expectations. So we're ready to resume our former five division plus posture on pretty short notice, should an emergency develop. Meanwhile a command with this considerable reduction basically has maintained its same multiple and diverse missions. And, as I mentioned, U. S. Army, Europe is the heart of Central Army Group. It includes five of the 12 divisions of my NATO command. The two German corps in my command have improved significantly over the past years.

I think it's fair to say that we're a large wide-spread operational command with considerable peacetime responsibilities, and prepared to shift rapidly to war footing in emergencies. The basic mission of the command, of course, stems from its NATO emergency defense plan. The Warsaw Pact border in Central Europe poses very real challenges. Its location affords very limited defense in depth. Our probable enemy opposes us with a heavily armored modern force of combined arms. His air power complements a ground capability that has a significant arsenal of nuclear missiles and a wealth of armor assault power.

I don't want to describe this man as 12 feet tall, nor do I see him as insuperable. I think our task in Europe is to recognize his true proportions, his real potential, and the deterrent that we have to put up in order to counter any sort of aggression.

We saw the Warsaw Pact capability applied in Czechoslovakia last year. And I must say that we were impressed by what we saw. They can move major forces very quickly and can achieve tactical surprise. Their rapid fielding of combat ready forces confirms the depth of their trained units and the capabilities of their equipment. I think that this military action dramatically pointed up the importance of effective warning on our part and prompt command authority to establish our defensive posture in time.

Where then, in effect, do we stand? Are we adequately trained and are we properly equipped? I think so. Such judgements must consider our tactics and our adoption of a conventional mobile defense. And certainly, this demands a professionalism and a readiness of the very highest order. To combat this potential enemy, we are developing in our youthful commanders an initiative and a confidence that belies their age and experience.

I mentioned last night to a number of people that the other day I was watching Company A, 1st Battalion, 64th Armor shoot and they were 100 percent on their tanks at that point. A first lieutenant was briefing me. Finally I said, "I don't understand what your position is in this battalion." He replied, "Sir, I'm the battalion commander." He didn't stay such long, but he was doing a splendid job! Unfortunately, his lieutenant colonel battalion commander had dropped dead, and the major assigned was on the way to Vietnam as were two captains. This young lieutenant was holding the kite, and well at that.

A lot of you know our training areas. They are fully committed night and day to satisfy the requirements of our Army in Europe, as well as those of the German Army. And, of course the German government finds that it is very difficult to provide more of the very valuable land for training areas. So we have to use everything to the maximum.

I think it's fair to say that many citizens of the NATO countries are very reluctant to support additional defense spending. Of course, the same could be said of the United States. Costs are increasing, particularly for new and modern equipment. And the international balance of payments gives us considerable problems. In view of the support requirements for United States forces in Vietnam, I am sure that my command must manage skillfully to sustain its present capability.

So let me kick off with some of our major constraints and some of our problems; not complaining you understand, but in recognition of where we have to put our greatest efforts and what we have to do to exploit our own capability.

Our first concern in Europe is peo-

ple. That's a truism. But with the input of sophisticated equipment that we're getting in the Army today and new equipment coming on such as the Sheridan, and the self-propelled Hawk, there isn't any alternative to skilled and well-trained personnel. Not too far off we have even more complicated items coming along like the MBT70. While we are facing some personnel deficiencies and maintaining a continuous flow of trained soldiers to Vietnam, the length of our school courses must be fairly short. But we must have such courses to bring up and maintain the many required specialized skills. Our problems are further compounded by the remarkable fact that in the past two years we've had 60,000 officers and soldiers volunteer for Vietnam. I think the problems are overcome to a very large extent by the sort of eagerness and spirit of acceptance of responsibility which we find in our young commanders and in our young noncommissioned officers.

I'm really speaking to the back of the room when I say that 95 percent of our maneuver companies are commanded by lieutenants. (And where there are companies commanded by captains, the captains are on orders to Vietnam.) I am truly proud of the way these magnificent young men rise to the occasion. Believe me, they're good. So if you want responsibility, if you want challenge, if you want to work hard, if you want to have some fun—come to Europe.

We also have some deficiencies in strength. And I'm sure that commands here at home suffer equally. To make better use of our resources we are striving to improve our management procedures. For instance, we are installing ADP equipment in our operational, logistical and administrative structure to yield better information which will make possible better management. Hopefully, we are spending our money more wisely and putting it in the places where it ought to be spent.

Following the cutback on our move from France and the implementation of the Reforger plan, we developed a revised organization which will be operational the first of July this year. This change, for instance, deletes the general support package. As a result, now we have a depot system that's in both the wholesale and retail business, and which supplies directly to the direct support unit. We've also established corps support commands whereby each tactical corps becomes self-supporting. We've eliminated the Seventh Army Support Command and the Seventh Army Headquarters. Unfortunately, these are no more. But the result isn't bad.

Now we have two relatively self-sufficient corps which join two similarly structured German corps in my Central Army Group. Thus, Central Army Group will now operate with four corps in wartime. Actually, what U. S. Army, Europe has is two small field armies, not unlike the organization in Vietnam.

As a matter of fact, with the changes, we are heavy in visible combat elements, but we are thin in logistical capabilities and backup for an extended period of combat. Thus, we will require early resupply augmentation. For this, we are relying on ready forces in the U. S. and the present and future airlift capabilities to back us up—and back us up fast—if trouble comes.

I want to mention briefly our equipment modernization. We have made limited strides in this area and more are coming in the months ahead. First, with respect to combat vehicles, I worked toward having all units equipped with the M60 and the M60A1 with 105 millimeter guns. These are the backbone of our current tank fleet. Of course, their life span is tied to the timely production of the new main battle tank. But, we're very happy with the M60. General Tal of the Israeli Army spent a week with us and he certainly gave us great confidence in this magnificent gun-ammunition-fire control combination. We learned a few things from him. And, he paid us a great compliment by saying that he had never met so many officers with such high professional qualifications in tank gunnery. He said the whole theater seemed to be locked on tank gunnery. I think that's probably true.

The new MBT70 is a real piece of wonderful machinery. I've personally inspected it. I'm confident it will become an acceptable tank. It has a wealth of new and promising features. Its new high-velocity gun-missile combination is really something to behold. It has a superb suspension system. This thing runs cross-country just like a jack rabbit. It has splendid night fighting capabilities which are most critical. It offers real quality and I'm convinced this is the path we have to follow. It's highly sophisticated. It demands a great deal of training and skilled maintenance. But its killing power is unexcelled.

We are also interested in the new Sheridan. I just talked to Colonel Patton about his experience with it. He gave me every reason to believe that the Sheridan is a very fine, capable assault vehicle for our reconnaissance units. It has excellent mobility, fine weapon accuracy at good ranges and a wonderful stand-off capability with a missile. We're currently engaged in troop tests of the Sheridan by the 2d Squadron, 4th Cavalry, 4th Armored Division. The results of the tests so far make it look like the Sheridan is going to pass very well.

We are exchanging our M114s for a revised version called the E1 which mounts a 20mm cannon. It shoots at three different rates and constitutes a really significant firepower improvement. Also, we're converting to diesel in the M113s. All in all, in Europe in the near future we will be upgrading the family of armored vehicles that you all know fairly well.

We have a few other improvements too. We have a new mobile assault bridge, and a self-propelled Hawk. I saw the first battery converting the other day. Also, the Vulcan-Chaparral starts arriving in November. These latter two will give us a big jump in our air defense capabilities. In addition, Redeye is already in the theater and in the hands of troops. I think this weapon adds appreciably to our close-in air protection.

We have the new family of multi-fuel 2½-ton and 5-ton vehicles. They gave us some trouble initially. But now we understand how to handle them and we're running 90 percent availability. We're scheduled to receive a large imput of Huey Ds which we'll be very happy to receive. These will be replacing the old H37. So

what we're looking forward to is really a new aircraft family. Now that we're getting over our hard requirements for Vietnam, we hope to have a real airmobile capability in United States Army, Europe fairly soon.

Now I don't intend to talk very long and I'll open myself up for questions. So let me summarize by saying that the United States Army, Europe is in evolution. This evolution has been delayed somewhat because of Vietnam, but now we're definitely on the upgrade. The key difficulty with us is trained manpower and the biggest threat is enemy armor.

The tank is still the main weapon, no question about it, the decisive weapon in Europe, and it will remain so well into the ages. All other arms and services in Europe exist solely to support armor. And this is true of both the NATO forces and the Warsaw Pact forces.

Our German allies are making good strides. Together, we will most certainly provide a very credible defense in our portion of the shield. A conventional defense, which is now NATO's emphasis, is an expensive solution but an essential one. I think we must go for quality. Quality in trained men, and quality in brains, leadership and equipment. If we have these, then courage, confidence and a true deterrent will follow naturally.

Thank you, are there any questions?

GENERAL SUTHERLAND: General Polk, when you were Commanding General of the V Corps, you drew up a new concept for reorganizing mechanized infantry. Would you care to elaborate on that?

GENERAL POLK: Yes I will, if you'd like. We revised that paper, incorporating the newest weapons and newest equipment into it, and submitted it to the Infantry Conference at Fort Benning about a month ago. The thesis of the paper, the main thing, is that armored infantry is not straight-legged infantry. That's the main point. You can't take a straight-legged infantry battalion and put it in carriers and have the kind of mechanized infantry which we require in Europe. Now this is nothing against the straight-legged battalion, nothing against carriers, nothing against anything or anybody. It's just an actual fact that we don't get the right balance and the right capabilities that we require in Europe when you make this kind of organization. And, that's exactly the kind of organization we've had almost since World War II; that is, a normal infantry battalion in carriers.

We've fought a long time with a number of people who say you can't fight from carriers. That's ridiculous. Of course you can fight in carriers. I think they've learned this again in Vietnam. They had to learn from Vietnam. We knew it but couldn't convince anybody. Now that's not to say that you go around all the time fighting in carriers, but you certainly must have the capability to fight from carriers.

Another thing, there is no reason in the world why you need a weapons squad in the infantry platoon in mechanized infantry. That's a waste of manpower. What you need is four rifle squads. Each squad has a pool of weapons. You've already got carriers. Why can't you put a machinegun in each of them? Why can't you load it down with LAWs? Why can't you put a Dragon or two in each platoon? Why do you need a weapons squad?

Why do you need a light weapons infantryman and a heavy weapons infantryman? That's silly. You need an infantryman who is competent to fire every weapon in the carrier just like you need a tanker that's competent to fire every weapon in the tank.

Therefore, we think we can structure a smaller battalion with greater firepower and with far greater antitank capability. Now, we must attach a company of tanks to each infantry battalion to save their neck. They can't stand off an armored attack. They can't stand off a regiment of T55s hitting them straight on the nose. They don't have the organic capability. I think an armored infantry battalion should be able to stand up to enemy tank battalions so that you can hold back our armor and counterattack with it. It should be possible to put the infantry up as far as you want, and not be limited by the fact that you must attach tanks to the infantry just to protect them. At least not in Europe.

So we have put in a new proposition. I've been trying to sell it for four or five years. A lot of people around here have been trying to sell it with me, I'm sure. I think one of the great mistakes is that you can get too tangled up and involved in arguing about the details of our proposed battalion, but rather let's get the concept right. The concept is that it is a different kind of an infantry battalion and that it must have a great deal of antitank defense to protect itself in the environment of Europe.

FROM THE FLOOR: The matter of reaction time—Were you able to make any dispositions, if you wanted to make dispositions, to meet the potential threat of the Russians moving into Czechoslovakia?

GEN POLK: Let me say first of all, that our intelligence was very good; that we knew in a fairly accurate way the movements of the Soviet Force. We didn't have it 100 percent, but we had it well enough that we knew what was going on.

The NATO Council had a very strong feeling that we should not make overt moves because this might give the Russians the opportunity to say that they were counter-moving against us. But the Russians did say anyway that they were occupying Czechoslovakia because we were threatening Czechoslovakia. During the initial period we were permitted to make very quiet preparations, revise our plans, and do everything we could possibly do that wasn't visible to the public. This attitude prevailed for about three days after the invasion and this was a very difficult time for me.

I don't know how well you all know this campaign, but the Russians from East Germany put five divisions right on the Czechoslovak border along the West German border. We were concerned that they would occupy the border and that then we would start getting into hot pursuit problems resulting from any fights between the Czechoslovaks and the Russians. We thought this might spill over into our area since the Russian line divisions did not know the border well and in some places it wasn't marked very well. Actually, this didn't happen but the reason it didn't happen was, I think, that the Russians were just as concerned about the problem as we were. They left the Czechoslovak border guards right on the border and kept their five divisions five kilometers behind the guards. Thus, they had a second line which was looking both ways, watching the Czechoslovak border guards, and watching the Czechoslovak people themselves so that they could not get out. There were two occasions on which a tank platoon came straight down to the border, and a Czechoslovak border guard turned them around.

We were surprised that hardly any Czechoslovaks were disposed to defect. They stayed in their country. They thought that they could fight it out in their country. There were a great many Czechoslovak tourists in the rest of Europe and most of them returned to Czechoslovakia. I would think that a lot of them might be regretting it now.

In about three days the Council concluded that we should reinforce the border in a more overt way. We weren't permitted to reinforce it very much, even then. This was because the NATO Council is very careful to preclude us being accused of escalating. It makes it a very tough problem for a soldier.

There is another interesting thing about the Czechoslovak crisis which made me feel pretty good. Of course, we had our normal quota of about 15 percent on leave and so forth. When the crisis came, the soldiers came back without being called. They knew something was going on and they thought they'd better get with their outfit. I think it speaks very well for the American Army.

Armor Today

by Major General JAMES W. SUTHERLAND, Jr.
Commanding General, U. S. Army Armor Center

GENERAL WATERS, GENERAL POLK, FELLOW ASSOCIATION MEMBERS:

It is indeed an honor for us at Fort Knox to act as hosts for the 80th Annual Armor Association Meeting. We here at the Home of Armor have looked forward to your visit and feel that our program will bring you up to date on Armor activities during the past year, inform you of what we are presently doing, and share with you some of what we foresee for the future. For the next few minutes I will discuss some Armor actions and problems which have occupied much of our thought and time during the past year.

Today, one of the most critical issues facing us as a branch is the rising cost of the resources—manpower and equipment—which are required for success in Armor combat operations. From every side—and especially from above—we of the Armor Center Panel are constantly called upon to justify Armor's requirements for resources. During the past year we have had to justify these requirements many times. And we anticipate no change in this trend in the future. Last fall, members of the President's Scientific Advisory Panel visited us, and we found it necessary to educate them and to convince them that a tank is actually required.

As an example of the criticality of this issue, the Army Staff is now using cost figures for planning purposes which show the tank battalion equipped with the MBT70 costing three times as much as the battalion equipped with the M60—the mechanized infantry battalion equipped with the new mechanized infantry combat vehicle costing almost three times as much as our current mechanized infantry battalion.

The realities of increased cost and the complexitity of our new equipment dictate that we examine critically present and proposed Armor organization, manpower requirements and established training methods.

As an adjunct to our more traditional ground role, we are placing increased emphasis on air cavalry concepts as a part of mounted combat, and we see another facet of mounted combat in the air cushion vehicle. As a branch, we have always considered ourselves innovators in exploiting our characteristics of mobility, firepower, and shock effect. However, all these innovations require resources, and it's a fact of life that the cost of these resources is rising.

We as a branch must continue to use our imagination. We must continue to innovate in order to insure that we get the greatest return from our resources and that we are capable of fielding Armor units that can win on the battlefield.

Three items of equipment which have probably consumed the greatest part of our thought and time during the past year are the General Sheridan, the M60A1E2, and the MBT70.

Since our last Association meeting, the General Sheridan has been deployed to Vietnam, Korea and Europe for evaluation. General Polk has told you of the evaluation being conducted in Seventh Army. The evaluation in Vietnam will be completed by the end of this month. The reports which we receive indicate that the Sheridan is doing very well in that environment. The Sheridan has undergone extensive testing over the past four years here in CONUS and in Alaska and Panama—probably more testing than any vehicle developed in recent years. However, we of the Armor Center Team believe that there is yet much to learn about the capabilities, limitations, doctrine, and proper employment techniques of this new and completely different weapons system.

Therefore, just after the first of the year we organized and trained in 8 weeks a platoon equipped with six late production model Sheridans. We are using this platoon to conduct a thorough and comprehensive evaluation of our gunnery techniques and tactical doctrine. In this evaluation we are making maximum use of the reports coming back from overseas theaters. Our experience with, and evaluation of, the Sheridan also will be invaluable in developing our doctrine and training methods for the M60A1E2 tank and the MBT70.

The commander in Vietnam has already submitted recommendations for several modifications to improve the Sheridan. Some of these modifications are relatively simple to apply, and the project manager is taking expedited action. Other improvements, such as those for the combustible cartridge case ammunition, are not so simple to achieve.

As for the M60A1E2 tank, in recent months much time and effort have been spent to determine what should be done to make this tank combatworthy. The prime contractor is now making a detailed analysis of every component in the turret. This is to be completed late this summer. Until this analysis is completed, we really do not know what and how much must be done to make this tank ready for deployment.

With respect to the MBT70, we of the Armor Center Panel are kept continuously informed of the progress in the development of this revolutionary weapons system. We use every opportunity to defend the MBT70 and the increased capability that it will afford us. Naturally, we are disappointed at the slippage in the program. But, on the other hand, we would much prefer to have all the new components of this tank adequately tested than to have to undergo another experience similar to that with the M60A1E2. Introduction of the MBT70 will undoubtedly have a major impact on our organizational structure, individual job skill requirements, and training methods.

Now, I will turn to the subject of training. The Armor Training Center continues to operate near its capacity. There have been some rather important changes in the training programs of the Center during the past year, particularly in the advanced individual training for tank and reconnaissance crewmen. This training has been made more demanding. Based upon reports received from overseas theaters and particularly from Vietnam, we are confident that we are turning out better trained armor crewmen and recon crewmen than we were a year ago. In addition, training of Sheridan crewmen was started during the past year, as well as training of drivers for the armored personnel carrier.

When we look to the training of tank crewmen in the mid-1970s, we recognize that we will have still in the inventory the M48 series tanks, the M60 series, the Sheridan, the M60A1E2, and the MBT70. We know that our program for training the basic tank crewman must be revised. In the past, we have been able to train a soldier at the Training Center on an M48 series tank and if he

joined a unit equipped with M60s he could quickly be transitioned in the unit. With the introduction of the Sheridan, the M60A1E2, and the MBT70 with their completely different weapons and fire control systems, this will no longer be true. Therefore, several months ago we initiated a study of this problem. Now this study is nearing completion. Indications are that we will need more time in AIT to train the tank crewman and that we must go for more specialization.

In the maintenance training field, after too long a struggle, we received approval to separate into two courses the training of mechanics for tank turrets and for self-propelled artillery. In the future, the training of turret mechanics for self-propelled artillery will be given at the Artillery School. This change has long been required. Now, having been made, it will permit us to turn out a better trained tank turret mechanic. Introduction of the M60A1E2 and the MBT70 undoubtedly will require further adjustment in our plans for training tank turret mechanics.

For the training of young leaders there are two Armor School courses I would like to highlight. The first is the 12-week Noncommissioned Officer Candidate (NCOC) School. Two NCOC courses—tank commander and reconnaissance squad leader—were started at Fort Knox in December 1967. At the time of our annual meeting last year we had not yet received from the field any evaluation of our product. Today, I am happy to report that graduates of these courses make available to the Army qualified young noncommissioned officers who are performing in a superb manner in combat in Vietnam. These young soldiers, who are selected to attend this course directly upon completion of their Advanced individual training, are filling Army requirements for well-qualified sergeants who can perform well either in garrison or in combat. Thus far we have graduated over 1600 noncommissioned officers from this school. We have experienced an attrition rate of about 25 percent. About 75 percent of our graduates eventually go to Armor units in Vietnam. We at the Armor Center are completely sold on this course and the need for the Army to retain such a course in the post-Vietnam period.

The second leaders' course that I will say a few words about is the Basic Course for the new Armor lieutenant. One recent noteworthy change is that the Regular Army lieutenants —those from the Military Academy and ROTC—will attend a nine-week course instead of six weeks as in the past. Within recent months we have carefully rechecked the content of our nine-week course with the idea of including in the course given here at the Armor School those subjects which can best be taught here and eliminating those subjects which can best be taught in the unit.

In the area of improved training methods, we have continued to expand our use of closed-circuit television both in the School and in the Training Center. Also we are starting to "system engineer" our School and Training Center courses. This involves a detailed statement of tasks and skills that the soldier must know, establishment of training standards, and the development of training methods and materials based on these standards.

In a related effort, we are working to state precise requirements for major training devices such as turret trainers, live-fire simulators, and driver trainers early in the life-cycle of equipment development so as to insure their availability prior to deployment of the new equipment. In the case of the MBT70, this is a major effort. One has only to consider the estimated unit price of the MBT70 to recognize that we will not have available here at the School and the Training Center the MBT70 in the numbers that we now have the M48 and M60 series tanks.

The helicopter has been employed in Armor operations for over ten years. Its role and effectiveness has increased substantially in the past three years with the fielding of higher performance helicopters having more effective weapons systems, and the organization and combat employment of air cavalry squadrons. The air cavalry squadron and troop have established in Vietnam that they are highly effective combat forces. Every division commander in Vietnam wants to add an air cavalry squadron to his division. We here at Knox feel strongly that the air cavalry units can in the future make a material contribution to Armor operations world-wide. Therefore, we are closely following the results of air cavalry operations in Vietnam—and the development of new aircraft and weapons systems as well.

During the past year we have increased greatly the instrucution in air cavalry organization, tactics and techniques in the Armor Officer Advanced Courses. And there will be further increases in this instruction next year in both the Basic and the Advanced Courses.

During the past few months we have developed four new air cavalry courses which have been presented to the Commanding General, CONARC, with the request that they be started early in FY70. The first course is an eight-hour addition to our Senior Officer Preventive Maintenance Course which emphasizes the mission and maintenance implications of air cavalry units. The second is a three-week Enlisted Aero Scout Observer Course concentrating on low level scouting techniques and crew duties. The third course is a three-week Air Cavalry Officer/Warrant Officer Course oriented to the newly rated Armor lieutenant or warrant officer programmed for initial assignment to an air cavalry unit. The fourth course is a one-week Commander and Staff Officer Course designed for commanders and staff officers at all levels who will be employing air cavalry units.

Now, a few words about our facilities. Thanks to the foresight and action of my predecessors such as General Jack Ryan, we continue to enjoy what is probably the best family quarters situation of any large post in the Army. Until this year, when we had to accommodate four Advanced Classes, the waiting period was two to three weeks for all grades. This is still true except for company grade officers. But, in spite of a longer waiting period by company grade officers for quarters, I intend to continue the policy of reserving family quarters for the students in the Advanced Courses.

As you move about the post during your short stay, you will see evidence of some new construction.

Later today you will visit Richardson Hall in the Armor School area. This modern instructional facility was completed and occupied in January and is the first new building for the Armor School in approximately ten years. This past month we broke ground for the second new building in the Armor School.

Another new nine-barracks complex is nearing completion in the Training Center and will be occupied next month. This new barracks complex has been named in honor of General "P" Wood, the wartime commander of the 4th Armored Division.

We have the authority and the money, and construction is either underway or will soon start on such facilities as: a second 24-lane bowling alley, a new noncommissioned officers' club, a par-3 golf course, a swimming pool at Anderson Golf Course, and a new gymnasium in the Training Center.

And we will press onward for a bigger slice of the MCA pie.

Armor continues to make a real contribution to the Army Team. Our units play an important role wherever the Army is called upon to serve. As for Vietnam, Armor is serving with great distinction in every corps area there; thus proving again that the mounted combat arm still has the flexibility and leadership to meet the challenges of the day.

For an up-date on mounted combat operations in Vietnam, I will now turn to Brigadier General Cobb, the Assistant Commandant of the Armor School, who will introduce the Seminar on Mounted Combat Operations in Vietnam during the past year.

Seminar

Mounted Combat Operations In Vietnam

by Brigadier General WILLIAM W. COBB
Assistant Commandant, U. S. Army Armor School

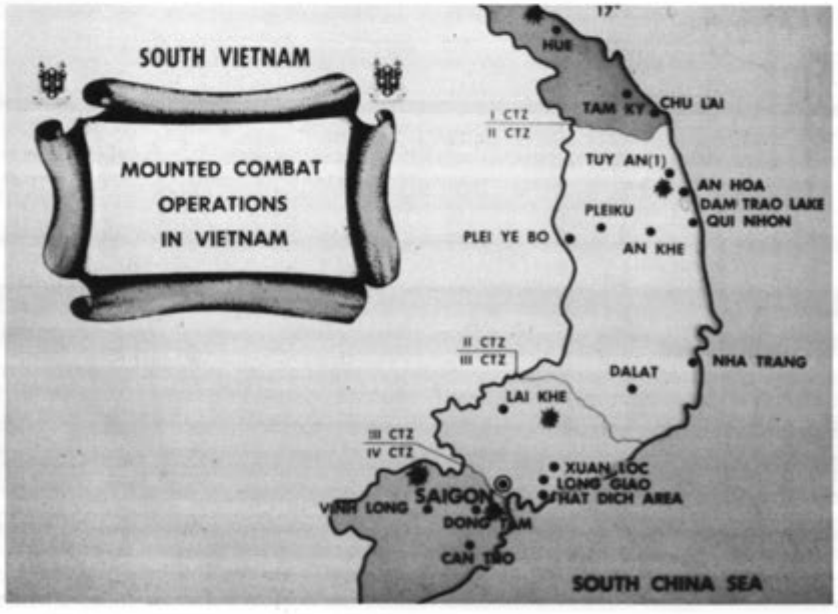
GENERAL WATERS, GENERAL POLK, GENTLEMAN:

It is indeed an honor and pleasure for me to introduce this seminar, or symposium, on "Mounted Combat Operations In Vietnam."

Last year we presented to the 79th Annual Armor Association Meeting accounts of a series of actions in Vietnam which highlighted the prominent contribution of Armor to our military effort in the conflict there. Attention was focused on the II and III Corps Tactical Zones. This year we will describe the use of Armor in all four of the corps tactical zones.

As many of you may recall, at the 1968 meeting we discussed the buildup of our mounted combat units in Vietnam to the level of 22 battalion-size units. Our definition for mounted combat units encompasses tank, armored cavalry, air cavalry, and mechanized infantry units. During the past year, the build-up continued until we now have 26 battalion-size and three company-size mounted units in country.

In addition to this increase in numbers, one of the more noteworthy changes in the mounted units in Vietnam since our last meeting has been in new equipment. The Cobra has replaced the Huey gunship, and the OH5A light observation helicopter or LOH has replaced the H13 and H23 in our air cavalry units. The new M113 AVLB and the M548 full-tracked cargo carrier are being issued to ground elements to increase their cross-country capability. The air cushion vehicle has been sent to Vietnam for testing, and the M551 Sheridan assault vehicle has been deployed. The Cobra and the LOH have each drawn many rave notices. And, the initial combat reports on the Sheridan are most gratifying. You will hear about the employment of these new pieces of equipment during the presentations this morning and see some of them in the demonstration and display this afternoon.

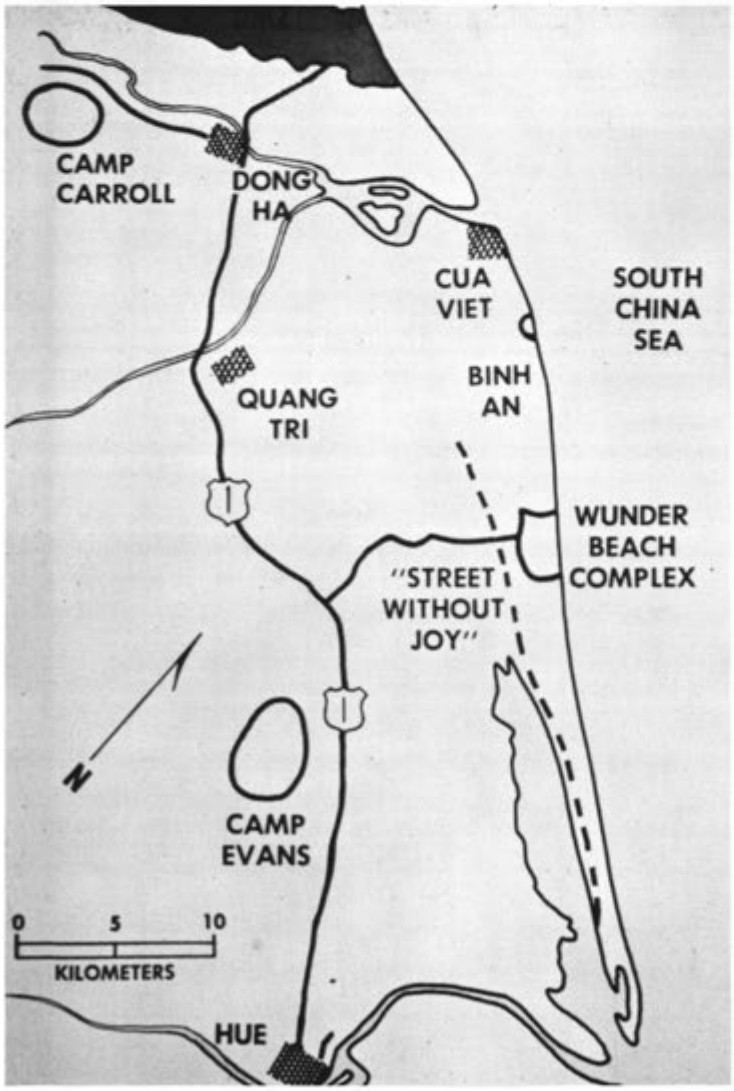


This seminar will consist of several short presentations by recent Vietnam returnees—all commanders. The purpose is essentially the same as last year—to show the role of mounted combat in Vietnam—and to show that that role continues to be a decisive one. Following the presentations and a coffee break, the presenters will sit as members of a panel prepared to take your questions, to elaborate in more detail, or to participate in the discussion—as you wish.

The presentations will include discussions and descriptions of the following actions: the attack of a built-up area by an armored cavalry squadron in the I Corps Tactical Zone; the linkup and relief of a mechanized infantry force by a tank company in the II Corps Tactical Zone; the interdiction of enemy lines of communication by an air cavalry squadron along the Cambodian border in the IV Corps Tactical Zone; the experiences in the Delta of our only air cushion vehicle unit; and armored cavalry regimental operations in the III Corps Tactical Zone.

The Battle of Binh An

by Major RALPH B. GARRETSON, JR.
former Commander of Troop A, 3d Squadron,
5th Cavalry



The battle of Binh An was fought by the 3d Squadron, 5th Cavalry, 9th Infantry Division reinforced by three companies of the 1st Cavalry Division. I was the Squadron S3 when the battle took place on 27 and 28 June 1968 on the sandy beaches of the northern part of the I Corps area. The 3d Squadron, 5th Cav had been operating in this area for about two months, having been detached from the 9th Division after the 1968 Tet offensive began and working in succession for the 1st Marine Division at Da Nang, the 3d Marine Division at Dong Ha, the 101st Airborne at Phu Bai, and finally the 1st Air Cavalary Division in the area of operations (AO) where this battle took place. Although it is not the only large battle fought by the squadron during the period, the Battle of Binh An is especially useful for illustrating the inherent flexibility, firepower, and armor-protected mobility of the armored cavalry squadron.

Under the operational control of the 2d Brigade, 1st Cavalry Division, the squadron had been assigned the mission of securing the Wunder Beach complex, the access road leading to Highway 1, and general responsibility for reconnaissance operations in the entire AO. We were permanently reinforced with two infantry companies from the division which had been placed under our operational control (OPCON) on a rotating basis. Generally, we defended Wunder Beach with one of the infantry companies, the squadron headquarters troop, and a guard detail drawn from all tenant units in the complex. The second infantry company was headquartered on the access road at fire support

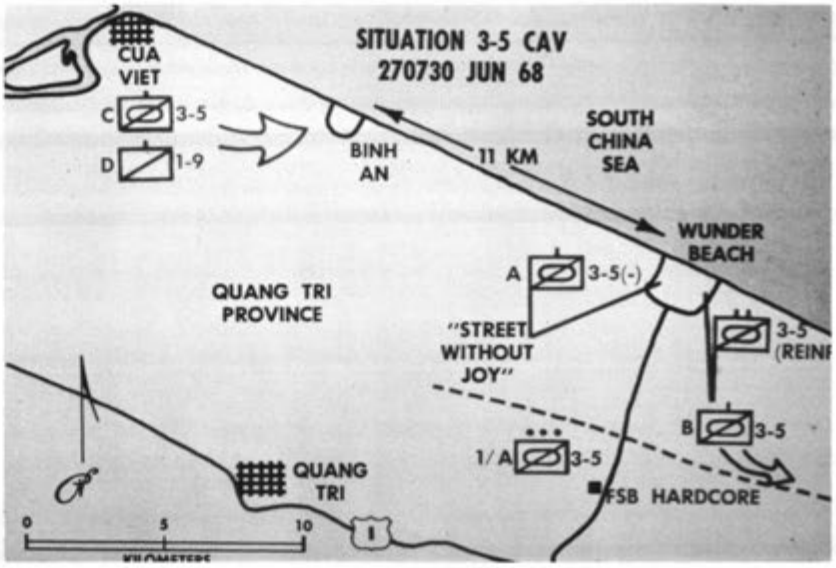
base (FSB) Hardcore. And there was always a cavalry troop conducting operations nearby which could provide a rapid reaction capability if needed. The two remaining cav troops conducted continuous reconnaissance operations throughout the AO.

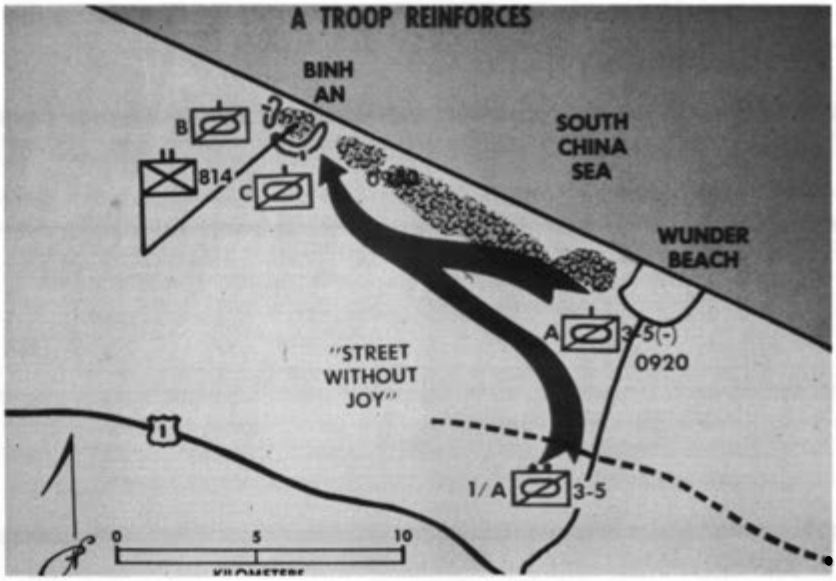
The AO measured about 35 kilometers along the beach and 12 kilometers inland at its widest point. Four kilometers of the width was beach dotted with occasional patches of compartmentalized bamboo which sheltered civilian homes, most of which were abandoned. The rest of the AO was dry rice paddy.

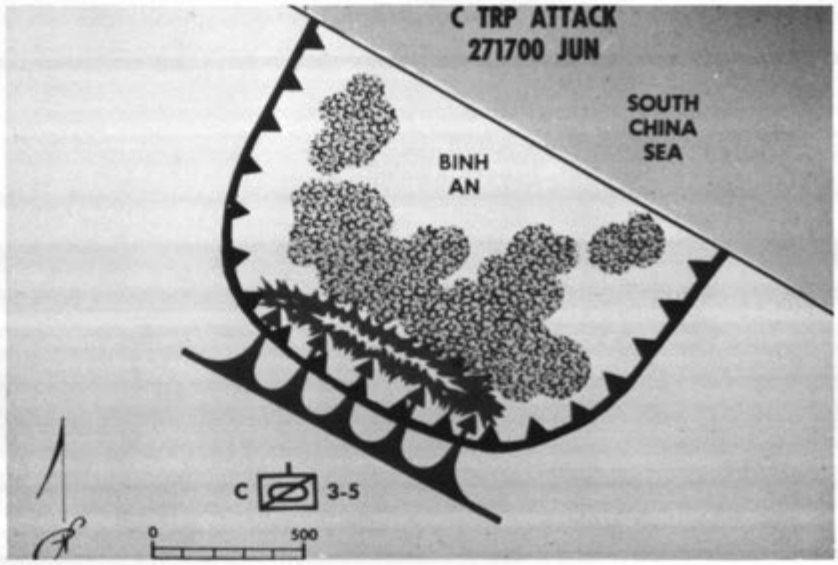
NVA forces were active in the area. Quang Tri was a prime NVA political objective. A major NVA supply route ran down the small road which Bernard Fall made famous in his book Street Without Joy. There was an abundance of food in the area, and large NVA units were accustomed to moving into the villages in the area, quartering their troops with the local civilians for several days, and moving on.

On the morning of 27 June the squadron was disposed as shown. Troop A had completed a night operation and had returned to the beach complex to rest and to maintain their equipment, having left one platoon at FSB Hardcore. Troop B, with three engineer bulldozers attached, was engaged in a detailed search of "The Street Without Joy." Our AO had been temporarily extended to the north, and Troop C, together with Troop D, 1st Squadron, 9th Cavalry, was performing an economy of force mission in support of U. S. Marine operations further to the north. Troop D is the jeep-mounted ground troop of the 1st of the 9th, and they had been dismounted and attached to the squadron in addition to the two previously mentioned infantry companies. At this time, the two units had just been released from their mission and were moving back to Wunder Beach, conducting what was planned to be a two-day reconnaissance in force along the way.

At 0900, Troop C and Troop D elements received RPG and small arms fire as they approached the fringes of the village of Binh An. They returned the fire. The Troop C commander immediately sent a portion of his troop in a flanking maneuver to the west. Minutes later, one of the leading Troop C tanks was hit by an RPG southwest of the village. Considering the distance between the point where the initial contact was made and the point where this tank was hit, Lieutenant Colonel Hugh J. Bartley, the squadron commander, deduced that a large unit was occupying the village. Therefore, at 0923, he ordered Troop A to move from Wunder Beach to the site of contact. Concurrently, the second group of NVA withdrew into the







Binh An resembled the mouth of hell

village and the lead elements of Troop C proceeded to the coast. It was at this time that we picked up one of the key indicators of the battle to come. The lead Troop C elements reported that the entire population of Binh An, about 400 people in all, was evacuating the village. With this additional information at hand, at 0940, Colonel Bartley ordered Troop B to move from "The Street Without Joy" to the site of contact. At the same time, Troop C was ordered to detain the fleeing civilians. An NVA soldier was discovered in their midst and captured alive. When interrogated, he said that the entire 814th NVA Battalion was in the village.

With two troops in contact and two more on the way, the battle to come began to take shape. As Troop B came in on the north and Troop A closed in to the south, Troop C contracted its lines to take over the middle portion of the cordon, carrying Troop D with it.

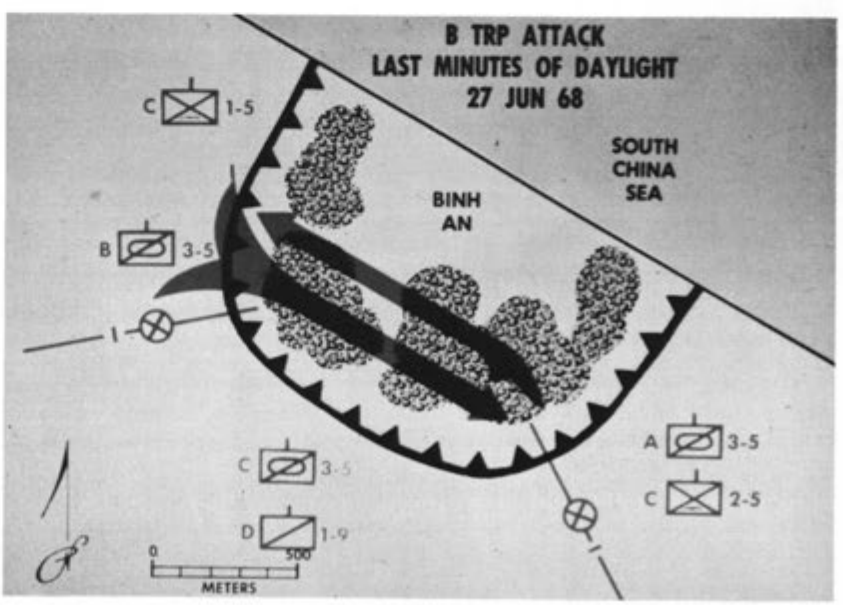
The stage for the battle was now set. During daylight hours, there could be no escape from the village due to the superior visibility and fields of fire commanded by the squadron. Therefore, the job which remained was to reduce the position.

The next seven hours were spent in continuing to pound the enemy positions. In addition to the aerial rocket artillery and marine artillery which had been made available on initial contact, we soon had TAC air from Da Nang, Marine artillery firing from Quang Tri, and a destroyer armed with 5-inch guns standing offshore. Each means of fire support came with its own controller. Each integrated his fires into the fire plan worked out by the squadron commander and our fire support coordination center.

To add strength to the cordon, two infantry companies were airlifted in during the afternoon. Company C, 1st Battalion, 5th Cavalry came into an LZ adjacent to Troop B on the north and joined that unit in the cordon. Company C, 2d Battalion, 5th Cavalry landed in an LZ adjacent to our Troop A and joined it. Interestingly enough, the only unit involved in the ground fighting that day which was not a former member of the old 5th Cavalry Regiment was Troop D of the 9th Cavalry. It was literally to be a 5th Cavalry field day.

At this point, I would like to point out that we had a distinct advantage over the enemy which was evidenced not only in our preponderance of firepower, but also in the fact that travel time for a track around the outside of the Binh An cordon was much shorter than that for an NVA foot soldier moving from the center of the village to any edge through the heavy sand. Because of our superior mobility, we could reinforce any part of the cordon as quickly as an attack of breakout proportions could be mounted. There was little danger, then, of a mass breakout of the entire enemy battalion.

As the afternoon passed, it became more and more obvious that we were not going to be able to finish the battle that day. We knew we could expect to lose a considerable number of the trapped battalion through exfiltration during the night if we had not destroyed their command structure



by nightfall. Thus, it was decided to attempt to overrun the position before dark and to destroy the enemy's capability for effective operations during the night. However, the main part of mop-up operations was to be left for the next day.

Troop C was selected for the attack because it would be attacking toward the sea. The enemy position was assaulted with the entire troop on line. However, the attack was very quickly stopped by a drainage ditch covered by RPG and small arms fire. Troop C was ordered to hold and the attack mission was passed to Troop B which attacked the flank of the main bunker system during the last hour of daylight. Bravo moved completely through the encircled battalion and turned around to plow through the enemy once more. Although somewhat out of the ordinary in the context of past wars, this type maneuver is frequently used in Vietnam where repeated passes through an area are necessary to root out an entrenched, stubborn enemy confined to a small area. Troop B resumed its place in the cordon just as complete darkness fell.

Unmerciful pounding of the 814th NVA Battalion continued through the night. An Air Force C47 dropping flares was on station all night making available enough light for us to adjust artillery and naval gunfire in the cordon and to control tactical airstrikes. The cruiser Boston arrived offshore just after dark and exhausted her basic load of 8 inch shells. It was a nervous night for the enemy troops within the tight cordon. Most of the airstrikes carried napalm. Overall, the disputed ground closely resembled the mouth of hell.

Apparently, no one remained to plan a breakout, and the majority of enemy escapes attempted were individual efforts using the ocean. Tanks with searchlights on the water's edge were effective. And, two Navy swift boats patrolled close-in looking for NVA who did make it beyond the surf.

Our troops stopped firing the next morning and a psyops team flew over the area telling the beaten enemy that they would be allowed to surrender if they put down their weapons and came out with their hands up. There was no response during the time allotted, and the final assault began at 0930. A few NVA did give themselves up at that time, but, incredibly, there was still scattered resistance within the enemy position. It was eliminated with no friendly casualties. The rest of the day was spent in a detailed search of the battle area. Then Troop B searched the area for two more days with the assistance of engineer bulldozers.

During the next few days it became apparent that we had all but annihilated the 814th Battalion. We killed or captured 277 NVA soldiers, including the Battalion CO, his staff, all the company commanders and the regimental S1. Only three Americans were killed in this operation.

3d Squadron, 5th Cavalry tanks and ACAVs form a perimeter.

In achieving these results, we received indirect fire support from Marine 105mm howitzers, 5 and 8-inch guns, and our own 4.2 inch mortars. We called in 26 tactical airstrikes of two sorties each and 24 missions of aerial rocket artillery of two gunships each. Countless rounds of tank main gun and all types of automatic weapons ammunition were fired. At the peak of the operation the squadron was controlling six organic or attached company-size units in the battle area and two more on essential missions elsewhere.

While our attached and supporting units contributed materially to the success of the operation, the key to that success was the squadron. Thus this battle is ideal for illustrating the flexibility and capabilities of armored cavalry. No other type unit has the ability to react as rapidly with the armor protected firepower to fix and destroy so large a force at such low cost, and the flexible communications to control the many and diverse combat and combat support elements engaged in the battle.

One battle-seasoned NVA sergeant who had evidently been part of the force which first fired on Troop C put it very well while being questioned at the brigade interrogation point. He was still in shock, and sitting cross-legged on the ground, fists clenched and eyes closed in frustration and defeat, as he said over and over, "I told them not to shoot at those tanks! I told them not to shoot at those tanks!"

On Wunder Beach after the battle.

The Battle of An Bao II

by Captain TIMOTHY J. GROGAN
Former Commander of Company B,
1st Battalion, 69th Armor

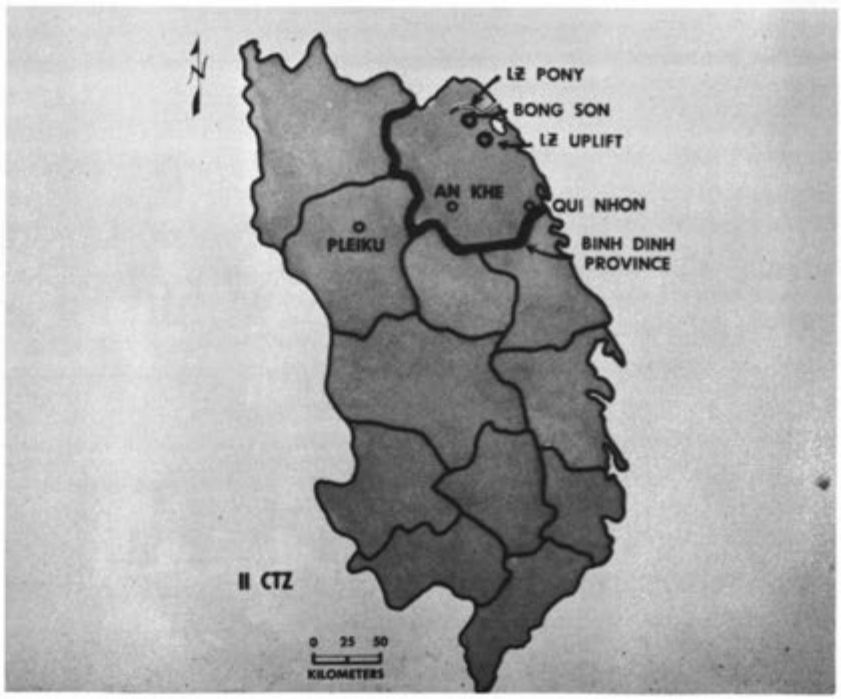
The battle of An Bao II illustrates the decisive employment of an armor unit in mounted combat against North Vietnamese Army forces in a jungle and rice paddy environment.

During April, 1968, the 1st Battalion, 69th Armor, then assigned to the 4th Infantry Division, moved from Pleiku in the central highlands to the area between An Khe on Highway 19 East and the coastal plain region from Qui Nhon North to the Bong Son River Plain. With the advent of the monsoon season in the Pleiku area, the battalion was placed under the operational control of the 173d Airborne Brigade on the east coast where the dry season prevailed. The 173d had recently gained control of the 1st Battalion, 50th Infantry (Mechanized) which was based at, and operating out of Landing Zone (LZ) Uplift. My company, B of the 69th Armor, was placed under the operational control of the mechanized infantry battalion to assist in reconnaissance in force and search and clear operations.

During the evening of 4 May, companies of the infantry battalion and my company were recalled to LZ Uplift to provide security against an expected enemy attack. Scattered contacts throughout the area were made during the night. However, no significant action developed. The resulting disposition of friendly forces during the late morning hours of 5 May was: Company A, 1st Battalion, 50th Infantry (minus one platoon) was operating in a remote area. Company A's detached platoon was conducting a mounted reconnaissance five kilometers north of the battalion base. Companies B and C of the infantry were doing maintenance and securing LZ Uplift, respectively. My company was also standing down in LZ Uplift after having sent the 3d Platoon to conduct a separate operation 26 road kilometers to the northwest at LZ Pony.

At approximately 1100 on 5 May, the infantry platoon operating just north of LZ Uplift was attacked by an overwhelming NVA force. The attack came with such ferocity and superiority in numbers (the enemy had better than a 10 to one advantage plus the element of surprise) that virtually all the armored personnel carriers were rendered inoperable and the platoon's infantrymen were either casualties or confused and scattering.

The battalion commander immediately sent Company C, the fastest reaction force he had available, to relieve the besieged platoon. Company C entered the contact site from the east side only to find itself surrounded and taking heavy casualties. In the meantime, the battalion commander has issued a frag order to me to move my tank company minus into the contact area. I departed LZ Uplift at 1205, some twenty minutes after the warning order was issued, and proceeded north on Highway 1 to locate the contact site. After turning west off Highway 1 and miring two tanks, which were left for recovery, the remainder of the column (nine tanks) moved along the only available route into the area of the raging battle. The main battle site was a trail running through the semi-aband-



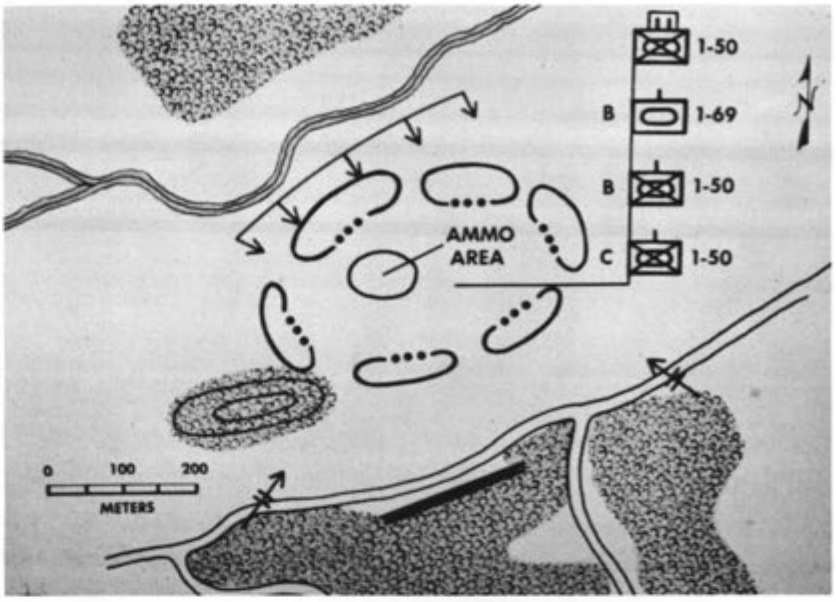
oned village of An Bao II.

No sooner did we enter the jungle village than we received sniper and automatic weapons fire. One tank commander was wounded but not incapacitated. The tanks immediately attacked through the enemy positions letting loose a high volume of canister rounds and machinegun fire. When the tanks broke out of the jungle area into a wide rice paddy area, it was immediately obvious that the infantry forces present were engaged in a large open area approximately 1000 meters long and 600 meters across. The NVA forces completely surrounded the outnumbered American forces and had the further advantage of fire superiority. American infantrymen had dismounted from their carriers and were fighting from what little cover and concealment the open rice paddies afforded. Several armored personnel carriers had been destroyed and the infantry forces immediately informed the relieving tankers that they were nearly out of ammunition. My tank company immediately formed a defensive perimeter around the infantrymen and proceeded to gain fire superiority over the enemy force.

This relief of the engaged forces constituted Phase I of a five-phase operation which was destined to continue for three days. The first phase had lasted approximately three hours while the tanks attempted to suppress enemy fire, retrieve casualties, and prepare to counterattack. The NVA forces in the area did not withdraw that afternoon.

Phase I was concluded faster than had been anticipated because medical evacuation helicopters could not fly into the contact site and the combined force continued to take casualties despite friendly fire superiority. Finally, the combined elements moved to the northeast for ammunition resupply and evacuation of casualties. Thus began Phase II which consisted of resupply and preparation for a late afternoon counterattack. While so occupied, the combined force was attacked twice by small groups of NVA. However, no significant contact developed. And this phase was completed with minimal difficulty. During Phase II, the infantry battalion commander reinforced the engaged forces by moving previously uncommitted Company B, 50th Mechanized Infantry, to the resupply site. He then designated me the ground task force commander and issued a frag order for a counterattack into the same area of the earlier contact. The battalion commander helped control the operation from the air and dealt with the ground forces through my command post.

The mission of the task force as planned was to counterattack at 1600 through the enemy forces to the main enemy position, to destroy the enemy force, and to retrieve any casualties remaining in the area of the earlier contacts. The jungle bordering the planned counterattack was dense enough to preclude mounted movement. However, time was critical, obviating a dismounted sweep to secure the flank. For these reasons the task force formed a modified wedge to shield dismounted troops and used intense reconnaissance-by-fire techniques. Armored personnel carriers armed with flamethrowers were protected in the center of the formation since I planned to employ them or either flank against targets of opportunity.



The attack, constituting Phase III, moved approximately 500 meters before the enemy brought heavy direct fire to bear on the formation. The task force, assisted by air force airstrikes, was able to gain fire superiority but could never completely silence the enemy weapons. After advancing another 800 meters along the planned attack route it became obvious, since the infantry was taking more casualties, that a large enemy force was still present on all sides. I decided—after conducting several attacks to the flanks from the main formation—that the task force had to establish a night location because darkness was approaching. It was my intent to move through the afternoon's resupply area to another place further to the east which afforded better fields of fire for a night forward operations base. We could then counterattack again in the morning. When two tanks became mired in the resupply area, I discovered that the rice paddies had been flooded during the counterattack and that the task force was committed to a less than ideal defensive position.

Phase IV, establishment and defense of the night forward operations base, began with consolidation of positions, assignment of night fire sectors, and first echelon maintenance. Late in the afternoon, the 3d Platoon of the tank company had been ordered to leave LZ Pony and report to me in the night position. The arrival of this platoon raised the total number of tanks in the defensive perimeter to 14.

At this time I estimated the force opposing us to be of regimental size and to have an unusual number of antitank weapons. Our own ammunition on hand had become critically short and resupply had been requested. By the time a tactical emergency was declared and aircraft could fly, the first CH47 unloaded the initial cargo net at 0030, 6 May. All ammunition was offloaded in the center of the perimeter while infantry and tank troops attempted immediately to break down ammunition cases and distribute large caliber rounds and explosives as quickly as possible. Because the force inside the defensive area now consisted of a complete tank company and two mechanized infantry companies, the amount of ammunition in the perimeter grew faster than it could be distributed.

By 0330 the Chinooks had departed. Our crews were getting their ammunition when the enemy triggered an attack from two heavy machinegun emplacements on the south and then maneuvered toward the perimeter from the north side with antitank rockets. Even though harassing and interdiction fires by supporting artillery and close-in harassing fires by M79 grenadiers had been almost continuous since darkness had fallen, the enemy had successfully maneuvered a battalion into position

for a night attack. Our previously registered defensive concentrations were fired in support of the perimeter forces while tanks and the infantry's dismounted caliber .50 machineguns alternated coverage of overlapping sectors to conserve ammunition. Within 30 seconds of the start of the night attack, the enemy fired a mortar round into the middle of the perimeter. This detonated part of the ammunition stockpile, wounding several soldiers. The exploding of uncrated ammunition continued for almost two hours.

The close-in fire of the tanks firing canister helped repulse the initial assault as the task force's interlocking machinegun fire helped gain decided fire superiority over the enemy. During the attack the battlefield was lighted by artillery and air-dropped flares as well as by the white and infrared light of the tank company's Xenon searchlights. Phase IV was concluded at daybreak when the enemy was forced to withdraw.

Phase V, a coordinated attack into the vicinity of the previous day's action, had to be postponed until resupply had been finished. During the lull in the battle, the infantry battalion commander reinforced the ground forces with Company A, 50th Mechanized Infantry, minus the platoon which had been all but decimated the day before. I was allocated eleven airstrike sorties in preparation for the ensuing attack. At 0800 the task force attacked as planned, finding no enemy resistance.

A two-day operation ensued in which the only enemy contact made was the taking of NVA defectors who sought out the maneuvering task force. These Chieu Hois indicated that the American force has been attacked by a North Vietnamese regiment whose mission was to destroy the armored personnel carriers of the 1st Battalion, 50th Infantry. In order to accomplish its mission, the regiment had been especially equipped with RPG2 and RPG7 rockets as its primary weapons. It was learned also that the regiment suffered heavy casualties throughout the first day and first night of the battle. Too, the NVA force was said to have been in position to ambush the second morning attack of the task force when airstrikes decimated the enemy force and caused the retreat of its remaining members. The total enemy killed in the two-day battle exceeded 300 while our combined arms task force lost 20 dead and 80 wounded. Two of those killed and approximately 10 wounded were tankers.

The mobility, firepower and shock action of the tanks were instrumental in breaking through the enemy force, relieving the surrounded infantry, and continuing a protracted engagement against a well-armed enemy in terrain unfavorable to us. The armor protection of the tanks and the flexibility of the organic communications systems permitted me to control several units on the ground while fighting from a tank. The teamwork and close cooperation of armored and mechanized infantry forces proved to be a devastating combination which generated overwhelming combat power in the face of what might seem insurmountable odds.

Operation Blackhawk

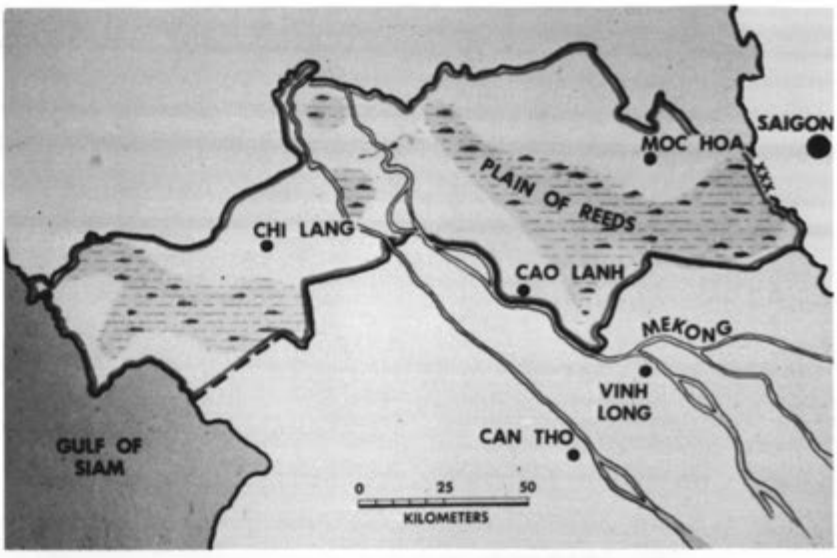
by Lieutenant Colonel ROBERT W. MILLS

Former Commander 7th Squadron, 1st Air Cavalry

Air cavalry operations began in the Mekong Delta in 1967. However, it was not until June 1968 that an air cavalry squadron was deployed to the IV Corps Tactical Zone for the specific purpose of conducting continuous air cavalry operations. The 7th Squadron, 1st Air Cavalry, one of the squadrons assembled and trained here at Fort Knox in 1967, moved from Di An in the III Corps area to Vinh Long in the heart of the Mekong Delta, and was placed under the operational control of the senior advisor, IV Corps Tactical Zone.

The squadron was assigned a number of the traditional cavalry missions but its primary mission was a special, independent, economy of force operation called BLACKHAWK. As assigned by the IV Corps, Operation BLACKHAWK was to include the surveillance, harassment and interdiction of enemy supply and infiltration routes throughout the 44th Special Tactical Zone. This zone includes the four northern Delta provinces along the Cambodian border and has over 300 kilometers of border.

The concept of Operation BLACKHAWK placed the squadron under the further operational control of the senior advisor of the 44th Special Zone. His headquarters was centrally located at Cao Lanh. The senior advisor placed an intelligence and operations staff element at each of two forward staging areas—at Moc Hoa in the east and Chi Long in the west. In turn, we subdivided the zone along the Mekong River and assigned the area to the east to C Troop; the area to the west to A Troop. At the same time we established liaison teams at Cao Lanh, Moc Hoa and Chi Long.



To gain maximum benefit from the operation, each troop habitually operated within its assigned half of the zone. In this way the pilots and scout observers became familiar with the terrain features and trails. This enabled them to detect readily any changes which might have occurred from day to day.

Troops to support the squadron were provided by the 44th Zone Commander. They were Vietnamese, both regulars and irregulars—predominantly camp strike forces, from camps at Kinh Quan II in the east, and Ba Xoai in the west. Command and control of the ground elements was at times both complex and challenging.

The first three months of the operation were conducted during the peak of the monsoon or wet season in the Delta. At this time most of the area of operations was under water and subject to frequent daily rainshowers. However, this did not materially alter the employment or role of the air cavalry.

The enemy in the Delta, being primarily true Viet Cong insurgents, as opposed to regular North Vietnamese Army forces, is generally organized into, and moves by, small groups, and seldom presents a single concentrated lucrative target. Thus the Air Cavalry operations centered around aggressive detailed reconnaissance, swift action and reaction, small tailored forces, and bold aggressive maneuver. Because of the vast area to be covered, targeting, based on intelligence information from all sources, was a key to success in the operation.

Our daytime operations included first light, last light and continuous daylight armed reconnaissance sweeps, with frequent ground insertions when necessary. Scout teams and fire teams were employed in pairs, with the scouts flying low for visual reconnaissance and for target detection, marking and reporting. The gunships flying cover over the scouts, immediately placed devastating fire on the targets identified by the scouts. When a ground sweep was indicated, the lift helicopters organic to the troop's aerorifle platoon were on standby at a nearby staging area ready for immediate commitment. In addition to the aerorifle platoon, a company of Vietnamese camp strike forces was available for initial ground insertions or as a quick reaction force.

Night operations included long range reconnaissance patrols, night ambushes, and Mohawk and Cobra hunter-killer teams. To interdict enemy movement at night, specific areas were electronically searched and scanned by the Mohawks, and flares were dropped wherever a lucrative target was found. A Cobra gun team, after identifying the target, then rolled in to destroy it.

Due to a lack of secure bases in the 44th Zone, artillery fire support coverage varied from limited to nonexistent. Then too, tactical airstrikes were not always immediately available. These limitations together with our limited airlift capability for reinforcing, the great demand for air cavalry support in other areas of the Delta, and the fact that most of the area was under water, placed some constraints on our use of troops on the ground.

With regard to new ordnance, our gunships fired the new 2.75-inch rocket warheads which included the 17-pound warhead with the point detonating fuze, the 10 and 17-pound warheads with the variable time fuze, and the flechette round. We found each of them to be highly effective in the flat open terrain in the Delta.

BLACKHAWK was a highly successful operation which has been continued. During the first three-month

period, from mid-June to mid-September, numerous arms and supply caches, and factory complexes, were uncovered or destroyed.

The operation netted, among other things:

- over 300 enemy killed and 94 captured by Air Cavalry;
- nearly 100 allied prisoners, including one American, liberated;
- over 2500 rifles and machine-guns;
- many tons of explosives, mines and grenades; and
- a number of mortars, recoilless rifles and 107mm multiple rocket launchers (which incidentally were the first to be found in the Delta.)

We also captured hundreds of thousands of rounds of ammunition and tons of machine shop equipment, medical supplies and food stores.

Captured documents have indicated that Operation BLACKHAWK has had a serious impact on Viet Cong supply and support as well as combat operations. In one document taken from a military region headquarters, here is what the Viet Cong reported:

"The U.S. Air Cavalry drops troops deep within our base sites and communications routes with the intention of detecting our camp positions and installations. Once having located them, they continue the attack and cause disorder and damage to our base areas. They cause casualties among our troops during movement and to our cadres who are operating separately. In the time frame of a few days, these raiding forces can attack many different areas. They are able to attack quickly and withdraw quickly. Their movement is very fast."

In the same document, they explained specific methods to combat the air cavalry and requested that anyone having ideas for disrupting the air cavalry tactics discuss them with the chief of staff of the regional headquarters.

In November, the ARVN IV Corps commanding general stated: "Operation BLACKHAWK severely curtailed the combat support capability of the Viet Cong, not only in the 44th Special Zone, but in all areas within the IV Corps Tactical Zone as well."

The employment of the Air Cavalry squadron in the IV Corps area has added a totally new and highly effective fighting force to the Allied effort in the Mekong Delta. The border reconnaissance operations conducted by the 7th Squadron, 1st Air Cavalry, accomplished three main objectives. They gave the IV Corps early warning of enemy activities, provided immediate offensive capability to find, fix and destroy the enemy in the 44th Zone, and not the least, served to inspire and encourage the South Vietnamese forces through the aggressive action of air cavalry.

The ACV In Vietnam

by Major DAVID G. MOORE

former Commander of the Air Cushion Vehicle Test Unit, 9th Infantry Division

In May 1968, the Army Air Cushion Vehicle Test Unit was deployed to South Vietnam to begin combat operations with the 9th Infantry Division. A new era in battlefield mobility was thus opened and a new fighting vehicle was added to Armor's mounted combat capability. Each ACV carries a seven-man crew and a variety of weapons. With the crew, weapons, ammunition, and 12 U. S. infantrymen on the side decks, the vehicles can attain speeds in excess of 70mph across water, swamp, mud, rice paddies, and dry ground.

The SK5 assault air cushion vehicle is 39 feet long, 23 feet wide and 16 feet high. Powered by a General Electric gas turbine engine rated at 1250 shaft horsepower, the vehicle is driven by a nine-foot Hamilton-Standard variable pitch propeller.

The air cushion is generated by a centrifugal fan. The actual air bubble is contained by the rubber-nylon fabric skirts under the vehicle. As the lift fan revolves and builds up air pressure the ACV begins to lift to the maximum height of the skirts which is about four feet. At that point air begins to escape from a series of holes in the bottom of the outer skirt bags. The one-to-six-inch air gap around the bottom of the skirts gives the frictionless surface on which the ACV moves.

Directional control is made possible by the movable twin tail rudders, puff ports on each side of the decks, and the skirt lift mechanism which artificially induces bank in the vehicle during high speed turns. At speeds up to 25 knots, the puff ports act essentially like spacecraft thrusters to provide lateral movement. At greater speeds, the tail rudders become the main control means. This combination of controls gives the vehicle a turning radius at 30 knots of about 50 meters on land and 100 meters on water.

The main armament on the ACV is supported by the two ring mounts in the cabin roof, each of which mounts a caliber .50 machinegun. In each rear cabin window there is mounted an M60 machinegun which

gives flank protection. Two of the ACVs have a 40mm high velocity grenade launcher system mounted on the left front deck. The third vehicle has a tripod in the bow for mounting a variety of weapons including a caliber .50 machinegun, a minigun, or a 20mm cannon. Each vehicle carries about 3500 pounds of ammunition on board.

These vehicles are crewed by enlisted men in the 11D armored cavalry MOS. Three of these crews, plus two vehicles, were formed under my command as a test unit in January 1968. Training began the following month and lasted through April. The third vehicle was obtained in late April. Then, on 4 May, we deployed to Vietnam where, attached to the 9th Infantry Division, operational evaluation was begun. This evaluation lasted until January of this year.

The purpose of the evaluation was twofold. First, to determine the operational suitability and maintainability of the air cushion vehicle in the Vietnam Delta environment. And, second, to determine the potential capabilities of the air cushion vehicle for future combat operations. Throughout the evaluation period, the test unit operated south of Saigon, primarily in the Plain of Reeds in the Mekong Delta Basin.

During the 12 months of operations in the Delta, the ACV proved its capability to negotiate virtually every terrain obstacle encountered in the operational area. The terrain crossed included:

- Waterways ranging from the South China Sea, with eight to 12 foot waves, to narrow twisting canals less than 100 feet wide.
- Cultivated areas comprising rice paddy dikes, some of which were five to six feet high; canals of all widths and depths; banana tree groves up to 100 meters deep; single trees growing up to five inches in diameter; and occasional clumps of nippa palm.
- In the Plain of Reeds the vehicles navigated dense elephant grass and brush up to eight feet high, extensive patches of 12 to 15-foot trees with three-inch trunks, river and canal banks up to 12 feet high, and extremely dry grass areas during the dry season.

Vehicle speeds attainable in the major waterways and the Plain of Reeds were well in excess of 70mph. Paddy areas with dikes up to three feet could be traveled at 50mph. But extremely dry, dense grass areas dragged the ACV down to about 30 mph. These speeds and obstacle crossing capabilities are based on a fully loaded vehicle with 12 American or 20 Vietnamese infantry troops on the side decks.

The missions and roles assigned to the ACV unit were traditional armored cavalry types modified to account for the vehicle's speed and the size of the unit. The majority of the missions were offensive. These were generally reconnaissance in force. Depending on the expected enemy situation the unit operated in several different ways. Independent operations using the crew as observers and dismounting the infantry to conduct detailed reconnaissance of suspected wooded areas and houses were common. Normally an observation helicopter would be made available to me to use for command and control and to extend the ground observation. If heavy contact was made, additional resources were available from the brigade being supported.

Some of the most successful operations resulted from teaming up an air cavalry troop and the ACV unit. It was found that vast areas of the Plain of Reeds could be covered thoroughly and rapidly in this way and that the task force could handle large enemy forces without additional support.

On some occasions the unit worked in conjunction with infantry battalions which were supported by assault helicopter companies during reconnaissance in force operations. The ACV unit worked the flanks of the air assaults, reinforced points of contact, relocated platoons once they were landed by the helicopters, and searched assigned areas.

On 14 October 1968, in an area approximately 40 kilometers south of Saigon, the ACV unit became involved in an action which typifies the versatility and capability of this highly mobile vehicle. We were conducting a reconnaissance in force operation within and along Go Cong Island. This region is characterized by terrain which varies from uninhabited tidal flat lands to sparsely populated fields and heavy tree lines to the South China Sea.

At one point the unit, supported by scout helicopters from Troop D, 3d Squadron, 5th Cavalry was moving to the north, reconnoitering the east end of the island. The island was bordered by a dense growth of various diameter trees and nippa palm. A scout helicopter, while making a low level recon, drew enemy automatic weapons fire from the tree line and immediately marked the target area for friendly fires. The ACV unit quickly deployed from the river and in the face of enemy small arms and automatic weapons fire, rapidly closed on the enemy. While gunships from the air cavalry troop delivered fire deeper into the island, the ACV unit easily broke its way through the island brush as it assaulted and overran the enemy positions. An infantry squad, carried aboard one of the air cushion vehicles, dismounted to make a more thorough search. The squad was accompanied by the air cushion vehicles as a sweep across the island was made. The unit was credited with 35 enemy killed and captured, and 400 pounds of weapons, packs, and documents were discovered. There was not one friendly casualty in this action.

In January 1969, certain conclusions based upon the air cushion vehicle operational evaluation were approved by USARV and the Department of the Army. In particular, the air cushion vehicle was found to have exceptional speed and mobility over most types of terrain. It was also found to possess excellent air transportability characteristics which extended its range of operations. The capability of the ACV to react quickly to enemy intelligence, on land as well as water, has added another dimension to the execution of the traditional roles of armored cavalry.

The Department of the Army has recognized the need for additional ACVs in the Vietnam environment. In late March, funds for additional vehicles, with programmed deployment in early 1970, were authorized. USARV has prepared a TDA for an air cushion vehicle troop composed of 110 people and nine SK5 assault air cushion vehicles.

The proposed ACV troop can be expected to accomplish armor and armored cavalry missions in vast areas of Vietnam that have been traditional enemy sanctuaries and to do so with unsurpassed fire power, mobility and shock effect.

Blackhorse Operations

by Colonel GEORGE S. PATTON

former Commander of the 11th Armored Cavalry Regiment

The wide variety of mounted combat operations we have heard of from the preceding speakers are also being conducted in the III Corps Tactical Zone (CTZ). For it is here that we find the bulk of our mounted units in Vietnam and it is also here that we find the 11th Armored Cavalry Regiment.

I assumed command of the 11th Cavalry on 15 July 1968, taking over from Colonel Dick Gorder, who, incidentally is with us here today. I turned the regiment over on 6 April 1969 to Colonel Jimmy Leach who had been the senior advisor to the 5th ARVN Division.

During my period of command we operated with various combinations of forces throughout the III CTZ. Our area of operations was particularly significant because it included many of the approaches and staging areas for the Viet Cong attacks on the capital city of Saigon, major headquarters areas and logistical complexes. Our missions were typical for an armored cavalry regiment.

To accomplish these missions, our normal task organization consisted of two armored cavalry squadrons, one or two infantry battalions (one usually Vietnamese) and an air cavalry troop. The third squadron was generally used all or in part to secure our base camp near Xuan Loc and to conduct certain limited operations with ARVN and Australian units in that area.

For operations in the Bien Hoa AO we were continually under the opcon of the Commanding General, 1st Infantry Division, who supported us with the infantry elements required. For Blackhorse base camp operations, I reported directly to General Kerwin, CG, II FFV. During the nine month period I spoke of, we never had less than two nor more than six battalion size units under our operational control.

I thought long and hard about what I should cover today in the limited time available for this presentation. I could discuss combat examples of which there are many, both good and bad. I could discuss certain personalities like Lieutenant Colonel John McEnery, 3d Squadron, or Lee Duke, CO, 2d Squadron, or Major John Bahnsen and his air cav troop or Lieutenant Jim Steele. All delivered remarkable performances. I could expound on our organization, its capabilities and limitations, or, as a final example, I could give a play-by-play description of our operations in the Michelin during mid-March 1969 where the Sheridan really proved its worth. That operation alone netted 335 NVA killed in action in about 48 hours.

I have elected to touch on none of these but rather will let you fire away on those or other specific areas of interest during the panel discussion, as you like. Instead, I will strive to give you a capsule of theory on our operations and how we went about them.

The entire thrust of our operations was based on a "guidance paragraph" which I developed as a straw man and which, as time went by, proved to be of more worth than I had ever hoped. I intend to talk briefly about each of the key words in this paragraph in order to build the picture of just how we functioned in this strangest of wars. Because of the way the paragraph is composed, however, I must take them out of order.

First, **Professionalism and Soldier Skills.**

I'll not dwell on this long except to emphasize it. This audience knows what I'm talking about. The weapons must shoot, the radios must work, and the resupply system must function flawlessly. Troops must be expert in the subject areas often referred to as the unglamorous side of soldiering.

In this respect, any unit in Vietnam must be administratively ready and able before it can do anything. A mortar is no good without a sight. An infantryman is not effective without chow. A medic is useless without a stethoscope. A Cobra is worthless without a very efficient and responsive re-armament capability. These things must be habitually checked by the chain of command since the turnover of personnel is so great that, if periodic follow-up is not made, the unit will fail in battle. In this regard we must continue to bear down on the basic skills of soldiering and the all important everyday responsibilities of the chain of command. Only after this is done can we expect to fight successfully and reflect a favorable kill ratio, which I believe should not fall below 10 to 1.

My next subject is **good intelligence.** I emphasize the word "good" as opposed to "perfect" and will enlarge on that in a moment. It is my view that the entire war is a true reconnaissance, followed by a movement to contact, and, hopefully, contact itself.

The Army in Vietnam today is postured with such devastating power that it cannot fail to destroy the enemy once he has been located. The problem is simply location. From this we develop a far-reaching and continuous requirement for intelligence. To quote General Abrams, "I can do anything with intelligence."

Now here we throw in the word "good." Since normally we are faced with a fleeting target of opportunity, we cannot wait for the "perfect." Intelligence, which literally dictates

operations, is based on logic, a feel for the enemy and the ground he lives on. Together with a degree of instinct, or what Liddell Hart calls "battle sense," intelligence was the key to our contacts. This intelligence was developed, on an almost daily basis, mainly by elements of the air cavalry troop. And, to narrow it even further, the aeroscout platoon of that troop.

I must emphasize here that this troop is the true cavalry; the genuine reconnaissance element in the theater; and its worth to the ground commander from battalion level to COMUSMACV cannot be overstated. Over 70 percent of our major contacts were generated by this magnificent combat unit!

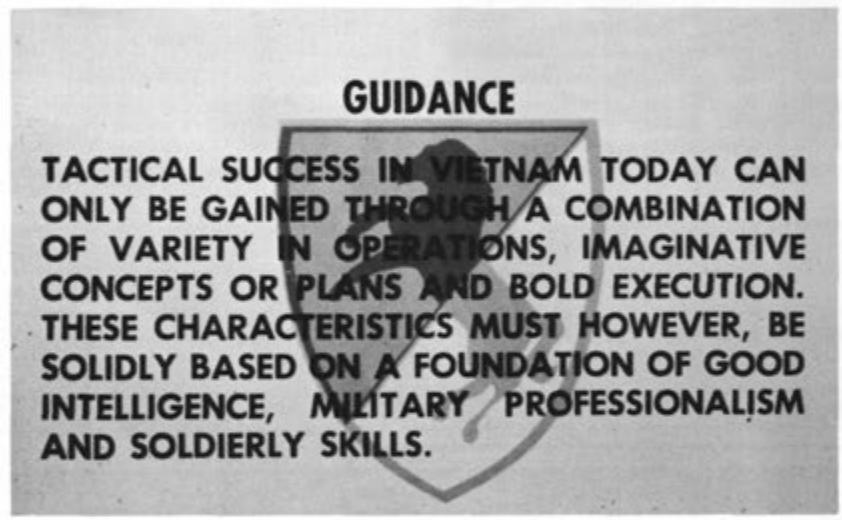
Immediate exploitation of prisoners of war is another vital point. By immediate I mean within 30 minutes of capture.

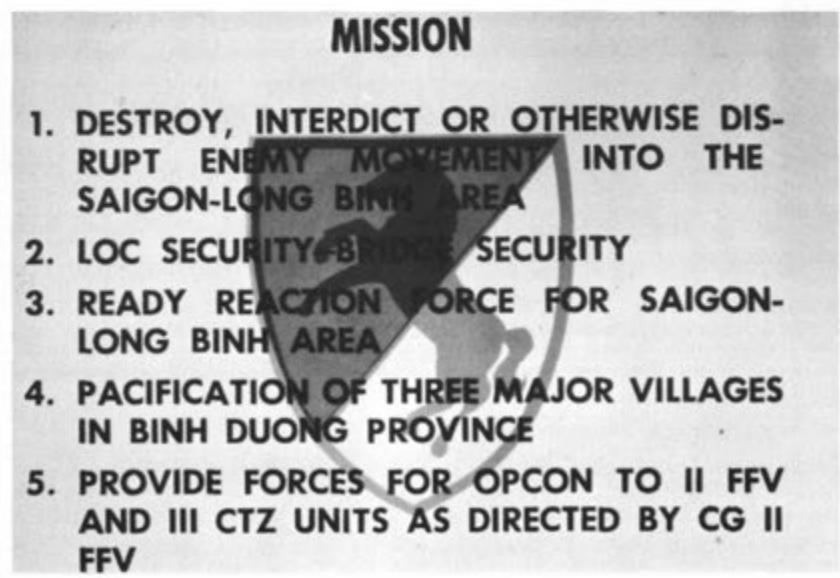
Now the point I make here is that when your instinct tells you that you are in possession of a piece of good intelligence, you must act now by literally throwing forces together from all directions in order to first encircle or fix, then compress, and finally, destroy the enemy. This technique we call "pile on." One cannot wait or study or consider. One must act. In this regard, one must be prepared to either reinforce further or eat crow and go back to the barn because you have a dry hole and your intelligence was not as good as you estimated.

Tactically then, this theory translates into the requirement always to have something in the kitty with which to exploit intelligence now. The best rule I know is to remember that "any unit not in contact is in reserve." We strove to live by this rule. Finally, everyone is an S2, and to those of you who are moving into this war, I say, if you are assigned an S2 job, do not take that assignment lightly.

Variety: this implies variety in everything we do. Let me explain. Our enemy, as you know, is a creature of habit. He uses the same tricks, same routes and boundaries—the same techniques day in and out. He normally lives on the political or military boundary. However, we Americans are also creatures of habit. This is especially true when we have been successful with, let's say, Plan "A" on Monday, we pat ourselves on the back and use Plan "A" the rest of the week. Further, the very nature of this war forces us into a rut because we often go for days without contact. Thus, lethargy is our constant companion, and we have to fight both ourselves and Charlie. Variety in operations—variety in all things—in Vietnam is, in my view, another key to tactical success.

Now let us move to a less tangible characteristic—that of **imagination.**





This relates back again to the stabilized character of this war. Our minds must work all the time far out, way out in order to produce imaginative concepts which will in turn develop the variety that is so desperately important. By way of illustration, I mention:

- The perhaps forgotten art of cover and deception by the positioning of marked maps and fake radio transmissions.
- New ways to employ armor at night—night movement, dummy ambushes, the bait concept, the night airmobile raid or insertion, the false insertion.
- The correct integration of all the assets America has given us to prosecute this war—scout dogs, people sniffers, tanks,
- Aircraft, cultural drama teams, civil affairs activities,
- Sound trucks, psyops,
- The local village priest, tear gas,
- The B52 bomber and so on . . .

All of these, I judge, are like the tools in the carpenter's box. When used with genuine imagination, and in the right proportion and amount, they will pay off in remarkable results. To do this properly, one must know their characteristics, their limitations, and how to obtain them quickly; and, have the imagination to incorporate them into his plan and the guts to execute the plan.

In my discussion of imagination I used the word guts. **Boldness** is the key. We learned that in fighting this enemy—who is also not lacking in boldness—one should take the bold, the audacious approach. This is not new, from the day that Cortez burned his boats, through Chancellorsville where Lee split his force (and got away with it) to General MacArthur's Inchon landing, bold operations have usually paid off. Armor soldiers are trained to be bold and aggressive, to take calculated risks. This is our way and that, in my view, is our heritage. 11th Cavalry commanders at all levels led from the front and by example. I can say for the record that each time elements of the 11th Cavalry selected the bold course of action, the results were gratifying. When we were overcautious, we often either got embarrassed and took unnecessary losses or got nothing.

I should not dwell on this further with this distinguished audience, since to speak of boldness here would be like carrying coals to Newcastle.

In sum, there you have it.

Variety, Imagination, and **Boldness** are three legs of the table. The fourth leg is really a combination of **soldierly skills, professionalism** and **good intelligence.**

These words formed the soul of the 11th Cavalry operations. The sinew, the meat and bone, were the three squadrons, one of which was equipped with Sheridans, the opcon infantry battalions, and the all-important reconnaissance and intelligence gaining element, the air cavalry troop. Backing these up in terms of firepower were the TAC fighters, B52 bombers and artillery. Of course, the logistical elements also played a vital part and were never found wanting.

Moreover, I must mention the troops themselves—magnificent, courageous, loyal to their unit and reliable under pressure. One of the great unanswered questions of this war is why are these things so when we are confronted daily with the many controversies and unpopularities demonstrated by their long-haired, physically dirty and generally immoral brothers and sisters of the hippie element.

Finally, I was honored to associate my name with those troops—they who supported their country's goals and ideals in Vietnam to the limit of their ability. Eighty-eight died in battle while I was with them. On the other side of the ledger the regiment and its opcon units killed more than 1400 VC and NVA soldiers.

I hope that these few remarks on our concept of operations will be helpful in stimulating questions for the panel discussion to follow. Thank you.

Discussion

BG COBB: Gentlemen, we are now ready for your questions and discussion.

FROM THE FLOOR: How effective was the Navy gun support?

MAJ GARRETSON: We found that it was exceptionally effective, primarily for two reasons: First, we had a Naval gun spotter in the beach complex when the enemy firing started, and we got him in the air immediately; Secondly, the village of Binh An was right on the coast. The supporting ships were close enough so that, with binoculars, the gun crews could see the NVA soldiers running around on the beach. There was no range problem. The Navy was firing at a distance of about three kilometers and fire was accurate. The spotter was good. Overall we had exceptional and very flexible fire support.

FROM THE FLOOR: Mention was made of air cushion vehicles going 50 miles an hour across rice paddies with a three-foot dike. What happens when an ACV hits a three-foot dike?

MAJ MOORE: It just goes over it. The air cushion is four feet high. Most of the rice paddy dikes have a slope. The ACV mushes into the slope, slides over it and bounces on the other side. Unlike a track vehicle which would have to come up to the dike at a slow speed and claw itself over it, the ACV has to hit an obstacle with speed. Lack of momentum at too slow a speed would cause an ACV hang up. So in contrast to a track vehicle, the faster an ACV goes within reason, the bigger the obstacle it will climb.

FROM THE FLOOR: What is the effectiveness of the Sheridan compared to the M60, and which do you prefer?

COL PATTON: Not having had experience with the M60 in my entire military career, it would be hard for me to answer on the M60. However, we found the Sheridan to be quite effective in Vietnam. We had 27. As far as "bugs," I consider that the Sheridan has only the normal number of bugs in it that any new vehicle in the Army inventory has had in the past. The HEAT round is particularly good for bunker busting, the flechette round is good in open terrain or in light rubber and even against dug-in troops. I really believe the Sheridan vehicle

improves the mobility and the combat capability of the reconnaissance platoons in the letter troops. It gives us more gunpower, improves night fighting capability, and is able to keep up with the ACAVs more effectively than the medium tank. Nevertheless don't let it be said that I would eliminate the medium tank company from the armored cavalry squadron; I would be against that.

FROM THE FLOOR: Last year we discussed the fact that in many of the actions in Vietnam, we thought we had the enemy surrounded and then they squirted out between the cracks. From Major Garretson's account we are doing a better job over there on this than was true last year. What are we doing that's better?

MAJ GARRETSON: It's hard to answer that question without a detailed analysis. Success in the battle of Binh An was due primarily to the fields of fire that we had. These allowed us to see the leaks in the cordon. Also significant was the fact that the 1st Air Cavalry Division pumped us up when it became apparent that we had a big contact going. We had enough infantrymen interspersed among the tracks that they were practically shoulder to shoulder around the cordon. There just wasn't any place for the NVA to go. Binh An was one of those places where we could form an effective cordon. There were no waterways, which are a favorite escape route. There were no thickly jungled escape routes which were hard to cordon. All of these factors contributed to our success.

CPT GROGAN: The operation that I spoke of this morning is not relevant to the question. But there is another operation I can touch on which is. That was a joint operation with the Korean Division which we worked with. It was a division-size cordon operation. Some of the other operations I had been on were not successful in cordoning off the enemy, primarily due to incomplete planning and to reacting too fast to the enemy without having proper intelligence. In this operation, the Koreans knew where the enemy was as a result of a large build-up from the Tet Offensive. Instead of rushing in and cordoning the enemy with insufficient forces, the Korean commander spoke to General Peers. Then Field Force made available sufficient assets to establish a tight cordon. U. S. tank companies and mechanized infantry companies were brought in. Then they went in only after a lot of planning and training. Actually, we were down there a week prior to the combat operation. The cordon went in one morning with sufficient troops to ensure that the enemy could not get away. In addition, Navy forces secured the ocean and bay exit routes which the NVA could have used. After the cordon was closed, all the enemy inside were killed or captured. I feel that the secret was thorough and complete planning based on good intelligence.

COL PATTON: The enemy is tough to hold in position. If he's stupid enough to engage you in a village, you seal the village. Or you seal a rice paddy area. Or in a case like the Wunder Beach action when you've got a barrier on one side, you make good use of that. Keeping the enemy from escaping is like hunting quail with a good bird dog. We used the scoutships in a tight circle at 30 feet. And gunships were employed at 500 feet on an outer circle. We held the enemy in with CS, rockets, or anything else we could find until we could reinforce on the ground with armor and infantry. In the dry season we hit upon a pretty good tactic where we would cut a swathe around the suspected base camp location or position using a platoon of medium tanks guided by an LOH. In the night when it gets dark, you're bound to lose some of them. I just don't know of any commander who won't lose some of those Charlie in there. The best way to keep them in is to use a combination of spooky and moonglow and some harassing and interdiction fires on the routes of egress from the target area.

FROM THE FLOOR: How effective was the M176 grenade launcher mounted on the Sheridan turret? Would you recommend that for other armored vehicles?

COL PATTON: During my two months with the Sheridan we did not use the grenade launcher in operations. That device must be hardened up because it simply will not stand up when moving through the brush. I personally believe it has a real good potential. I'd like to see a CS capability—some sort of a CS grenade.

GEN JABLONSKY: What is the effectiveness of the 2.75 rocket with the flechette warhead? Secondly, reference air cushion vehicles—what is the maintenance time per hour of operation? At one time we were told that an ACV could not climb a slope of 10 degrees and that the maintenance area or exit area from the water had to be covered with a hard surfacing material or pierced steel planking. Would you please address these things?

LTC MILLS: Concerning the flechette rockets—we found these to be highly effective. However we had only a few rounds to start with on more or less of a test basis. Many of our targets were troops in the open and the Delta is wide open and flat. We had good area coverage with the flechette rocket. I have seen the results myself and they are quite impressive.

MAJ MOORE: The ACVs which I had were American built. They were built from the ground up for military combat use. As a result, they were much stronger and had higher horsepower than the commercial models. They were able to survive blows against those large trees I mentioned earlier. To do such things with a commercial vehicle would be to destroy it. They just are not strong enough. We experienced about 1.4 hours maintenance to one hour of operation. This is extremely good for any vehicle, particularly when you consider that our ACVs are prototype vehicles, newly

introduced to the Vietnam environment. With respect to the problem of slope, I don't think we've really explored this. To be specific I did not find any slope we could not stop or start on in the Delta Area. But, on the other hand, there aren't many slopes in the Delta to begin with. As for a 10-degree slope limitation, at least with our ACVs, that was a complete underestimation. The ramp we used exceeded 20 degrees. We stopped and started on that without problems. As far as the surfacing on the ramps is concerned, there is no requirement that they be hard surfaced. However, if ACVs are going to run up and down sandy beaches, they're going to pay the price in engine erosion. There is no question about it, with a gas turbine engine, unless special filters are developed for the engine, there will be a problem. This is akin to the problems being experienced by the heavy lift helicopters from hovering in dusty areas.

FROM THE FLOOR: What is the vulnerability of the ACVs to enemy fire?

MAJ MOORE: To begin with, the construction of the vehicle consists essentially of rubber-nylon fabric and a material called bondalite which is a sandwich of aluminum with about ⅜ of an inch of balsa wood in between. Supporting this are 1½ to 2-inch aluminum pipes that comprise the skirt frame. The skirts are filled with air. The ACV is propelled by the gas turbine engine and there are two gear boxes. Really the only vulnerable parts of the vehicle are the engine and the gearbox. These vital components are protected against .50 caliber weapons with ceramic armor plate. If the rest of the vehicle is shot full of holes it really has no effect other than on appearance. On one occasion we had 38 holes shot in two of our ACVs. The majority were .50 caliber holes. When I left, almost 10 months after that action, we were still finding some of the bullet holes that we hadn't found before. They had no effect whatsoever on the vehicles. As far as skirt damage is concerned, on several occasions we tore some pretty big holes in the canvas skirts. One time we caught a stump and ripped a 12 foot long section out of the left rear of the skirt. We were then some 40 miles from our home base. We drove the vehicle back, admittedly not at 60 knots, nor fighting our way back. But, we were able to get the vehicle home. On several other occasions we put lateral rips into the skirts. Our field expedient solution was to stop, get a piece of quarter-inch rope, lace up the hole and continue on through the rest of the operation. When we got some place where we could stop it was a simple matter of rivetting a patch over the hole. Not very pretty but it was effective. Survivability was one of the things that impressed me most about the ACV.

GEN ALGER: Obviously our arm is playing a vital role in Vietnam. Are we developing a similar capability in the ARVN armor forces? Do they show the same spirit that our Armor units are demonstrating in Vietnam today?

COL PATTON: First of all, the ARVN Armor elements need more logistical support capability in the form of helicopters and cross-country ground resupply vehicles. Action is being taken to alleviate this situation. Insofar as spirit is concerned—morale and espirit de corps—I would say that ARVN armor units are right alongside their rangers, and in some cases ahead of them, in these important characteristics. The ARVN Armor units are well advised. I was particularly impressed with their advisors.

BG COBB: Our time is about up. This concludes the seminar on Mounted Combat Operations in Vietnam. On behalf of our panelists I want to thank all of you for your interest.

GEN WATERS: I know that I speak for all in expressing our thanks to General Cobb and the panel members for a most interesting and informative professional presentation.

TAKE TEN!

The Business Meeting

Introductory Remarks

by General JOHN K. WATERS

22d President, The United States Armor Association

FELLOW MEMBERS OF THE UNITED STATES ARMOR ASSOCIATION:

This past year has been one of progress for Armor and for our Association.

Since General Polk, General Sutherland, and General Cobb and his seminar team have covered Armor well, I shall confine my remarks generally to our Association—which I have been honored to have served as President for the past two years.

In that connection, I regret that it is impossible for me to consider serving a third term. But I know that the new President you will choose this morning will lead our Association to greater things. My interest will in no way diminish and I shall continue to stand ready to help in any way that I may.

Although our Association (the major activity of which is publishing ARMOR Magazine) is a non-profit organization, obviously we must have receipts exceed expenditures. I am happy to report to you that in 1968, the dire predictions of our Secretary-Treasurer to the contrary, our audited income statement shows a gain of nearly $3000.00. This was brought about through frugal management and good fortune with book sales. And, this favorable balance was achieved without sacrificing the physical quality of our journal.

Following last year's meeting, a committee consisting of Colonel Starry as Chairman and Colonel Farley and Master Sergeant Robertson as members, studied our finances and management thoroughly. Their detailed and superb report showed clearly that the future of our association demanded that the dues set in 1950 be increased to meet 1969 prices. As you know, the Executive Council approved the new dues of $6.50 per year to become effective on 1 January 1969. It now appears that with prudent management, increased support, and some luck we will have the financial means to continue to have a first-class operation responsive to your desires.

A matter of some urgency is to improve the efficiency of the ARMOR Magazine circulation system through the acquisition of modern machinery or through hiring computer services. This matter is being actively studied with a view to making a suitable change as soon as expanded circulation will support the necessary expenditures.

With respect to the circulation of ARMOR Magazine, it is good to know that paid circulation is now nearly 9000. This is an all-time high.

Thanks to the efforts of General Weyhenmeyer, Army National Guard memberships have increased greatly with many units, including his 50th Armored Division, being at or close to 100 percent membership by their officers and senior NCO's.

Increased membership at Fort Knox is indeed commendable. In particular, the Armor School and the 194th Armored Brigade commanded by Colonel Freeland deserve recognition. At Fort Knox today there are over 600 members. And 150 units and libraries are subscribers. The 3d Armored Cavalry Regiment, under Colonel Hack, has increased membership manyfold and appears to be moving close to total participation. Activity at Fort Rucker, sponsored by Colonel Pumphrey, is producing gratifying results.

There has been great progress toward achieving our goal of having every Active Army Armor unit a subscriber.

Now leaving the bright spots. I want to elicit your help in an area of great concern to me. There are over 10,000 Active Army Armor officers and probably a similar number of senior NCOs. Of these, only some 2600 officers are Armor Association members. Slightly more than 160 senior NCOs are members. There is actually an Armor battalion in which only one officer is a member and he is not the commander.

Thus, it is readily apparent that more can and should be done by each of us. It is not inconcievable that we could quite easily double our membership by next year's meeting. But only if every member really does something positive about this.

The spirit of the Cavalry and Armor is very much alive today. Our Association and our journal are excellent ways to further enhance this espirit de corps and to spread professional knowledge. To realize more of their potential is a challenge to each of us. This is no time to rest on our laurels.

[The Secretary-Treasurer reported that the Constitution requires that 5 percent of the active membership present in person or by proxy shall constitute a quorum for the transaction of business; that the active membership on 7 May was 4994; that 330 active members were present in person and 894 by valid proxy; and, that there was a quorum. It was then unanimously voted to dispense with the reading of the minutes of the last meeting.]

Report Of The Secretary-Treasurer

GENERAL WATERS, FELLOW MEMBERS OF THE UNITED STATES ARMOR ASSOCIATION:

Tradition requires that your Secretary-Treasurer and Editor report to you on the state of the finances of your Association and on the circulation of your professional journal. And, I am happy to do so.

First off, it seems important to emphasize that the five of us assigned to the ARMOR Magazine staff are real flesh and blood humans and Armor humans at that. We are not in any sense "those guys in Washington" but are your ARMOR staff. We work for you and pretty hard at that. When we appear to drop the ball, please help us to retrieve it by writing us a note. If things keep going to a wrong address, or you don't receive your magazine, or if you don't like the magazine you do get—let us know.

Incidentally, we get 50-100 address changes a week. But many never reach us. When, and only when, you get a card from us with your new address on it, you will know that we have received and posted your new address.

If we can help you in any way, let us know.

In short, let's all work together to make our Association and professional magazine stronger, more useful and generally better.

At annual meeting time in 1967 there were 3817 active, associate, honorary and junior members. In 1968, there were 3819. This year there are 5779 as of 7 May. This represents a gain of nearly 2000 over the past year.

To determine the total paid circulation of ARMOR Magazine, the subscribers must be added to the members. At annual meeting time in 1967, total paid circulation was 6209 and, in 1968, 6457. Again as of 7 May 1969, paid circulation was 8855 for a net gain of some 2400 in the last year.

To operate with some degree of absence of editorial ulcers, we should have a paid circulation of at least 10,000. And I don't think that I exaggerate when I say that those of you here alone could round up the 1000-odd members and subscribers needed to achieve that minimum goal—and within 30 days at that. That's only about five new members or subscribers each.

A cavalry regimental command sergeant major wrote recently that he had determined, by a survey of his NCOs, from platoon sergeant/sergeant first class and up, that many senior NCOs had never heard of the Armor Association. Some thought it was for officers only. Some thought it was only for tankers and not for armored cavalrymen. Many had never received any explanation of the Association and ARMOR Magazine nor had they been invited to join. And we get similar "gloomy news" letters from junior officers. Those of us on the staff will do all we can to inform the uninformed. But our members worldwide can turn the trick very easily if they will undertake to help.

We are now preparing some new and, we hope, more attractive promotion materials. And, in this too, we need your help. Send us your ideas on how we can communicate better with potential members and subscribers.

As General Waters mentioned, your Association did not lose money in 1968; and it does not appear to be doing so this year. Until the dues raise on 1 January ARMOR Magazine was operating in the red ($3700 for 1968.) But income from the book department (about $4500, of which $1100 was profit on reprints and Xmas cards) and investments (about $1200) overcame the magazine loss and awards program expenses. Overall, there was a $2985.21 profit. This was a refreshing contrast to 1967 in which we lost $1066.21. [The audited balance sheet and income statement are elsewhere in this issue.] Any member is welcome to examine our books at any time.

Our investments, which are supervised by a committee headed by BG Holbrook, are doing nicely. Their total cost was $30,771.17 and the 6 May market value was $39,742.00. Over the two-year period in which this program has been in effect, certain investments in the Association portfolio have appreciated $10,439.71 while others have depreciated only $1468.88 for a net gain of $8970.83. This is very fine performance in today's market. It should be noted that more than $33,000 of the nearly $40,000 in investments is unearned dues and subscription income. This is a liability or reserve which can not be spent. However, in addition to our checking account, we have $7000 cash in Treasury Bills and $2000 in savings. We need this for circulation equipment replacement.

On balance, your Secretary-Treasurer and Editor is happy to be able to report that your Association is a going concern experiencing moderate growth. Today, your Association is in a position where it can go foward to improvement and enhancing professional pride. This the Association can do in direct proportion to what you do to make it stronger. However, if you neglect proper attention to its well being it could lose ground rapidly. There is no standing still. Let us all move forward with spirit to a truly great 85th Anniversary in 1970!

[The foregoing report was accepted with thanks. General Waters then asked Lieutenant General Alger to assume the chair.]

Remarks

by Lieutenant General
JAMES D. ALGER, Chairman of the
Nominating Committee

GENERAL WATERS, GENTLEMEN:

The Constitution of our Association prescribes that the officers shall be a President and three Vice Presidents to be elected by the membership at the annual meeting and a Secretary-Treasurer and an Editor to be appointed by the Executive Council. The Constitution further provides that these officers together with 14 elected members shall constitute the Executive Council of the Association.

For President your Committee recommends Lieutenant General W. H. S. Wright, US Army—Retired.

Following enlisted service in the New Jersey Army National Guard, General Wright attended the United States Military Academy and was commissioned in the Cavalry upon graduation in 1930. During his 35 years of distinguished active service with Cavalry and Armor, he was aide to Secretary of War Henry L. Stimson during World War II prior to going overseas to Europe where he participated in the Normandy landing and all subsequent campaigns. After World War II, he was Director of Instruction of the Ground General School at Fort Riley. When the Korean War broke out, General Wright, then a colonel, was Chief of the Korean Military Advisory Group (KMAG). Following graduation from the Industrial College of the Armed Forces, he served with the Joint Chiefs of Staff and then for two years as a Combat Command Commander and as Chief of Staff of the 1st Armored Division. There followed a series of key assignments in Europe and Washington with the Military Assistance Program which led to his appointment as Deputy Director of Military Assistance in the Department of Defense. General Wright then commanded the 2d Armored Division from 1961 to 1963. His final assignment was as Chief, Office of Reserve Components on the Army Staff from which he retired in 1965.

General Wright would bring to the office of President of our Association considerable executive experience, much needed at this time of expansion and revitalization which was well begun by our distinguished retiring President, General John K. Waters. General Wright has for some years been a Director of the Army Mutual Aid Association and is now a Vice President thereof. He is a Past President of the District of Columbia West Point Society. Closer to home, he served on the Armor Association Executive Council for eight years from 1958 to 1965. As an Honorary Vice President since 1966, he has followed Association affairs closely and has attended Annual and Executive Council meetings faithfully. He was Chairman of the 1966 Nominating Committee which proposed the Constitution changes, designed to insure broad representation on our governing body, which were adopted overwhelmingly by the membership at last year's Annual Meeting.

For First, Second and Third Vice Presidents respectively, your committee recommends the re-election of General Bruce Palmer, Jr., Vice Chief of Staff of the Army; Major General James W. Sutherland, Jr., Commanding General of the Armor Center; and, Major General James H. Weyhenmeyer, Commanding General of the 50th Armored Division comprising Army National Guard units in New Jersey, New York, and Vermont. Each of these has supported the Association strongly and will continue to do so. General Sutherland has done a fine job of bringing the professional benefits of membership to the attention of the many Armor leaders assigned to, or attending courses, here at Fort Knox. To General Weyhenmeyer must go the credit for increasing our Army National Guard membership by several hundred percent—and it is still expanding. And, General Palmer has been most helpful with a number of important matters.

In selecting the nominees for the 14 other Executive Council positions, the Committee took into account certain guidelines. The Constitution provides that these members include one general, 7 field officers, 4 company officers and 2 noncommissioned officers at the time of election. The By-Laws note that it is desirable that a number of the members reside in the vicinity of the Association headquarters. This, of course, is to facilitate obtaining a quorum to conduct business.

We sought to have representatives from the various focal points of Armor activity who could attend meetings and participate actively. As a result, our slate includes the Assistant Commandant of the Armor School, the Chief of Armor Branch, two Amry National Guard officers, two Army aviators and those who have fought in every American campaign and theater from North Africa to Vietnam, and who have had experience with tanks, air cavalry, armored cavalry, airmobile and mechanized infantry units, and others as well. There are representatives from the Pentagon, Fort Knox, Fort Hood, Fort Rucker, West Point, three armored divisions, two cavalry regiments and the Army War College. In addition to the three Vice Presidents, five of those nominated were members of last year's Council and will give needed continuity.

It is both an honor and a pleasure to commend the slate to you. [See inside front cover for the slate which was unanimously elected. The Editor]

Our Constitution also provides that an Honorary President and Honorary Vice Presidents may be elected by the membership at the annual meeting from among former officers and other distinguished members of the Association. These honorary officers are elected for life.

Lieutenant General W. D. Crittenberger was elected Honorary President last year. There are now 36 Honorary Vice Presidents. Included in this distinguished group are all the living Past Presidents of the Association except one who has declined nomination with thanks. As I need not remind those here, our most recent Past President, General Waters, has served the Association with great distinction for the past three years. It is a further honor and pleasure to propose that you consider his election to be an Honorary Vice President at this time. [General Waters was so elected unanimously by acclamation.]

[Lieutenant General W. H. S. Wright assumed the chair as 23d President of The United States Armor Association, accepted the presidency with thanks and acknowledged the great progress made by the Association under the leadership of General Waters. There being no further business, the meeting was adjourned.]

The Banquet Address Introduction

by Lieutenant General W. H. S. WRIGHT

As the very first order of business and as your new president, I cannot let a chance pass to remark upon the extraordinarily good show at Dorrets Run this afternoon. It was remarkable not in spite of the weather, but rather because of it. It showed that highly versatile air elements can operate in what the briefing officer, with some understatement, described as "rather humid weather." I was especially impressed by the Redeye missile and the remarkable accuracy it showed with relatively untrained crews. As a matter of fact, I was sitting next to one very senior army aviator and he was seen to blanch visibly each time the Redeye scored a hit.

General Sutherland asked me to ask the assembly how many officers and noncommissioned here had ever seen a Redeye fired before . . . Very few . . . You are now a statistic.

General Sutherland, once again I am sure I speak for all of us here when I congratulate you and your people on presenting a very highly professional and most effective demonstration of the Army air cavalry and armor team.

I should like to remark particulary about the presence here tonight of General Weyhenmeyer of the 50th Armored Division and General Ellison of the 30th Armored Division, together with a good many of their officers and senior NCOs. Also General Turnage, the Assistant Adjutant General of California is here heading a delegation of Guardsmen from that state. It's great to have them here and we always welcome this kind of support from our Army National Guard and the Army Reserve.

New subject, and last. It is always a pleasure to introduce an old friend. I first knew our principal speaker, General Seneff, 27 years ago at West Point when he was a cadet and I was a tactical officer. As I'm sure you are all aware, it is quite often the fond delusion of retired Army types that they were instrumental in forming the character and providing the key instruction that lead to a distinguished military career for some of their subordinates. Due to our early association, I take full credit for General Seneff.

And let it be said, lest we senior people get all puffed up about this, that since we have all been junior officers we know full well that these aspiring junior officers often drew their most valuable lessons from our mistakes and very bad examples—more so I think than from our unerring guidance. How it was with General Seneff and me I leave to you and him and may the Lord have mercy.

General Seneff was born into an Army family. He graduated from the Military Academy at West Point in 1941. He served in the 14th Armored Division during World War II. Subsequently, he was a tactical officer at West Point, Assistant Attaché in London, commanding officer of the recon battalion in the 2d Armored Division in Europe and a member of the United States Delegation to the North Atlantic Treaty Organization. He returned to the United States and was assigned to the 11th Air Assault Division, which as you know, was the test and evaluation group for our air mobility concept and was the predecessor of the 1st Air Cavalry Division.

Subsequently, he was promoted to brigadier general and was Director of Army Aviation. In Vietnam, he served as Commanding General of the US Army Aviation Brigade. Currently, he is the Director of Operations (J3) of the United States Strike Command. As you can see from this very thumbnail sketch of General Seneff's career, from the beginning, he has been entirely associated with the aggressive promotion of mobility in ground warfare. He is thus uniquely qualified to address the annual banquet of our Association. It is a great privilege and pleasure to present to you Major General George Phillip Seneff, Jr.

"General Seneff . . . from the beginning has been associated with progressive promotion of mobility in ground warfare."

Some Thoughts On Wild-Eyed Radicals And Perceptive Leadership

by Major General GEORGE P. SENEFF, JR.

GENERAL WRIGHT, GENERAL WATERS, FELLOW MEMBERS OF THIS GREAT BRANCH:

I really do feel very much honored to be asked to speak here tonight because, I am sure it is no great secret, I have sort of drifted away from Armor as a branch in recent years. I am very happy to be back here to be able to see many of my old friends and to be able to exchange ideas in the fashion that I have been able to do today.

I would assume from the fact that General Waters wrote me and asked me to come back here that he wanted me to tell it the way I see it and I propose to do just that. I hope that the atmosphere between me and the Armor Branch will not cool off after I have done so.

General Wright, you will forgive me for adding one bit to my biography that probably slipped out of the typewriter. Immediately before going to Strike Command a little over a month ago, I had the honor of commanding the 3d Infantry Division. About four months after I got there, I received a large envelope from General Tom Dolvin who was then commanding the 3d Armored Division. Inside the envelope was a picture of a large award called the Infantry Trophy. There was a little sign beneath the trophy which said "Permanently Awarded The 3d Armored Division For Having Won The USAREUR Rifle Championships for 1966, 1967 and 1968." There was no other message—but I got it. Well, I'm happy to say that about four months later I was able to drop a little note back to Tom saying in effect, "Dear Tom, does it not strike you as unusual that the armored divisions in Germany have excelled in rifle marksmanship while the infantry divisions excel in tank gunnery?" We were number one in the theater that year. And, I'm happy to say, the indications are that the 3d Division is going to be first in tank gunnery again this year.

General Polk mentioned the 1st of the 64th Armor of the 3d Division today. The 1st of the 64th qualified 49 out of 51 tanks. And the 2d of the 64th had 44 qualified—none dropped at my last count. I heard a rumor that a few of their less strong crews were still coming up but I hope they are doing well. Now, I don't tell you this to brag about the Marne Division. I was very proud of it—it's a great organization. But, I am dragging out a small lesson here.

A lot of people in this room have been down Range 42 at Grafenwoehr. I know all of you who have been down it recognize the fact that doing well in tank gunnery in Germany is 25 percent training and 75 percent organization. Part of the Marne Division's organization on Range 42, and on the other ranges, puts a highly qualified ordnance fire control system repair team behind each range. And this was one of the things that enabled us to do well. The repair team was the only thing, in the face of rapid turnover in tank crews, that kept our fire control systems going.

For that reason, if I were to run my own training program without having to worry about how many tanks I was going to qualify—to do it on a straightforward basis—I would train the crews on the telescope because that's the hardest way to do it and that's what we might have to be using in combat.

Now I'm back to an old subject that is dear to the hearts of many of us—our equipment is too complicated! I think the M60 is the finest tank that the Army has ever had. It's a very good one. But, where it is delicate or unreliable, we had better take a second look. I know that everyone has been saying this sort of thing since World War II. However, one of the big lessons I got out of being in Europe again was that we should stop complicating the equipment and turn it out in such a fashion that the rapid turnover soldier, who is the one we're going to have fighting with us in wartime, can handle it in combat.

This isn't only true of the M60. We have seen it in a lot of other pieces of equipment.

In the field with which recently I have been more immediately associated, we have had some real problems developing the Advanced Helicopter Fire Support System (AHFSS). A lot of you I'm sure realize this. In all likelihood, we will not be able to get such a system into production in the time frame that was originally talked about. Again, for my money, the reason is that we tried to jump too far—we tried to do too much at once—we complicated it too much. I suspect we're going to have to do with the Cobra for quite a period to come.

General Polk mentioned multi-fuel trucks today. Indeed we did have trouble with them. The system works fine on civilian long haul trucks. But, with the driver and mechanic training situation we have today, which is caused by personnel turnover, the multi-fuel truck becomes a real problem to keep running properly. By way of contrast, the old World War II GMC 2½-ton truck was an extremely reliable piece of equipment which would do most anything that its successors will, and with few maintenance problems.

Obviously, I have had feelings along the lines of equipment simplicity and reliability for some time. And these were reaffirmed by my recent experience as a division commander in Germany.

Another big lesson that I brought back from Germany with me has to do with leadership. I went to Germany from Vietnam. I join everyone else in saying that the leadership which I saw in Vietnam by our junior officers, NCOs and everyone else up and down the line was absolutely outstanding. Because of that, when I went to Germany I was surprised to find some rather appalling examples of leadership, particularly on the part

of junior officers. And I must say some were at battalion level too. This was really startling to me.

I am talking about things that actually happened, things that have to do with training like making sure that people are properly prepared to lay on good training programs. I am talking about the fundamentals—taking care of the troops, making sure that their barracks are fixed up as well as they can be under the circumstances, knowing the people who are strong or weak in the outfit, knowing who is going to get into trouble downtown and who isn't, making sure that the recreational facilities are as good as we can make them. In essence, the leader taking care of his men and training them properly.

We, in the Army have been working on this essential commonsense leadership for years. But frankly, in the junior officers and a lot of the NCOs we had in Germany, I found this very much wanting.

Why the difference between Germany and Vietnam? The thing that I lay it to is that in Vietnam our junior officers and NCOs are living with the people they are commanding.

Squad leaders, platoon sergeants, company commanders, battalion commanders in Vietnam share the lot of their troops by living with them in the field. Because of this, automatically they do everything they can to stay ahead of the game as far as care of the troops is concerned. In Germany (and although I am not qualified to speak on this in the States at the moment, I suspect the same problems occur here since the junior leaders by and large do not live with the troops) the officers are in BOQs or their own quarters. The NCOs now are Vietnam returnees and they are excellent NCOs, but they have been away from home a long time and they are living with their families. The young soldiers are left in the barracks by themselves. I am not saying that we should change that system. But, I am saying that we should work harder than ever to make sure that our junior leaders are doing their jobs as leaders properly. We must insure that they are taking the right kind of care of the young soldiers.

Now there is a lot of concern in the Army at the present time about our image in the United States. The Chief of Staff has addressed this subject and so have a lot of other senior people. In my view, the thing that controls the image of the United States Army in the eyes of the American people more than anything else is the kind of treatment which the draftee gets during his two years in the Army. This is what he takes home with him and what he talks about to his neighbors and his friends. If we want to improve the image of the Army and our branch, these are the people we have to work on. So the second lesson I brought back and the thing I would urge you as responsible people in the Army to go to work on is every aspect of making sure that the leadership at the lower echelons is what it ought to be.

I can't leave this subject without paying a tribute to the division sergeant major I had, Command Sergeant Major Kennedy, who is an old tanker. He grew up in this business and he is the best sergeant major I've ever seen. He's absolutely tireless in making sure that people are handled properly on their way into the division, checking the clubs, checking people over in the barracks. We need a lot more people like him. I hope that we get a lot more like him and that we all keep this sort of exemplary leadership in mind when guiding the people under us.

Now, I would like to talk about Vietnam for a moment. I am not going to talk about it a great deal because I have been out of there for a year and a half and I realize this makes me old hat as far as Vietnam is concerned. Things change quickly.

I would like simply to hit one note that George Patton hit this morning when he praised the conduct of the American soldier in that country. Like everyone else that has come back from there, I will say that I have never seen American soldiers acquit themselves so well in any other conflict. They are absolutely superb!

I led into this intentionally because I include my aviators from over there in this. And I always like to take advantage of an opportunity to praise them. I was very proud of my people in Vietnam. I think they established a tremendous reputation for themselves. I got very few complaints on their operations during the whole of the time I was in Vietnam. On the other hand, I got many words of praise on the way in which they stuck their necks out going far beyond the call of duty to help out their friends on the ground—whether it was pulling out wounded or hauling beer into them or whatever was indicated at the particular moment. I'm going to let this subject go with a quotation which I picked up from General Abrams. On the second anniversary of the Aviation Brigade which I had the honor to command, he wound up his address with the following: "The aviators and men of this brigade have been taken into the brotherhood of the combat arms. Not by regulation and not by policy, but they have been voted in by the infantry, the charter members of that exclusive group of the combat arms." I treasure that quotation.

"This branch . . . was developed by what a large part of the rest of the Army regarded as being a bunch of wild-eyed radicals"

I now want to go from that to an organization with which this Center, and Armor as a branch, has become increasingly associated—the air cavalry. I did not have any air cavalry under my command during the time that I was in Vietnam. The first one of the separate air cavalry squadrons came in about a month after I left. But I was closely associated with the operations of the 1st Squadron of the 9th Cavalry—the first air cav squadron that we had. And I would like to say that these people without question were the bravest of the brave as far as aviators are concerned. I have seen scouts hovering in the villages trying to draw fire to get an indication of whether any enemy was there. I have seen scouts, these were youngsters in H13s, not the new LOHs which you saw today, hovering down jungle trails. This may not seem like much to someone who does not fly but we aviators get a very claustrophobic feeling when we have anything closing us in.

I have even heard one story, which I believe to be true, of an air cav scout in an LOH who was trapped in one of these situations by a couple of

VC with some rather nasty weapons on either end of the trail that he was flying along. Undaunted, he elected to take the hairy way out by pulling pitch and burrowing up through the canopy overhead. This is not recommended procedure. I'm sure he didn't hit a large branch or at least he got away with it that time. To be sure, he was lucky.

Air cavalry is one of the greatest developments of the Vietnamese War. Every commander of the 1st Cavalry Division will tell you that the 1st of the 9th Cavalry produced more targets than the division can cope with and this is saying a lot. I, being an enthusiast on this, feel that they will give an equal performance in other wars at other times.

I take my hat off to the people who made it work out. I'm talking about Doc Hawley and John Stockton, who have left us, and many of the people we have in this room and others who commanded these units. have won that war in the manner in which we did.

However, I would like to remind you that there is an old saying to the general effect that yesterday's radicals are tomorrow's reactionaries. I feel that, in many ways and fairly often, this is likely to be a true saying. I have seen just this happen in many places during the short span of my life.

The United States Air Force had their own bunch of radicals before World War II and even since WW II. Yet, in many ways, the Air Force has become quite conservative. In the United States Navy the carrier boys were the radicals before World War II. And again, it is fortunate that they were because the fast carrier task forces made the difference between victory and defeat in the Pacific. Among the carrier group who were yesterday's radicals were some of the people who opposed most violently the nuclear powered submarine not

"I have had feelings along the lines of equipment simplicity and reliability for some time . . . these were reaffirmed by my recent experience . . ."

You have heard some of them today —I think most of them are here except for Canedy and Sinclair. I hope that Armor as a branch, and the Center in particular, will help to carry these organizations forward in the future.

Now I want to offer some advice. I walk into this area with some qualms because advice, whether asked for or offered gratuitously, frequently is not too well received. Actually I am not as well qualified to offer advice, by age, seniority, experience or anything else, as a lot of people in this room. But there are some in this room who are younger than I am and whether they want it or not I am going to give it to them. I hope that the older members will bear with me while I do so.

This branch in its armored connotation was developed during the period before World War II, and during the early years of World War II, by what a large part of the rest of the Army regarded as being a bunch of wild-eyed radicals. And we can all be very glad that they were wild-eyed radicals. Some of them are here this evening. There is no question that without the Armored Force which we built in World War II, we would not long ago. This happens in industry too. We have seen small firms, that started out on a shoestring with only a good idea, make a lot of money and suddenly become very conservative after they got themselves established.

Now I would like to say that Armor as a branch has been somewhat guilty of this too and you all know what I am talking about. I am not trying to rake old coals over the fire. I am simply asking our younger people to make sure that they do not fall into the same trap in the future.

For example, it has always struck me as a strange twist of fate that the air assault, or airmobile, concept was more or less brought into being by Armor people. On the senior side of it there were General Howze and General Cairns. And there were a bunch of junior types under them who did their part. But they all did this without help from the branch, and without sanction from the branch, and without the branch solidly behind them. The mobile arm of the Army very largely turned their backs on the proposition. If you have to pick any one branch that did push this more than anyone else in the Army, it was the infantry and, specifically, airborne infantry people.

I think it is an unfortunate fact that we have not yet had an Armor officer in command of either of the airmobile divisions now in existence, or for that matter of any of their brigades.

I talked about air cavalry earlier. Even our two air cavalry squadrons have, from time to time, been commanded by doughboys—one being manned largely by anyone who came down the pike—engineers, signal people, quartermaster types. I am glad that now we have a policy of putting Armor officers in these because we need to keep this in the Armor family from the point of view of bringing leaders up for the future. But it will take some time to get there.

We have been guilty of reaction in other areas as well.

Now why am I saying this? Well I already mentioned the fact that I hoped that our younger officers would make sure that we did not fall into a similar trap again. But also I am urging Armor as a branch to get with the program even further.

I would like to talk about the air cavalry business for just a moment more. At present, the air cavalry outfits in Vietnam are very very effective.

But they are fighting the Vietnamese War and they are learning a lot of bad lessons for any other war in which we might become engaged in the future. Their attitudes may be quite wrong for another war. Their tactics are directed toward a completely unsophisticated enemy. They do not really have to work to the same extent in coping with the weather that they might have to in other places in the world.

While they are fighting the war there, the look-see that we should be taking at other problems and possibilities is being neglected. I know that we do not have much equipment in the United States to work with. However, I would like to suggest some of the things that are not being worked on that should be.

For one—antitank tactics by helicopters. There is virtually nothing going on in this field at the present time. The tactics of engaging tanks with choppers are going to be very important to the guy who tries to go after a tank with a chopper in the future. How do you do it? Do you do it with a light fire team, a heavy fire team, or some other form altogether? How do you have to go after them? We don't know.

You saw a very fine demonstration of Redeye this afternoon. What does this do to the chopper? How do you get away from it? How do you go after it? This could be very vital to anyone's war in any other part of the world. The reason I was flinching so at the demonstration is that we are not working on this, not because I could feel a Redeye coming up my tailpipe. There is no weapon that has ever been developed that people have not found an answer to. And we can find the answer to this one, too. But we are not going to if we don't get with it.

Furthermore, we have not done any work with our Air Force to develop methods of getting away from an enemy air force because we have not had to worry about this in Vietnam. And this is a very simple proposition you know. You get some Air Force outfit over here to come out and work with you on evasive techniques and methods of defeating the air threat problems. We did a little of this in the 11th Air Assault Division, but not very much. And not much has been done since that time.

Another thing, we have stopped really trying to figure out what to do about weather. We have had some rotten weather in Vietnam. We have learned how to cope with that. But the weather in Vietnam is not like the weather in Europe. This is one of the major bugaboos that comes up.

Again, in the 11th Air Assault, we did some work on this. On the opening day of Air Assault II, the final big test, we had a hurricane out in the Atlantic and the ceilings in the Carolinas varied from in the tree tops up to 100 feet. Visibility was up to a mile. All of the airlines on the East coast were grounded. The Air Force was grounded. And a lot of people were sitting there rubbing their hands figuring we would fall flat on our tails.

Well, we didn't. With ceilings of the sort mentioned, we made a 100-nautical mile flight with a formation of 120 choppers on that first day and we got where we were supposed to go. This was not an accident. It happened because we had worked on this and because we had learned how to do it. We had learned how to put out weather scout ships, the way you put out any kind of a cavalry screen, to find the soft spots where we could get through. But you don't get this thing overnight, you have to work on it. You have to practice at it and you have to train at it. We were able to do it because we had trained. But such experimenting and training is not going on in any Army aviation activity anyplace at the present time.

Then there is the question of night operations. We did a lot of night work at Benning but there is virtually none going on in Vietnam at the present time. This is the time of day when this type organization should be able to make its greatest hay.

Needless to say, I am delighted to see that General Sutherland has very recently set up an air cavalry department in the Armor School here, I hope that my remarks have helped to spell out part of the initial charter of this organization.

I started at the beginning to say that I was addressing this to the young guys. Most of the people who are sitting at the head tables here are finished as far as innovations in the Army are concerned. We've made our contributions. It's up to the young people in the room to carry on from here. In asking you to carry on from here I would simply ask that you remember the reactionary bit and that you become tomorrow's radicals.

I have one more word I want to say. And, I want you to believe me that I had this thought up before this exercise started tonight. General Wright was quite correct in saying that everyone who has reached my time in the service is bound to think about people who in the past have had significant impact on their careers.

I hacked this over several days ago actually. And I came up with four people whom I believe, more than anyone else, by their leadership, guidance, inspiration and so on, had what I consider to be the most profound impact on my career in the Army. I am happy to say all four of them are Armor officers. Two of them are here tonight and two of them are not.

I am going to name them in the rank in which I knew them when they had this impact. They are, First Lieutenant Waters, Captain Wright, Major General A. C. Smith, who was my division commander during World War II, and, of course, Colonel Hamilton H. Howze. I want to thank these gentlemen not only for what they have done for me but also for a lot of other people in my category.

My final thought for the young men in the room is that I hope that you can conduct yourselves in such a manner during your Army careers, that when you reach the age of the people that I've just mentioned, someone will say the same thing to you.

"I would like to suggest some of the things that are not being worked on that should be. . . we can find the answers. . . but we are not going to if we don't get with it."

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The Executive Council
The United States Armor Association:

We have examined the balance sheet of The United States Armor Association as of December 31, 1968 and the related statement of income and expenses and Association equity for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the accompanying balance sheet and statement of income and expenses and Association equity present fairly the financial position of The United States Armor Association at December 31, 1968 and the results of its operations for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Peat, Marwick, Mitchell & Co.

March 28, 1969

THE UNITED STATES ARMOR ASSOCIATION

Balance Sheet

December 31, 1968
with comparative figures for 1967

Assets	1968	1967
Current assets:		
Cash:		
Demand deposits	$ 7,009.34	4,471.67
Savings account	6,161.83	5,921.40
Total cash	13,171.17	10,393.07
Marketable securities, at cost (quoted market $36,900.75)	30,771.17	29,910.06
Accounts receivable	7,202.18	1,754.09
Inventories, at average cost	2,999.86	2,891.27
Prepaid expenses	1,074.53	802.25
Total current assets	55,218.91	45,750.74
Office furniture and equipment, at cost	8,630.54	7,521.29
Less accumulated depreciation	5,523.33	4,892.22
Net office furniture and equipment	3,107.21	2,629.07
	$ 58,326.22	48,379.81

Liabilities and Association Equity		
Current liabilities - accounts payable and accrued expenses	86.73	8.93
Deferred income - dues and subscriptions	33,098.33	26,214.93
Association equity	25,141.16	22,155.95
	$ 58,326.22	48,379.81

THE UNITED STATES ARMOR ASSOCIATION

Statement of Income and Expenses and Association Equity

Year ended December 31, 1968
with comparative figures for 1967

	1968	1967
Income:		
Dues and subscriptions	$ 40,492.84	37,617.05
Registration fees	506.00	133.00
Book, prints, and publication sales	13,737.45	12,495.05
Interest and dividends	1,237.26	1,234.90
Other	346.86	100.00
Total income	56,320.41	51,580.00
Expenses:		
Armor magazine:		
Producing and delivering	29,051.43	29,306.26
Circulation	2,153.19	2,056.37
Promotion and advertising	440.09	558.51
Stationery and supplies	1,841.48	1,818.15
	33,486.99	33,743.29
Association:		
Annual meeting	442.89	384.12
Executive Council	10.82	207.40
Memorials and contributions	20.00	118.18
Awards	709.67	1,084.70
Cards, by-laws, and decals	403.76	437.00
	1,587.09	2,231.40
Book department:		
Books, prints, and publications	8,263.68	8,251.67
Postage	537.17	282.23
Supplies	331.93	133.58
	9,132.78	8,667.48
General and administrative:		
Equipment rental and maintenance	351.59	225.48
Depreciation	708.87	543.79
Telephone	515.52	694.55
Staff travel and parking	2,189.85	1,969.92
Rent	3,869.76	3,860.00
Professional services	500.00	-
Other	992.75	730.30
	9,128.34	8,004.04
Total expenses	53,335.20	52,646.21
Excess (deficiency) of income over expenses	2,985.21	(1,066.21)
Association equity at beginning of year	22,155.95	23,222.16
Association equity at end of year	$ 25,141.16	22,155.95

FINANCIAL HIGHLIGHTS FOR 1968

Expenses per member/subscriber
(less books and investments)
1967 $6.47 1968 $6.21

Income per member/subscriber
(less books and investments)
1967 $5.55 1968 $5.98

1967 loss $1066.21 1968 gain $2985.21

ARMOR Magazine lost money
The Book Department made $4604.67

If circulation continues to rise . . .
the 1 January 1969 rates . . .
should make possible . . .
an improved ARMOR Magazine . . .
and some sorely needed new equipment

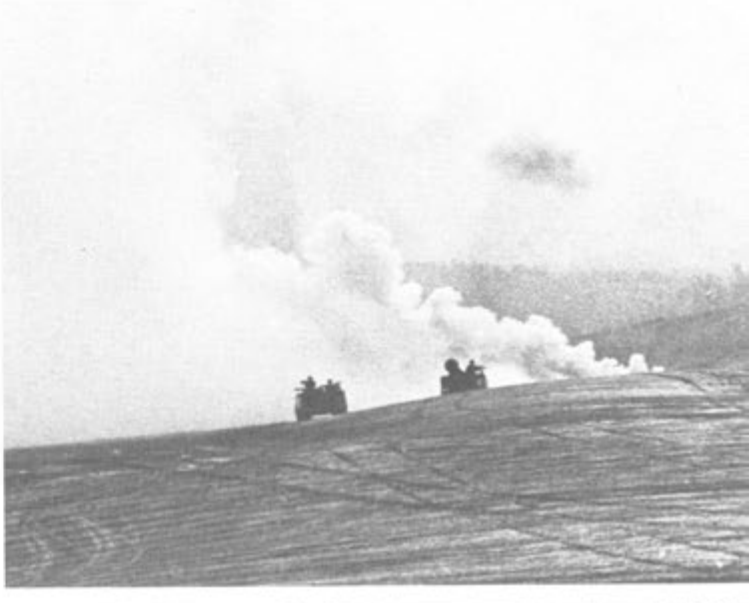
If every member . . .
gets two members or subscribers . . .
paid circulation will double

What's in it for you?

1. Improved service
2. Delayed price increases
3. A better professional journal

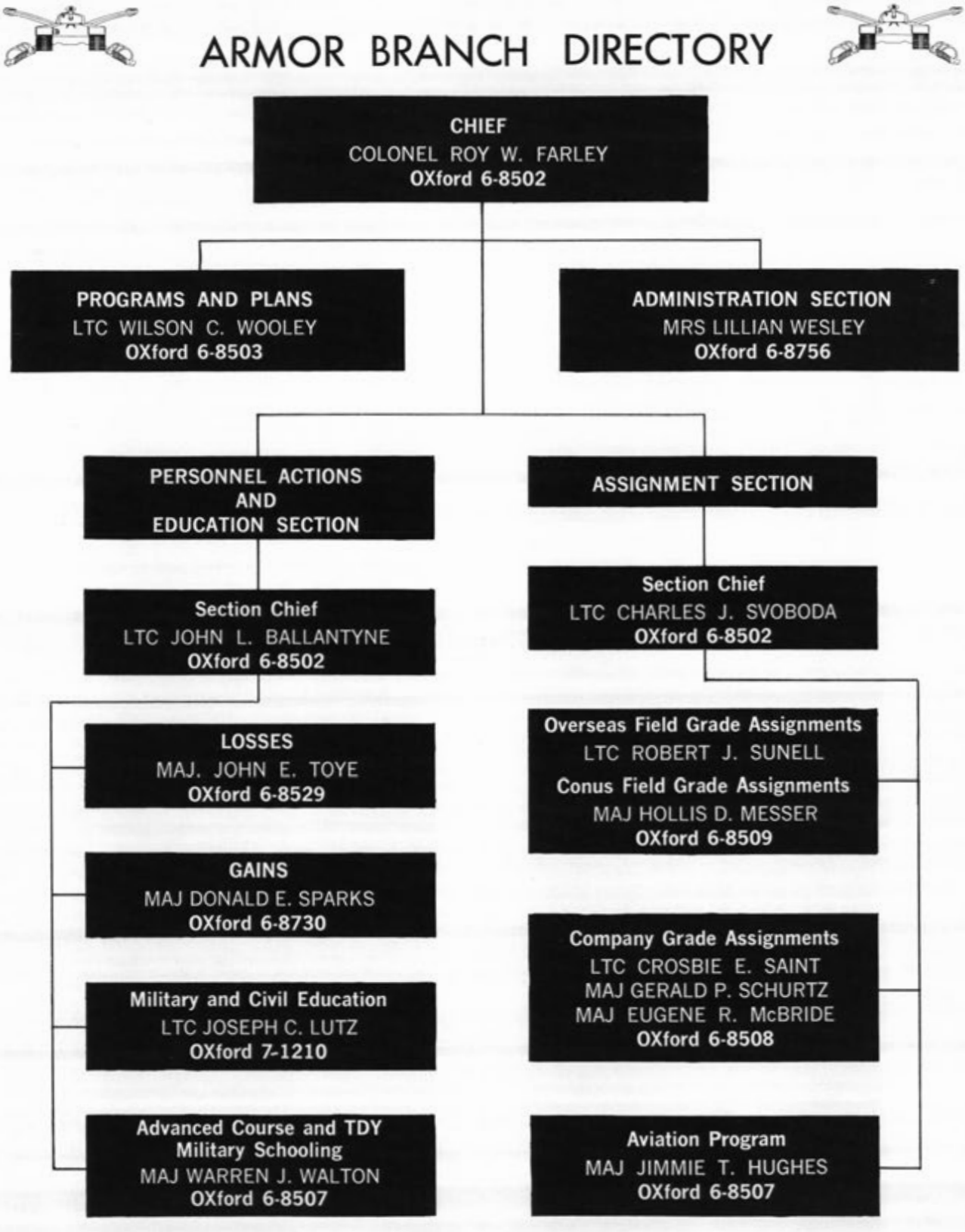
Let's all try it!

The Secretary-Treasurer



80th U.S. Armor Association Meeting

ARMOR BRANCH DIRECTORY



The branch is located in Wing 3, Tempo A, on the corner of 2d Street S.W. and "V" Street. Tempo A flanks Fort McNair on the east. It can be reached readily from the Pentagon by shuttle bus. If you're driving your own car, Maine Avenue or South Capitol Street are the best approaches. Visitors parking is available in rear of the building. **ADDRESS YOUR LETTERS TO: Office of Personnel Operations, ATTN: OPD-OPAR, Headquarters, Department of the Army, Washington, D. C. 20315.**

WILLARD GORDON WYMAN

21 March 1898—29 March 1969

Willard Gordon Wyman was a humane man of many sterling talents whose outward calm shielded an inward zeal for the new and different and for getting the job done. A native of Maine, he attended Bowdoin College and then the United States Military Academy from which he was graduated with the Class of 1919.

Following courses at the Coast Artillery and Cavalry Schools, he served with the 11th Cavalry for four years until 1925. In 1926, after a one-year course at the Signal School, he became signal officer of the 7th Cavalry. Then, from 1928 to 1932, he was a language student in Peking, China. His studies were enlivened by his participation, as a topographer, in the Central Asiatic Expedition into Mongolia sponsored by the American Museum of Natural History and led by Dr. Roy Chapman Andrews. He also served with the Chinese 19th Route Army during the defense of Shanghai.

In 1933, still a lieutenant in common with his classmates in an age of snaillike promotions, he joined the 3d Cavalry at Fort Myer, Virginia. Following promotion to Captain in 1935 and graduation from the Command and General Staff School in 1937, he instructed at the Cavalry School at Fort Riley. Then, in 1940, began two years of a rapid succession of assignments and promotions—aide, corps G1, War Department General Staff officer. This culminated in Colonel Wyman being assigned as G3 of U.S. Army Forces in the China-Burma-India theater.

January 1943 saw him on the other side of the world as Chief of Plans, G3, Allied Forces in North Africa. In July, he became Assistant Division Commander of the 1st Infantry Division with which he served in combat from Sicily through Normandy and into Germany to Aachen. In October 1944 he assumed command of the 71st Infantry Division at Fort Benning. He led the 71st in European combat from March 1945 until VE-Day which found his division linked-up with the Russians on the Ems River in Austria.

Following World War II, General Wyman was G2 of Army Ground Forces, Chief of Staff of First Army and served with the Central Intelligence Agency which he left to command IX Corps in the Korean War. Thereafter, in 1952, as a lieutenant general, he commanded the newly created Allied Land Forces, Southeastern Europe with headquarters in Izmir, Turkey.

In 1954, General Wyman took command of Sixth Army and, in 1955, became Deputy Commander of Continental Army Command. In March 1956, he was promoted to general and appointed Commanding General USCONARC. From this position he retired on 31 July 1958. He then returned to Maine where he was active in a number of civic and patriotic endeavors.

Following his original commissioning, General Wyman was a lifelong member of The United States Cavalry Association and its successor The United States Armor Association. He served with distinction as President of the latter in 1957 and from 1960 to 1962.

There was a note of both challenge and triumph attending the final ceremony in honor of General Willard G. Wyman at Arlington National Cemetery on 1 April 1969. Though fatigued from three days of stately rites for a departed Commander-in-Chief, all present—the Army Band, the Old Guard, the horses and the large assemblage of his former commanders and subordinates and friends, and even tourists—returned to their daily lives not so much saddened as inspired. Thus again was borne out the true test of a great leader—that things go well in his absence or upon his departure.—OWM, Jr.

THE MILITARY JUSTICE ACT of 1968

by Captain Myron G. Sugarman, JAGC

On 1 August 1969, the most significant change in the administration of military justice since the enactment of the Uniform Code of Military Justice in 1950 will take place. On that date, the Military Justice Act of 1968 goes into effect. The act brings added procedural safeguards to a military accused. Equally important, it will expedite court-martial procedures and free officers from many of the present, time-consuming military justice duties.

Two provisions of the act greatly affect the line officer's participation in military justice. The first is the right of the accused at a special court-martial to be afforded the opportunity to be defended by legally qualified counsel, unless military exigencies or physical conditions prevent one from being obtained. At present, the counsel detailed to defend the accused at special courts-martial need not be lawyers; most junior officers in the Army appear as counsel at some time. Army regulations will continue to permit officers who are not lawyers to be detailed as counsel of special courts-martial. If the accused requests a lawyer after being informed of his rights, then he must, in almost all cases, be provided with one.

The Army has attempted to "war game" this right of the accused. It is known that some accused will prefer to be defended by the officer detailed, even though he is not a lawyer. Junior officers must continue to be familiar with military justice and trial procedures for that reason and for another very important one. Initially, there will not be sufficient legal personnel to perform as trial counsel and defense counsel in every special court-martial. (There were over 40,000 in the Army in the last fiscal year.) Even though some accused will not request lawyers to defend them, the bulk of legally qualified personnel will be used to defend accused. Thus, line officers will be called upon to serve as trial counsel in many

cases where the accused is defended by a lawyer. If military discipline is to be maintained, these prosecutors will have to be well prepared and familiar with their duties as counsel. This aspect of the court-martial system has also been studied by the Army; it is known that officers who are not lawyers can function effectively as prosecutors in many cases, even where they are opposed by lawyers. This is true only, however, if they prepare for their responsibilities as required in Army regulations and training materials.

The other provision of the Act, which will have a significant effect on line officers, is the provision for trial by a military judge (formerly called a law officer) alone in both special and general courts-martial. A military judge *must* be detailed to every general court-martial convened; this provision of the Uniform Code was not changed by the Military Justice Act. The Act provides, however, that a military judge *may* be detailed by the convening authority to a special court-martial. Army regulations will provide that a military judge should be detailed to a special court-martial whenever one is available. Due to the limited number of legal personnel with sufficient experience to serve as military judges it will not initially be possible to have a military judge at every special court-martial; ultimately this would be highly desirable.

At every general court-martial and at those special courts-martial to which a military judge has been detailed, the accused will have the right to request trial by the military judge alone. The military judge alone has the power under the Uniform Code to determine if the accused's request is appropriate. If the request is granted, no court members are required at the court-martial. The military judge decides, after hearing the evidence, whether the accused is guilty or innocent, and if the accused is found guilty, imposes an appropriate sentence.

The potential for savings of time in this provision is substantial. A special court-martial occupies the time of three to seven court members; a general court-martial occupies five to ten court members for a longer period of time. Additionally, when an accused is tried by a military judge alone, procedures of the court-martial such as challenges and instructions may be eliminated. This will considerably speed up the courts-martial and improve the efficiency of the military justice system.

The addition of military judges to special courts-martial and the provisions for trial by the military judge alone will have other benefits. Legal questions, often difficult for the line officer to decide, may be handled easily by a trained military judge. The presence of a judge will further safeguard the rights of the accused. The provision for trial by military judge alone contains another potential for great savings of the time of line officers. Studies indicate that many accused who plead guilty will request trial by military judge alone. A large majority of courts-martial involve guilty pleas.

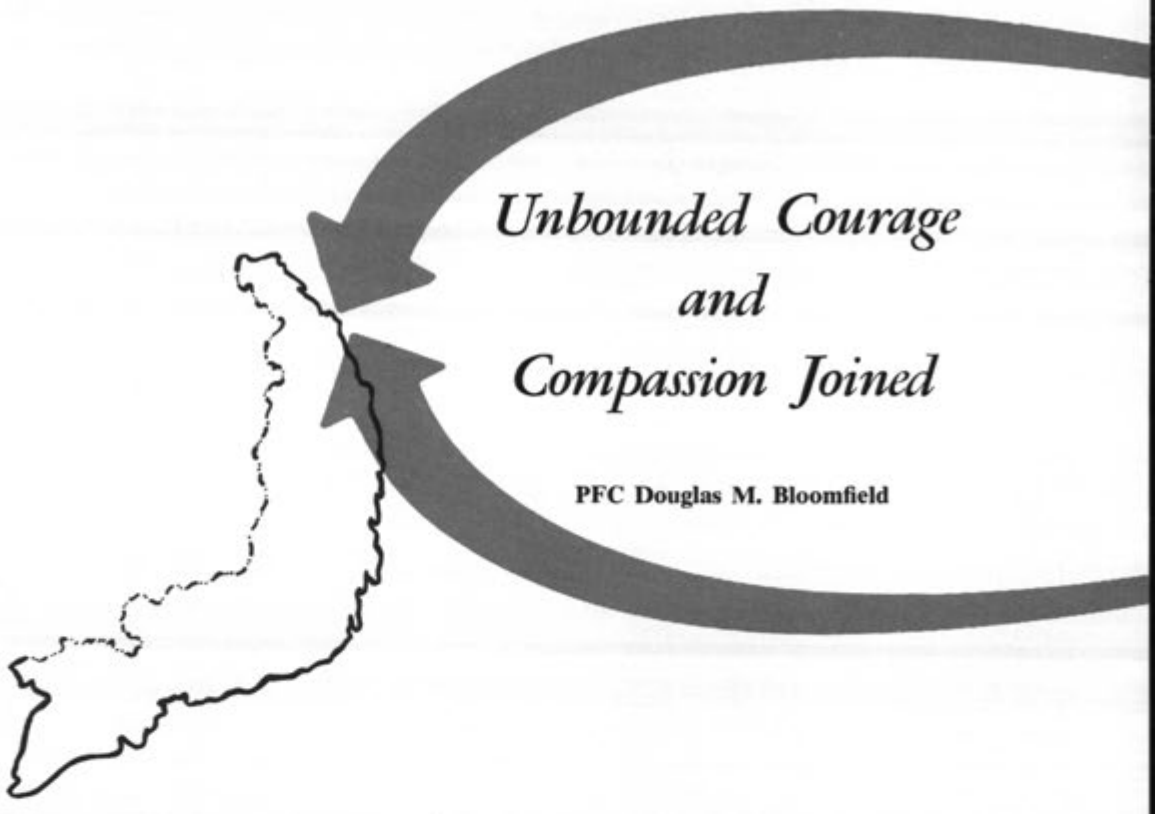
The Military Justice Act contains a number of other provisions with which you should be familiar. Accused will now have an absolute right to refuse trial by summary court-martial even if they have previously refused punishment under Article 15. The Act also makes provision for additional review in the Office of The Judge Advocate General of special, and summary, courts-martial.

An accused may, after 1 August 1969, apply to the convening authority for deferment of his sentence to confinement pending the appellate review of his court-martial conviction; such deferment (often erroneously referred to as "bail") may be granted at the discretion of the convening authority.

The Military Justice Act of 1968 places the military system of criminal justice once again ahead of most civilian systems in due process rights granted to an accused. When the act was signed on 24 October 1968, President Johnson said:

> "We in America have always prided ourselves on giving our men and our women in uniform excellent medical service, superb training, the best equipment that money can buy. Now, with this bill, we believe we are going to give them first-class legal services as well."

CAPTAIN MYRON G. SUGARMAN, JAGC, received his commission as an ROTC Distinguished Military Graduate and a BS in Business Administration in 1964 and later his JD in law in 1967 from the University of California, Berkeley. He was a member of the Board of Editors of The California Law Review for two years. He is now assigned to the Military Justice Division of the Office of the Judge Advocate General of the Army.



Unbounded Courage and Compassion Joined

PFC Douglas M. Bloomfield

Ohio Army National Guardsmen are helping fight Vietnam's "other war" by sending medical equipment, clothing, school supplies, books and money to families of Vietnamese soldiers.

"With some assistance in providing for the welfare of his family, the ARVN soldier will be more inclined to enthusiastically support and engage in civic action and Revolutionary Development projects aimed toward helping the populace in the war torn areas of Vietnam," says Major Peter C. Hains, a U.S. advisor with the Armor Command Advisory Detachment in Vietnam.

The 107th Armored Cavalry Regiment, OARNG, enlisted in the peaceful war two years ago by adopting the 7th Armored Cavalry Regiment of the Army of the Republic of Vietnam (ARVN). The 7th is headquartered just outside the city of Hue, which is in the northern part of the I Corps area.

Since Colonel Dana L. Stewart, commander of the Cleveland-based 107th, accepted Major Hains' invitation to adopt an ARVN armor unit, there has been a steady flow of correspondence in both directions, punctuated by aid from the Ohioans.

At its armories throughout northeast Ohio, the 107th now is collecting clothing and toys to send to the more than 1000 children who are dependents of the ARVN regiment. Their average age is 10.

Heading the project for the 107th is Regimental Chaplain (Major) John W. Simons.

The ARVN unit would rather receive clothing and toys than money, says Major Edward Halbert, former senior U.S. advisor to the 7th, because "items are so scarce over here or of such poor quality that I hesitate to spend money for them. It really doesn't take too much to please these children. A little rubber ball or small plastic truck can elicit a smile that brings tears to your eyes."

The 12,000-mile link between Cleveland and Hue was formed in May 1967, just 13 months after the 7th became operational.

"With war and inflation causing many Vietnamese to live in poverty conditions, the soldier's dependents lack the basic necessities of life. The lower five enlisted grades are literally poverty stricken," Major Hains said in a letter to the Ohio Guard unit.

American aid—from governmental sources such as the U.S. Agency for International Development, civilian agencies such as CARE and religious-sponsored programs—provides limited assistance, he said. Moreover, much of this help is aimed toward the civilian populace and not the ARVN soldier and his dependents, Hains added.

Colonel Stewart endorsed the program as "worthwhile and needed." His counterpart, Pham Huu Chi, commander of the 7th and then a major, replied that

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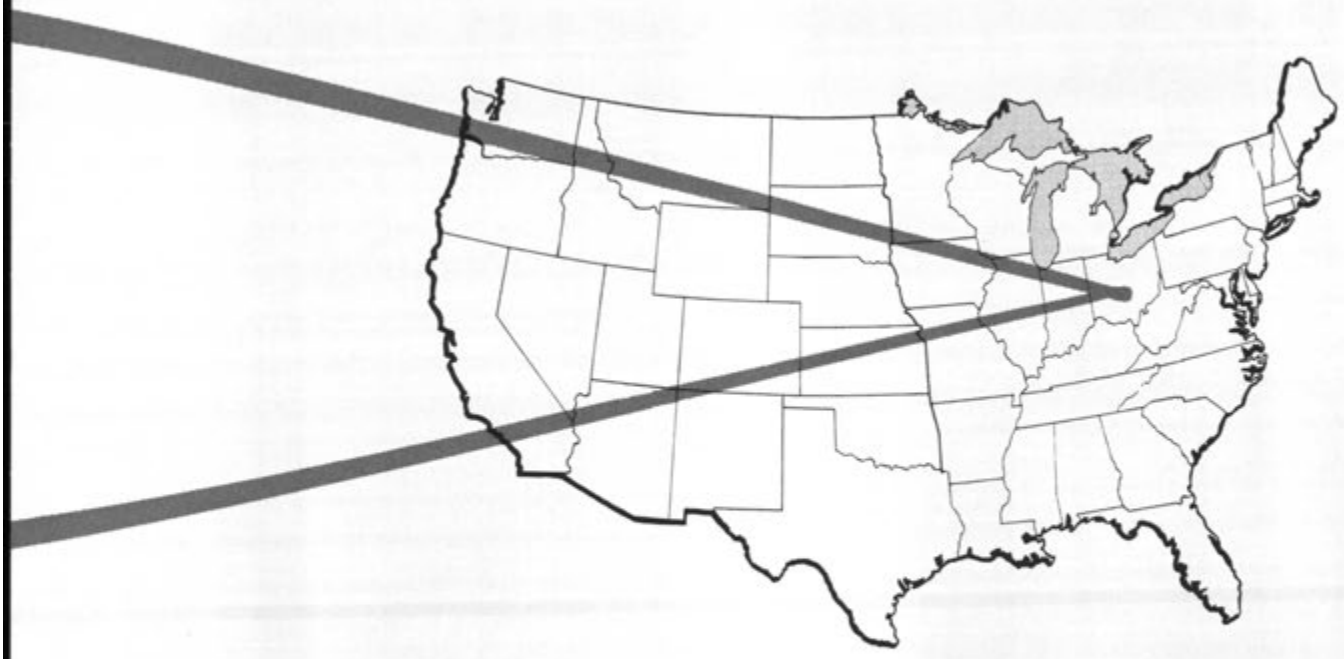
PFC DOUGLAS M. BLOOMFIELD is a citizen soldier and professional journalist. A graduate of Ohio State University where he received his master's degree in journalism and did doctoral work under a Ford Fellowship, he is on the staff of the Cleveland Plain Dealer.



he was looking forward to "a lasting and rewarding relationship for us both."

The relationship was put to its first test a few months later when the Communists made Hue a major target in their bloody 1968 Tet offensive. Lieutenant Colonel Chi was one of the first casualties. Two other officers and 30 enlisted men of the 7th were killed, compared to 450 of the enemy.

After the destructive Battle of Hue, the Ohioans sent $200 for the families of men wounded and killed. This followed $400 which was used to buy warm clothing and sweaters.

"The tasks of fighting a war and building a nation are far from being incompatible," said Major Halbert, who was himself wounded in the battle. "In spite of many obstacles, they are making obvious progress in both areas."

The 7th is involved in the "other war," the Revolutionary Development Program, which includes sponsorship of a New Life Hamlet, Phouc Qua, just outside the city of Hue. The regiment supports the hamlet of 7200 people by providing medical assistance, food supplements, clothing, transportation and troop labor. The unit also is building a three-room school house for the village. Future plans, following completion of the school, include building a dispensary with a maternity ward.

Ohio guardsmen have sent nearly 2000 "Viet Kits" to the school children in Phouc Qua and LeLoi villages. Among the many young dependents there are a large number of sons and daughters of men killed while serving in the 7th Cavalry.

The kits, which cost nearly $2400, were made up in three types: school kits with table, pencils, sharpener and ruler; hygienic kits with hand towel, wash cloth, soap, baby powder, mirror and comb; and sewing kit with needles, pins, thread, scissors, buttons and thimble.

U.S. advisors attached to the ARVN 7th have kept up a steady correspondence with the Ohio 107th—even writing under enemy fire—and have sent photos and movies of the unit, its people and its activities. All these are circulated throughout the various components of the 107th. The Vietnamese themselves also have written a number of letters and have sent a black beret worn by all members of ARVN armor and cavalry units, a plaque displaying their insignia, and an enemy rifle.

The latter is most interesting because it means that the 107th is probably the only National Guard outfit with a Red Chinese rifle in its arsenal. The rifle, on display at the Cavalry Armory in Cleveland, was delivered just before Christmas by two former American advisors to the ARVN 7th—Major Halbert and Major Nicholas A. Andreacchio. A Chicom copy of a Soviet carbine (Mossin-Nagent Model 1944, 7.62-mm, single shot, bolt action), it was captured by the ARVN 7th Cavalry during Tet in the Battle of Hue and sent to Cleveland as a token of gratitude for aiding Vietnamese dependents.

SHORT, OVER, LOST or...TARGET

A range for firing novel ideas which the readers of ARMOR can sense and adjust. This is a department for the new and untried from which the doctrine of tomorrow may evolve. Items herein will normally be longer than letters but shorter and less well developed than articles—about 750 words maximum is a good guide. All contributions must be signed but noms de guerre will be used at the request of the author. ON THE WAY!!

THE U.S. ARMY—AN OPEN SYSTEM

by Major Edward J. Laurance

The US Army has taken great strides in making the public aware of its activities, operations and missions, yet seems unable to shake the notion that it is a closed organization, isolated in thought and deed from the mainstream of American society. Despite vast media coverage of the Vietnam conflict, many citizens still view the Army as an old-fashioned system, with out-of-date regulations, a language of its own, and in general uncompromising when in conflict with civilian society. Actually, quite the opposite is true, as the Army is corresponding more and more to what public administration experts call an open system.

An open system is one characterized by dynamic interaction between the organization and its environment. Also, it emphasizes feedback from its members to shape organizational goals and objectives. On the other hand, a closed system is one that takes no account of environment, is independent enough for problems to be solved internally, and generally does not utilize feedback. In most texts and studies, the Army is described as the epitome of hierarchical organization, with most of its characteristics conforming to the closed systems model. However, a brief look at the Army's activities, programs and procedures, as they compare to the open system model, reveals that as an organization the Army is becoming an increasingly open system.

How closed is the US Army as an organization? The length of this article prohibits a detailed study of the entire organization and its characteristics, but a few of the more essential areas will be outlined in support of the hypothesis that the trend is toward an open system.

First, how does the Army view the environment in which it exists? Perhaps the Army between the two World Wars could have been criticized for its social isolationism, caused mainly by civilian indifference. But that criticism is far from valid today. For one thing, the highly technical nature of warfare brings the civilian and military man together on all levels. Second, the Selective Service system insures that a good portion of the Army is in fact "civilian," assuring the interaction of the two segments of society. A few of the Army's programs and policies are offered as evidence of this awareness of environment.

Project 100,000 is a program, instituted in 1966, designed to bring into the Armed Forces 100,000 men who would not have met normal military entrance requirements. About ninety percent of those taking part are performing effectively on active duty. Another program is Project Transition, its stated purpose being to assist servicemen approaching expiration of their terms of service to convert existing skills to productive use in civilian employment, or to obtain needed skills, and to find and enter a job. Both of these projects mobilize the resources of the Department of Defense, which consumes nine percent of the GNP, in an attack on very basic domestic problems.

In addition to these specific programs, there are other indicators of the Army's environmental awareness. The Uniform Code of Military Justice has been recently revised to conform to recent Supreme Court rulings. Military penal policies have been revamped. The influx of college graduates into the Army as a result of new Selective Service policies has caused the Army to issue special guidance for utilization of these men. Among other things, guidance is issued in reference to boredom, difference in learning rates, communication difficulties between NCOs and college graduate subordinates, and an increase of accessions with anti-Vietnam leanings. All of this has resulted in accelerated training and special placement procedures. Finally, in a lighter vein, the traditionally tight policy on haircuts has been greatly liberalized. For the first time, *all* personnel may have mustaches, although beards appear out of the question for now. As one experienced military reporter put it, "Obviously our society's trend toward longer hair, long

sideburns, mustaches and beards has worked its way into the Army."

Closely allied with the environmental category is feedback. True, Selective Service insures civilians are an integral part of the professional military organization. But what impact, if any, do they have on the functioning of the organization? First, the fact of the matter is that most of the junior leaders of today are not professional soldiers but civilians, serving their obligatory tour. Even if they are career officers, more than 50 percent of their subordinates may be draftees, and their unit's effectiveness is assured only when they can establish rapport with these men. Second, if the leader ignores the needs and desires of his men, they have increasing access to the hierarchy to bring about desired changes. The Commanders Open Hour, the Inspector General, and the Suggestion Program are three service sponsored outlets finding increased use. Letters to Congressmen represent another. The unit commander who ignores feedback will soon find his unit effectiveness on the wane, causing change in policy or commander, either of which is characteristic of the open system.

What of power and authority in a closed system? Chester Barnard, one of the leading authorities on administration theory, states that in a closed system an individual exercises authority only as an official in the organization, and this official deals only in formal communication nets. In contrast, he describes the open system in subjective terms. He states that an individual can and will accept communication as authoritative only when he can understand it, believes it to be consistent with the purpose of the organization, believes it compatible with his personal interests, and is physically and mentally able to comply with it. Does the Army correspond to the closed or open system approach to power and authority?

Obviously, the military organization is special in that it organizes the use of violence, a serious matter calling for a certain degree of authoritarianism. However, this authority is gained by far more than merely holding a position in the structure. Morris Janowitz, author of *The Professional Soldier,* states it very well.

> The tactical officer no longer corresponds to the rasping-voiced cavalry officer, shouting orders to men whom he assumed to be ignorant. Rather he is a junior executive, confronted with the task of coordinating specialists and demonstrating by example that he is competent to lead in battle. When military discipline was based on domination, officers had to demonstrate that they were different from the men they commanded. Today, leaders must continuously demonstrate their competence and technical ability, in order that they may command without resort to arbitrary and ultimate sanctions.

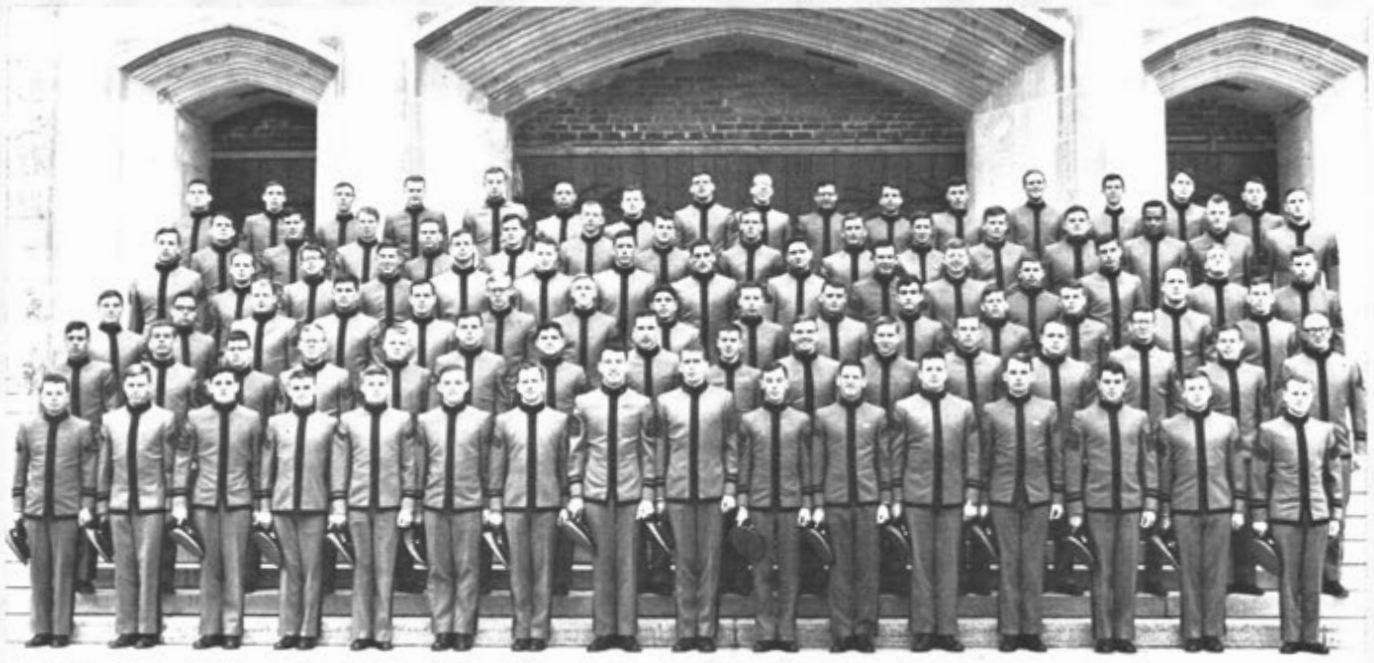
Barnard's four necessary requirements for acceptance of a communication more than apply in today's Army. No other Army in history has gone to such lengths to explain the why of military instructions. Obviously, in combat, time is of the essence, but there is seldom a need to explain actions in this environment. To say that authorities deal only with formal communication nets is also an over-generalization of the Army. The effective officer habitually has contacts among his NCOs, and the mere observation of activities involving enlisted men will give him invaluable indicators with which to shape his policies.

It is no longer adequate for an officer to be an authoritative leader who merely executes received instructions. There has been a definite shift to greater reliance on manipulation, persuasion and group consensus. Part of this shift is due to the limited war orientation of today's Army, as opposed to the former conventional warfare approach. The Vietnam conflict is accurately pictured as a "platoon leader's war," placing a premium on initiative and morale.

Although the Army certainly has some remnant characteristics of a closed system, a combination of events, experience and the natural co-mingling of the military and civilian segments of the society has created an open system which is responsive to its members. The modern military is so linked to society as a whole that it is no longer possible to consider major problem areas as strictly military. Hence, many decisions are made based on information and procedures external to the actual military organization.

Those who will be shaping the organizational structure of the Army of the 1970s would do well to remember that one of the basic reasons for such an open system is the continuous induction of civilians into the Army. Its elimination and the subsequent formation of the often-proposed volunteer army would reverse the trend and most likely produce a much more closed system, fraught with all of the organizational problems that such a system would produce. The Army has performed its increasingly complex mission extremely well, and can continue to do so only if it becomes an increasingly open and responsive system.

ARMOR GRADUATES OF THE UNITED STATES MILITARY ACADEMY CLASS OF 1969



Top Row: (Left to right) Miller, Reynolds, Nagle, Overstreet; Smith, M. R.; Groves, Strickler, Wheelock, McBeth, Balough, Owens, Leister, Sautter, Christian, Haney.

Fifth Row: Newman, Brower, Garrett, Lynn, Madigan, Nabben, Aileo, Donohue; Jones, Paul G.; Fitzgerald, Beckworth, Belden, Copeland, Fall, Haake.

Fourth Row: Ivany, Gagnaire, Bubb; Smith, D. B.; Byars, Jarmon, Traynor, Artigliere, Russell, Feigenbaum, Fagan; Smith, P. S.; Foster, Johnson, Cole.

Third Row: Kopczynski, O'Boyle, Reinhardt, Bacevich; Jones, Paul Gregg; Anstrom, Willut, Ford, Moran, Hunt, Wagner, Cantlay, Kannenberg, Hanson, Ellertson.

Second Row: Cox, Guernsey, Griffin, Wance, DeYoung; Wallace, W.; Hamilton, Egan, Ball, Swesey, Woodrum, Haydon, Greenlee (deceased), Meishen, Maasberg, Damon.

First Row: Aykroyd, Blackburn, Lucas, Gregor, Bachta, Smrtic, Hanna, Nygren, Baldwin, McSwiggan, Johnson, Megginson, Schroeder, Dibella, Craft, Riggsby.

Absent: Bowers, Crosby, Haines, Kimball, Taylor, Wallace, J. R.

GO ARMOR!

The 97 USMA Class of 1969 graduates who chose Armor as their branch are an impressive group. Twenty are in the top 100 of the class and, of these, 10 are in the first 25. The graduate with the lowest General Order of Merit standing is number 584 in a class of 805. Included in the Armor group are the Brigade Commander and First Captain, the Deputy Brigade commander, two battalion commanders and eight company commanders. Varsity athletes total 10. Thirty-five of the graduates have indicated a strong interest in Army aviation and tentatively have been programmed for such training after a year of troop duty. Initial assignments will see 37 going to Vietnam after a four-month CONUS tour, 32 moving to Europe and 28 in CONUS.

NEWS NOTES

FIGHTING SIXTH'S PROUD HISTORY COMMEMORATED

COL John R. Mitchell, commanding officer, Sixth Armored Cavalry Regiment, speaks to the Texas State Senate. Behind him are (left to right) CSM George R. Buscham and Senators Bill Moore and A. M. Aiken.

The role played by one of the many gallant cavalry units in settling the West was officially recognized recently by Texas Governor Preston Smith and the Texas State Senate. Colonel John R. Mitchell, 6th Armored Cavalry commanding officer, received a resolution in Austin, Texas, expressing the appreciation of the Lone Star State for the regiment's heroic activities in Texas between the years 1866 and 1875. Governor Smith had invited COL Mitchell and one of the squadron sergeants major, George R. Buscham, to be guests of honor in a two-day salute to the "Fighting Sixth."

The Texas Legislature resolution honored the 6th Cavalry and its former members who fought hostile Indians, bandits and cattle rustlers to establish law and order after the Civil War. Of the sixty Medals of Honor awarded the military for bravery in action on Texas soil, 28 were won by members of the 6th Cavalry. The resolution stated in part: ". . . on the 100th Anniversary of the beginning of the settlement of the frontiers of the West during the post Civil War era . . . the State of Texas wishes to acknowledge the many outstanding contributions of the 6th Cavalry in that era."

Following passage of the resolution in the Senate, COL Mitchell was escorted to the speaker's rostrum where he was given "the privileges of the floor" to acknowledge the resolution. In his remarks, COL Mitchell noted that those who are serving in the Regiment were privileged to take pride in and draw strength from the record of those who served in the past.

"The circumstances under which the troopers lived and fought a century ago are now history," the colonel said. "The problems facing our national leaders, civilian and military, are of a different scope and magnitude—all infinitely complex. It is in this entirely new world environment that today's 6th Armored Cavalry Regiment stands ready as one element of the nation's Strategic Army Forces."

On the second day of the state salute, COL Mitchell and CSM Buscham travelled by plane to Fort Richardson and another former 6th Cavalry stronghold, Fort Griffin. The two forts were first garrisoned by troopers of the 6th in 1867. They are currently being restored.

At USATCA 14th Anniversary celebration, 2LT Lawrence B. Hurst, Jr., FA was honored as junior lieutenant assigned. MG James W. Sutherland, Jr., Armor Center CG and Armor Association Vice President, presented Association membership to Lieutenant Hurst.

COL George S. Patton relinquishes 11th Armored Cavalry Regimental standard to GEN Creighton W. Abrams, COMUSMACV, as COL James H. Leach stands ready to assume command of the Blackhorse Regiment at 6 April 1969 ceremony.

HumRRO BECOMES NON-PROFIT CORPORATION

The Human Resources Research Office (HumRRO) has established itself as a private, non-profit corporation. Formerly HumRRO was a part of the George Washington University and, from 1951 to 1967, undertook research and scientific studies exclusively for the Army. In 1967, HumRRO began work for other sponsors such as the U. S. Post Office Department for which they conducted a series of studies on the selection and training of postal employees. Recently, HumRRO has also studied automotive maintenance procedures and practices for the Ford Motor Company as well as other studies for a variety of sponsors.

The separation from George Washington will increase HumRRO's flexibility in its dealings with sponsors, HumRRO officers say. Five HumRRO divisions are located at Army installations throughout the United States. The Armor Division is at Fort Knox.

MANAGEMENT ESSAY CONTEST OPENS

The Second Annual Essay Contest sponsored by the Fund for the Advancement of Management in the Armed Forces has opened for both military and civilian members of the Department of Defense. Five prizes totaling $550 in cash will be awarded to the five best essays making an original and worthwhile contribution to the advancement of management in the Armed Forces. Maximum length is 20 typewritten pages and deadline is 30 September 1969. Details are available from the Fund for the Advancement of Management in the Armed Forces, U. S. Army Management School, Fort Belvoir, Virginia 22060.

TREATED WATER TESTED AGAINST PETROLEUM FIRES

Helicopter, and perhaps even vehicle, gasoline fires may be once again fought with water if promising U. S. Army Combat Developments Command (CDC) tests prove out in actual emergencies. The water will not be water as we generally know it, however, but specially treated "light water." A six percent prefluorinated chemical solution has been added by CDC causing foaming water to remain on the surface of a petroleum-fed blaze and effectively smother it.

CDC presently envisions using light water as a spray from a hovering air crash rescue helicopter to control aircraft fires during personnel rescue operations; though the system will not be limited to this use. The helicopter will lower a rescue team while a boom sprays the light water solution to open a rescue path. Another innovation to the system is a radio communication link between the helicopter pilot overhead and the rescue crewmen on the ground.

During operations last winter, the U. S. Army, Alaska, evaluated 10 snowmobiles at Fort Wainwright. Prerequisites for selection as a test vehicle were that it be capable of being lifted by two men, fit inside an M113 APC, and be able to transport two fully-equipped men over unbroken snow.

DS AIRCRAFT MAINTENANCE

A recently completed CDC study looks toward a more responsive maintenance system in direct support of Army aircraft in the 1970s. User units now have only the resources to make minor repairs. For DS maintenance or major repairs, aircraft must go to a DS detachment or to the rear areas where a DS company is located. This causes greater operational loss of the aircraft than would be true if the aviation units had an organic DS maintenance capability. Under the new concept, a company or troop would be able to do most DS maintenance limited only by time, special tools or non-available components.

The study foresees that organic DS maintenance could bring about up to 10 percent greater responsiveness to maintenance needs than the current conventional DS support. This would increase the operational availability of 70 percent of the aircraft to the commander to approximately 80 percent. For example, in a rotary wing unit with 31 helicopters, this would be equivalent to adding four more aircraft to the commander's operational capability.

DS aircraft maintenance companies or battalions would continue to give area support providing maintenance or operational readiness floats, repair parts receipt, storage and issue, avionics support, armament and limited recovery of aircraft.

In making the study, CDC examined a comparative analysis of Army aviation maintenance concepts in Vietnam which indicated that decentralized maintenance and DS platoons in companies produce a marked increase in aircraft availability and readiness rates. Later CDC liaison trips to Europe, and again to Vietnam, to talk with those in the field and observe aircraft maintenance support operations, bore out the desirability of the decentralized support system.

TOWED HOWITZERS TO BECOME SELF-PROPELLED

The Army's towed 105mm howitzer may soon move under its own power. A contract to design and manufacture an auxiliary-propulsion system for the 105mm was awarded to Lockheed Aircraft Service Company recently. Long in use by the Russians to move some artillery pieces, an auxiliary-propulsion system permits the movement of a heavyweight gun independent of a prime mover.

The Lockheed design adapts the TerraStar wheel system concept. The proposed populsion system will permit the gun to negotiate more than 98 percent of the soft soils and swamplands of the world and be transportable by helicopter, according to a Lockheed news release. TerraStar locomotion calls for two sets of wheels. One set carries the vehicle on hard surfaces, the other through soft soils. (See ARMOR News Notes March-April 1968 and May-June 1967.)

EUROPEAN TANK PROCUREMENT

The German "Leopard" tank is proving popular in European countries other than Germany. Belgium has ordered 334 and the Netherlands 400, according to the Austrian military magazine Truppendienst. In addition, Norway has ordered 74 "Leopards." Truppendienst notes that the Germans have ordered 1845 "Leopards" so far and that the total number in the German Army eventually will be 2764. Moreover, Truppendienst reports that the British Army is acquiring 770 "Chieftains" for issue to the 19 tank and reconnaissance units planned for the 1972 force structure.

The Tarpaulin

Covers a bit of everything gleaned from the service press, information releases, etc. Contributions are earnestly sought.

TAKE COMMAND

MG Glynn C. Ellison, 30th Armd Div (Tenn, Ala, Miss ARNG) . . .**MG George M. Seignious II,** 3d Inf Div . . . **COL Frank D. Conant, Jr,** 3d Bde, 2d Armd Div . . . **COL Ervin V. Johnson,** FA, Div Arty, 3d Armd Div . . . **COL James H. Leach,** 11th Armd Cav Regt . . . **COL William J. Maddox, Jr,** 3d Bde, 25th Inf Div . . . **LTC Dewey E. Brown,** 2d Bn, 70th Armor, 24th Inf Div, Ft Riley . . . **LTC George E. Derrick,** 7th Sqdn, 1st Cav, Vietnam . . . **LTC Fred R. Doran,** 4th Sqdn, 12th Cav, 5th Inf Div . . . **LTC Robert J. Gabrielli,** FA, 5th Bn, 14th Arty, 2d Armd Div . . . **LTC William E. Hattaway,** 1st Bn, 13th Armor, 1st Armd Div . . . **LTC William D. Johnson,** FA, 1st Bn, 3d Arty, 2d Armd Div . . . **LTC Joseph M. Kennington,** 7th Bn, 2d Bde, USATC, Ft Bragg . . . **LTC Jerry T. Morgan,** Inf, 2d Bn, 46th Inf, 1st Armd Div . . . **LTC Paul H. Otis,** 6th Bn, 2d Bde, USATCA . . . **LTC Charles D. Phillips,** 5th Bn, 32d Armor, 24th Inf Div . . . **MAJ Jasper W. Wood,** FA, 1st Bn, 16th Arty, 2d Armd Div . . . **CSM Allen B. Chessey,** 9th Inf Div . . . **CSM Thomas D. Call,** 4th Bde, USATCA . . . **CSM Donald L. Holt,** 3d Armd Div . . . **CSM Jerome Kraus,** 1st Bn, 13th Armor, 1st Armd Div . . . **CSM Lee C. Pike, Jr,** 19th Bn, 5th Bde, USATCA . . . **CSM Alfredo Rios,** 1st Bde, 2d Armd Div . . .

ASSIGNED

LTG Walter T. Kerwin, Deputy Chief of Staff for Personnel, Headquarters, DA . . . **MG William W. Beverley,** CofS, Eighth Army. . . **MG George B. Pickett,** Chief JUSMAG Philippines. . . **MG Alberto A. Pico,** Adjutant General of Puerto Rico. . . **BG Edward Bautz, Jr.,** J3, Hq MACV. . . **BG Arthur W. Kogstad,** Hq AMC. . . **BG John N. Owens,** Adjutant General of Indiana. . . **COL Thomas A. Barrow,** DCSOPS, III Corps. . . **COL Robert E. Drake,** Senior Military Advisor Vietnamese National War College. . . **COL Joseph E. Halloran, Jr.,** Comptroller/Program Director, Hq USACDC. . . **COL (BG Desig) Jack MacFarlane,** ADC, 1st Armd Div. . . **COL Alvin T. Netterblad,** CofS, III Corps. . . **COL John W. Vessey,** FA, CofS, 3d Armd Div.

VICTORIOUS

6th Bn, 92d Arty, 2d Armd Div won Phillip A. Connelly Award for best multiple unit mess within US Continental Army Command . . . **3d Armd Div (MG Donald H. Cowles)** Blue Team won 1969 USAREUR Rifle Team Championship. Spearhead Division also won Infantry Trophy, Individual Machinegun Match, and Commander-in-Chief USAREUR Machinegun Championship. And eighteen individual firsts were taken . . . **BG Marshall B. Garth,** ADC, 2d Armd Div has been inducted into Infantry OCS Hall of Fame . . . **Co B, 126th Maint Bn, 4th Armd Div (MAJ James L. Knight, TC)** won 1968 USAREUR Outstanding Aviation Support Unit Award . . . **CW3 Burnon W. Lydic, Jr,** 84th Army Band (with 14th Armd Cav Regt) won top class IV category award in 1968 All-Army Composers-Arrangers Showcase. Mr. Lydic's latest composition is a new setting for "Fiddler's Green" . . . **Tank A-36, 3d Bn, 32d Armor, 3d Armd Div (1LT Ralph Cerino)** scored 2355 points on TCQC at Grafenwoehr with credit for a perfect 1200 on the day run and 1155 at night. A USAREUR spokesman announced that the score is believed to be the all-time high on that range . . . **14th Armored Cavalry Regiment (COL Adrian St. John)** won top prize for organizations in 1969 USAREUR Project Partnership. The regiment's **Trp I (1LT A. W. Rowe)** won the unit award. **1LT John D. Flanagan,** Hq Trp, 3d Sqdn was acclaimed for his first place article published in "Army in Europe." **COL St. John** received the first place individual award. **Oberfeldwebel Hubertus Weinbrunner, Panzergrenadier Bde 5, FRGA,**

received Certificate of Honor for helping the 14th Cavalry to construct a tank gunnery trainer (See "Dreibein Ubungsschiessgeraet" by 1LT Flanagan in March-April 1968 ARMOR.) . . . **2d Bn, 14th Arty, 3d Armd Div (LTC Jiles P. Daniels)** received a Partnership trophy for battalion-size units.

AND SO ON

BG Thomas K. Turnage, Deputy Adjutant General of California appointed Honorary Brave Rifle by **COL Sidney Hack,** 3d Armd Cav CO . . . Since 1956 **1SG L. P. Hedges** has served three tours with the 1st Bn, 66th Armor, 2d Armd Div as operations sergeant and first sergeant of Companies B and C in Germany and at Fort Hood. Two overseas tours, including a recent one as first sergeant of Trp H, 17th Cav, 198th Inf Bde in Vietnam, marked his only separation from the 1/66 in 13 years . . . **2d Bde, 2d Armd Div** has been authorized the historical designation "St. Lo Brigade" by DA in recognition of predecessor CCB actions in World War II combat in Normandy which won Presidential Unit Citation . . . **4th Cavalry Association Convention** will be held 15-16 Aug at Reno, Nev. Contact James Scalberg, Box 366, Dallas, Ore 97338 . . . **LTG Samuel L. Meyers, USA-Ret,** has been elected President of the Cavalry-Armor Foundation of Louisville . . . **Troop E, 15th Cavalry** has been activated at Ft Knox to replace Troop D, 32nd Armor . . . "The First Cav" by **SP4 Bill Ellis,** Co A, 1st Bn, 5th Cav, 1st Cav Div, former professional songwriter, recently made its debut on a CBS special and will soon be published . . . **3d Sqdn, 14th Cav (LTC Charles M. DiCiro)** and **3d Co, 54th Panzer Bn (Maj Armin von Wietersheim** former FRG Military Attache in Washington) tankers recently put forth their respective top crews and M60AI and Leopard tanks in a shoot-off at Wildflecken. Top five tanks were 327 **(Fw Herbert Wand)** which took 1765 of 1770 possible points, I-11 **(SSG George E. Gunn)** with 1725 points, 324 **(StUffz Jacob)** with 1720, K-10 **(SSG Rudolph Beck)** with 1550 and 336 **(StUffz Muetzel)** with 1530. US tankers swept machinegun area targets in standard "Z" pattern while German gunners put short bursts into selected areas. The 14th troopers later exchanged tanks and were interested to find that the Leopard is 15 tons lighter, lower and faster than the M60. Both tanks have same general type weapons.

FROM THE BOOKSHELF

ANATOMY OF A CRISIS

The Story of the Laotian Crisis of 1960-61 $5.95
by Bernard B. Fall. Doubleday. 1969. 283 pp. Maps.

Few Americans in 1959 could, even in the most general terms, identify Laos, a small landlocked nation of around two and three-quarters of a million people, half of whom are not ethnic Lao.

In 1961, after Laos had been in the headlines of the world press off and on for two years, many more Americans could locate the country on a map. But, still only a very few could explain *why* the United States and Russia had become involved in a confrontation in this land so remote from the homelands of the major contestants. And fewer still could grasp the fragmentation of the country's few political elite into rightists, right-of-center neutralists, neutralists, left-of-center neutralists, leftists, and varying other shades of political persuasion. The coups, countercoups, and counter-countercoups; the switching of loyalties by Army units; the reported invasions by communist-bloc forces were enough to completely confuse anyone who did not have a full-time job of following the Laotian situation—and even some of those who did.

Dr. Fall has done a very creditable job of tracing the development of the Laotian crisis of 1959 (despite the subtitle 1960) through 1961 and the temporary termination of this crisis by the agreements of 8 October 1961. He presents the story both as he saw it himself, and through his research of available documents. Aside from his recounting of events, and resulting actions and counteractions, he has in his book three statements which rather well set in proper perspective our involvement in that country and the net result of this involvement today. First,

> "Two choices thus were open to the United States after the ceasefire of July 1954; let Laos take care of itself and hope that the Communists would find it as uninviting a piece of real estate as we do; or literally "underwrite" the country in full. Any halfway solution on that score would have been comparable to giving a very sick patient a half dose of antibiotics."

Second, and especially significant in these days when it is the "in" thing among most of the liberals and the doves to blame every ill associated with our worldwide commitments and deployment of US forces on the so-called military-industrial complex, is Fall's explanation of the military's involvement in Laos (the italics are his):

> "The decision to make the Laotian Army the center of all American efforts in Laos was therefore *political,* and not military. In fact, it should be underlined—and might come as a shock to those who tend to think of the higher echelons of the Pentagon as a group of wide-eyed saber-rattlers—that year after year until 1959, the U.S. Joint Chiefs of Staff, who statutorily determine the force levels of foreign armies to be supported by U.S. funds, *refused* to recommend a force level for Laos! As late as fiscal year 1958, Laotian forces were still considered by the Department of Defense as not being "within force objectives," and when the House Committee on Government Operations investigated U.S. operations in Laos in June 1959, it emphatically made the point that *. . . U.S. support of a 25,000-man army (and) of the entire military budget . . . is, in fact, based on a political determination, made by the Department of State contrary to the recommendations of the Joint Chiefs of Staff.* In Laos, the only country in the world where the United States supports the military budget 100%, military judgements have been disregarded."

And lastly, referring to the 1961 Agreements by the three princes which resulted in the formation of a coalition government,

> "Almost to the day, the Laotian crisis was exactly where it had begun four years earlier on November 2, 1957, when Souvannaphouma had formed his first coalition regime, which included two Pathet Lao leaders."

> "There were a few far ranging differences, however, instead of two Communists in cabinet positions, there would be four now; instead of having to deal with 1500 poorly armed Pathet Lao fighters, there were close to 10,000 now, well-armed with new Soviet weapons; instead of being neutral without ties to a Communist country, Laos now had diplomatic relations with almost all of them; in addition to assistance rendered by American and French technicians, it had now to receive aid from . . . Red China and North Viet-Nam; . . . Finally, in spite of

the enormous sums of money which it had received from the United States, it is today as poor as ever and covered with searing scars of corruption, chaos, and civil war . . ."

"The West needlessly lost a battle in Laos by succumbing to guidance by wishful thinking instead of realism, by braggadocio instead of real strength, by concentrating on stopping "bad things" instead of coming forth with some fresh approaches of its own."

Dr. Bernard Fall was, to say the least, a very controversial figure, particularly in U.S. Government circles. Although considered by many who knew him in Laos to be anti-American, I do not believe he was. Rather, that he was anti-American *policy,* not only in Laos but also, as a strong supporter of civil rights, in our domestic arena. He was, as a native Frenchman, pro-French, and possibly some of his writings are excessively colored by these feelings. In particular, from conversations with him I came to believe that he had complete contempt for the Lao as a fighting man. Yet in this book, he gives surprisingly high praise to their actions in the struggle *with the French* against the Japanese in World War II; and especially to a Lao battalion's stand at Muong Khoua in 1953 against an entire Viet-Minh division—but then, this Lao battalion was *commanded by a French captain!*

In general, Fall's book is factually correct. There are a few errors, but except for the purist these do not detract from his excellent tracing of developments in Laos and his explanation for some of the events that transpired. According to the preface, he completed this work in November 1961, yet it was not published until 1969. As Dr. Fall was killed in Vietnam in February 1967, one wonders if he had delayed publication deliberately in the hope of finding time to review and refine his writing, a task never accomplished due to his attention to the Vietnam war. This is a pity, for not only could good editing vastly improve this book's coherence, but hopefully it would tone down the extreme bitterness the author expresses concerning the press, and some members of the American press in particular—a theme which unfortunately seems to dominate much of the book. Overlooking these points, this book is recommended as an excellent analysis of a crisis—Laos in the 1959-61 period—and as a background in which to view Laos today.

COL ROBERT L. FREELAND

The reviewer was Assistant Military Attache in Laos from 1959-1961.

THE 900 DAYS—The Siege of Leningrad $10.00

by Harrison E. Salisbury. Harper & Row. 1969 635 pp.

To the populations of few cities in modern European history has come so much suffering as that endured by the people of Leningrad. Even the city's beginnings as St. Petersburg, the brainchild of the Tsar Peter the Great, on the swampy, fog-enshrouded banks of the Neva, were laid in the anguish and death of thousands of serfs who toiled for years on the boggy islands of the Neva-Delta to build a magnificent imperial capital for all the Russias. Here too had been fought in the city's streets the first battles of the October Revolution whose leader gave his name to the city. And during the civil war which followed, the city on the Neva had withstood the attacks of General Yudenich's counter-revolutionary army. Thus, in the autumn of 1941, as the German armies swept northeastward along the Baltic littoral to clasp the city in a ring of steel, Leningrad was no stranger to war and its attendant sufferings. But the ordeal about to descend on Peter's and Lenin's city that fall would surpass by far anything which its tragic history had yet brought to its gates.

From 8 September 1941, when the Germans closed the circle around Leningrad to 27 January 1944, when the 900-day seige was finally lifted, over one million of the city's inhabitants had died of hunger, cold, and enemy gun fire. No city in history had suffered so much. And yet, through it all, the leaders of the city's defense and the city as well remained the objects of Stalin's paranoidal fear and hatred. For, despite its name, Leningrad remained for the Russian dictator the most European of all Russian cities and therefore an object of his dark suspicions.

In the immediate post-war period the high hopes of many of Leningrad's intellectuals and civic leaders that this brave city would once again regain the position which Tsar Peter had envisioned for it as Russia's "window to the west"—were to vanish in the Byzantine-like intrigue of the Kremlin under Josef Stalin. For the Russian dictator systematically set out to destroy not only the city's spirit, something the Nazis had never been able to do, but also the leaders of Leningrad's epic defense, among them Party Secretary Andrei Zhdanov and Marshal Leonid Govorov, commander of the Leningrad front from April 1942. These men were regarded as possible rivals to Stalin and his clique within the Soviet power structure.

Harrison Salisbury, with a thorough command of,

and acquaintance with, most of the Russian sources, has reconstructed the story of this epic seige as vividly and as completely as it is ever likely to be done in any language. Only the German side of the story is rather lean. At any rate the reader may find both in the main body of the book and in its devastating epilogue, entitled the Leningrad Affair, a detailed story of a peoples' ordeal from an enemy at the gates and from a more subtle tyranny within, whose havoc was to linger on long after the guns were silenced.

DR. ERNEST F. FISHER, JR.

The reviewer is an historian with the Office of the Chief of Military History, U.S. Army.

WORLD WAR II AND ITS ORIGINS **$8.50**

by Pierre Renouvin. English translation by Remy Inglis Hall. Harper and Row. 1969. 401 pp.

Originally published in French in 1958 under the title of *Les Crises du XXe Siecle de 1929-1945, World War II and Its Origins* is a history of international relations from 1929 to 1945. Omitting the much explored first decade following Versailles, the book's sweeping scope traces the events leading to the Second World War beginning with the impact of the Great Depression on foreign affairs in Europe, the Far East and the United States. Japanese, Italian, and German expansion is reviewed, and the rearmament of Europe and the formation of blocs prior to September 1939 is examined in some detail. The author discusses the French failure to form effective alliances with Italy and Russia designed to stem Nazi expansion as well as the lack of French reaction to Hitler's remilitarization of the Rhineland. The Spanish Civil War is also placed in perspective. The latter half of the book treats the principal events and decisions of the war itself, starting with the invasion of Poland, and analyzes their impact on the conduct of the war and on the immediate post-war world.

The book is an excellent and comprehensive overview of World War II. Because of its broad scope, the author makes no attempt to delve into the details of the events; this he admittedly leaves to other historians. Instead, Professor Renouvin seeks to place the events and decisions of the pre-war and wartime world in proper perspective and to analyze the impact of each on subsequent events. He is highly successful in fulfilling this purpose. The book reveals no information of consequence, however, it clearly relates the key events of the period both chronologically and consequentially. Thus, it develops an excellent historical framework wherein the reader may place all the detail he desires from other sources. This is the true value of the book.

If the author has omitted detail from his work, he cannot be accused of omitting any of the events themselves. All significant international developments and all major political-military decisions bearing on the war appear to have been addressed. Obviously, many of these topics defy accurate and complete documentation, and the author is frequently forced to theorize in his analyses. Such instances are clearly labeled, however, and the reader should not experience difficulty in distinguishing historical fact from author's hypothesis.

The work appears to be error free and relatively unbiased. Only Professor Renouvin's view of the depression in America and the attempted assassination of Hitler are noticeably different from other authorities. Neither diminish the value of the work overall.

The almost complete absence of reference footnotes is the book's only disappointment. The author may frequently provoke a deeper interest in a specific topic that he has necessarily treated rather lightly, but alas, there are no footnotes to provide clues to sources. The well organized and extensive bibliography is not a handy or functional substitute. Maps are also lacking, thus a good pre-war atlas is useful.

But on balance, both the professional and amateur historian will find Professor Renouvin's book a handy reference to keep the events of World War II in perspective.

LTC CHARLES E. MILLER, JR.

The reviewer is a member of the Department of Military Art and Engineering at the United States Military Academy.

LATE NEWS FROM THE ARMOR BOOK DEPARTMENT

NEW BOOKS -- AMBUSH by S. L. A. Marshall ($5.95), just out, is another great combat chronicle. This follows on the heels of "Slam's" BIRD ($3.95) and WEST TO CAMBODIA ($3.95) reviewed in the May-June ARMOR. . .New Yorker Asian correspondent Robert Shaplen contends in TIME OUT OF HAND: REVOLUTION AND REACTION IN SOUTHEAST ASIA ($8.95) that overemphasis on Vietnam has caused us to lose sight of other Asian problem areas. He takes a sharp look at our successes and failures in that critical area. . .SLIM AS MILITARY COMMANDER by Geoffrey Evens ($8.95) analyzes, with a good touch, one of the most quotable, charming and intelligent of the military greats of World War II. . .MARSHAL ZHUKOV'S GREATEST BATTLES by the famous Marshal of the Soviet Union himself ($6.95). A very interesting account of military operations, the scope and sweep of which is as large as the world has ever seen. . . THE TANKS OF TAMMUZ by Shabtai Teveth ($8.95). The author is an Israeli journalist who fought as an Armoured Corps Reservist in 1967. "An outstanding book, the best I have read about our wars." - Moshe Dayan. . .COMPANY ADMINISTRATION 31st revised edition just published. Authoritative. Good check lists. References for all components. Well worth $7.50 and more. . .GERMAN TANKS OF WORLD WAR II by F. M. von Senger ($11.95) Descriptions, tables of specifications and nearly 300 photos and live drawings. . .

CURRENT BEST SELLERS -- DESIGN AND DEVELOPMENT OF FIGHTING VEHICLES by R. M. Ogorkiewicz ($7.95) (ARMOR Nov-Dec 68). . . ROMMEL AS A MILITARY COMMANDER by Ronald Lewin ($8.95). . . THE BITTER WOODS by John S. D. Eisenhower ($10.00) is gaining rapid recognition as a classic on The Battle of the Bulge. . . MILITARY UNIFORMS OF THE WORLD IN COLOR by Preben Kannik ($4.95) (ARMOR Sep-Oct 68). . .The two histories of the United States Cavalry - SPURS TO GLORY by James M. Merrill ($6.95) and THE YELLOWLEGS by Richard Wormser ($6.50) (ARMOR May-Jun 68). . . PANZER BATTLES by MG F. W. von Mellenthin ($5.95). . .WHAT EVERY ARMY WIFE SHOULD KNOW by Betty Kinzer and ARMOR author Marion Leach ($5.95). . .GUIDELINES FOR THE LEADER AND THE COMMANDER by GEN Bruce C. Clarke (only $2.00). Practical no nonsense approach - every officer and NCO should have and read and reread this unique handbook. . .HELICOPTERS AND OTHER ROTORCRAFT SINCE 1907 by Kenneth Munson. With 82 color plates. A real buy at $2.95.

WANTED -- orders from those who suggested that we should undertake to produce THE EVOLUTION OF ARMOR print ($2.00), the "OLD BILL" Remington print ($1.50), a well made (sterling silver and gold plate) ARVN Armor Badge ($3.95), and a truly fine Armor tie in Army blue with miniature gold silk Armor insignia spaced throughout ($5.00).

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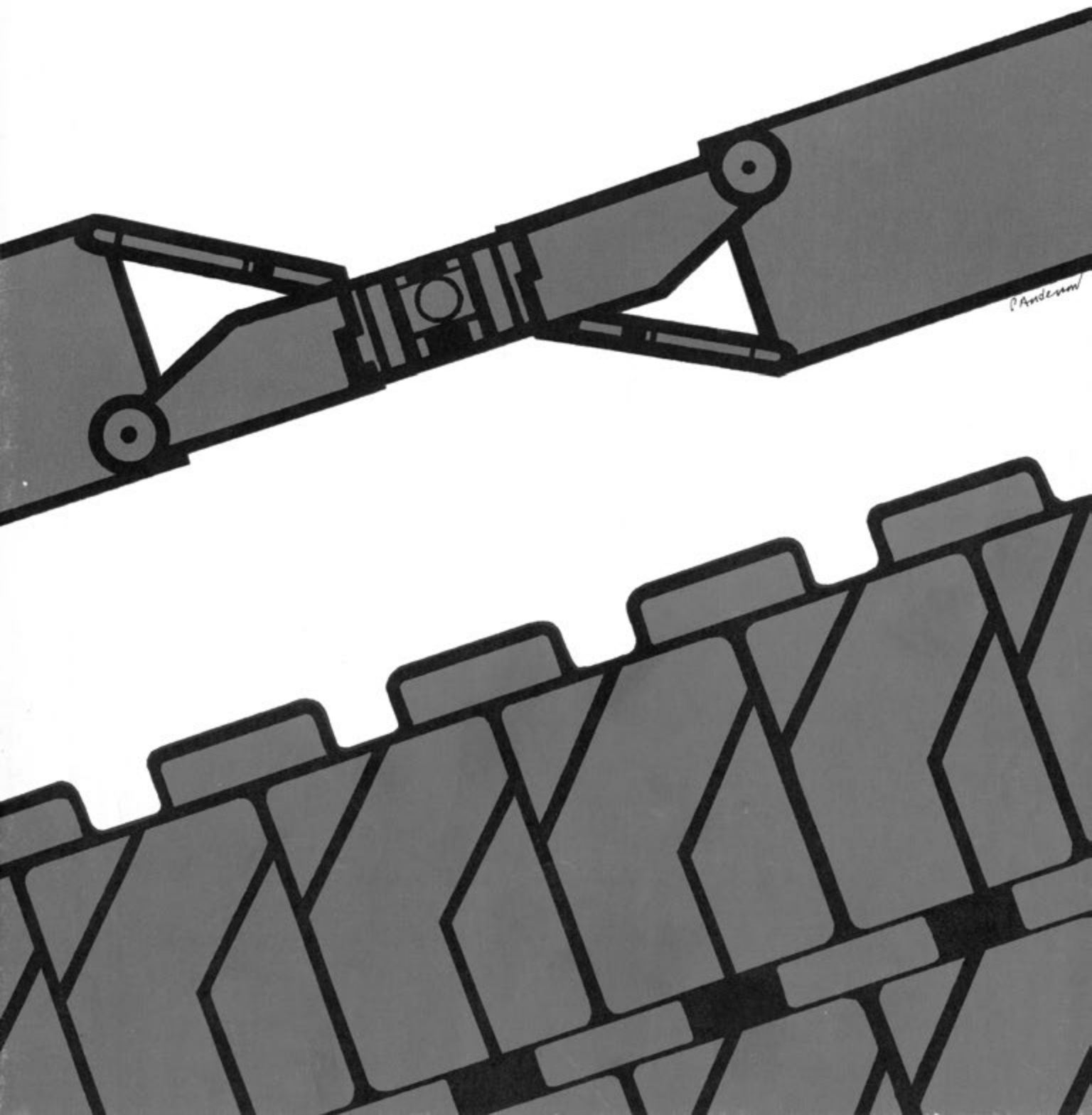

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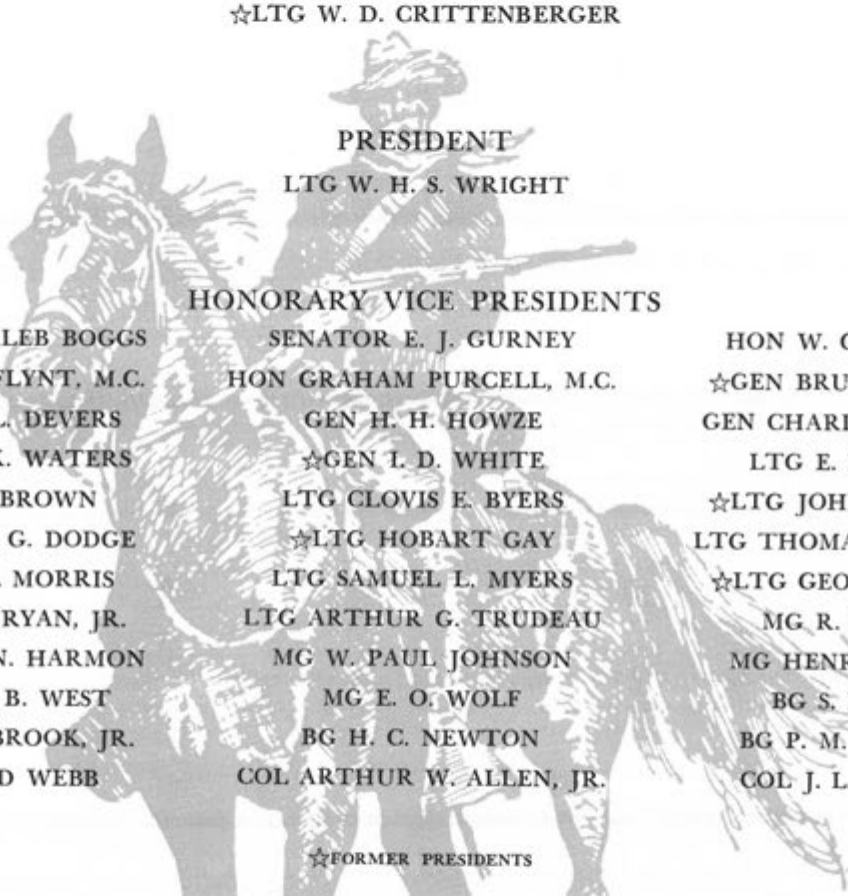

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COVER

A BOLD SYMBOLIC REPRESENTATION OF THE INTEGRATION OF THE AIR AND GROUND ELEMENTS COMPRISING MODERN ARMOR. THIS ORIGINAL WAS EXECUTED BY SP5 CHARLES R. ANDERSON WHO HAS JOINED THE ARMOR STAFF FROM THAT OF THE 101ST AIRBORNE DIVISION RENDEZVOUS WITH DESTINY IN VIETNAM.

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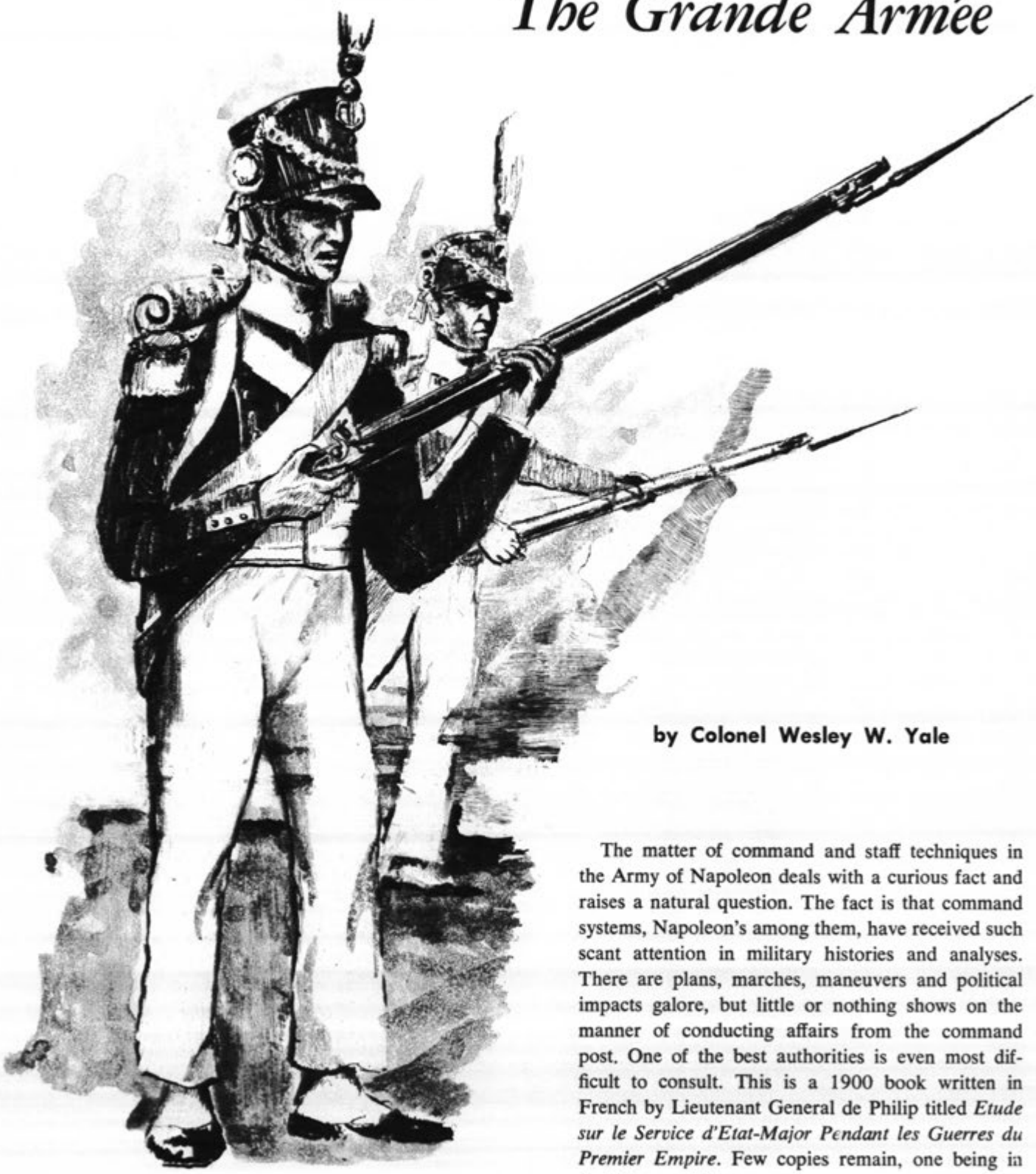
Command and Control in The Grande Armée



by Colonel Wesley W. Yale

The matter of command and staff techniques in the Army of Napoleon deals with a curious fact and raises a natural question. The fact is that command systems, Napoleon's among them, have received such scant attention in military histories and analyses. There are plans, marches, maneuvers and political impacts galore, but little or nothing shows on the manner of conducting affairs from the command post. One of the best authorities is even most difficult to consult. This is a 1900 book written in French by Lieutenant General de Philip titled *Etude sur le Service d'Etat-Major Pendant les Guerres du Premier Empire*. Few copies remain, one being in the Library of Congress.

The natural question is why, in this late day and age, the doings of relatively primitive field forces some 160-170 years ago can be applied in any way to modern problems. The best military minds have always been close students of military history, it is true, but few now realize that Napoleon and his staff operated in ways quite relevant to 1969. In fact, the deeper one goes into the subject, the suspicion grows that the Little Corporal, his staff and his mounted messengers might just possibly turn out a more mobile operation than many current experts loaded down with electronic aids.

For the past several years the author, General Isaac D. White and General Hasso von Manteuffel have specialized in the analysis of mobile command systems, past, present and future, at some length. There can be no question that the command systems used through the ages, even going back to Genghis Khan, by such leaders as Napoleon, Forrest, Guderian, Rommel, Patton, Harmon and the Israeli panzer experts, all fall into a common pattern that is independent of technology. The same pattern is exemplified today in the Strike Command and in some of the airmobile units.

Because of its comparative simplicity, the Napoleonic system is easiest to explain and understand. While space forbids discussion in detail, a few highlights will bring out some interesting parallels with many modern Armor practices and will perhaps suggest themselves as guidelines for the application of electronic tools to future battle control problems.

It has been said many times that Napoleon was "his own G3." It is certainly true that he had a tremendous capacity for recall and that he could dictate the most detailed orders for the deployment of the Grande Armée to his secretaries, Daru, Meneval and Bourienne. For example, in the case of the eastward marches of the French to Central Europe which culminated in the great victory of Austerlitz, the Emperor himself dictated at a sitting the exact routes of the columns, their composition and the lengths of the marches—all from memory.

History has it, too, that Marshal Alexandre Berthier, Napoleon's (and probably the all time greatest) Chief of Staff was only an echo of the great commander, merely transcribing and issuing the orders given him. The injustice of such a statement is fully borne out by Waterloo. Here was the only battle in which Napoleon worked without Berthier, who had recently died. It should not be surprising, then, that at Waterloo Napoleon was without real information as to either his own dispositions or those of the enemy, a situation wholly unthinkable under Berthier. The significance of this control breakdown appears to have been lost on the historians. Instead of crushing the foe at a decisive point as had been his custom, Napoleon was defeated by losing that control of troops which might have permitted the defeat of the British and the Prussians in detail.

So, far from being his own G3, Napoleon was in fact a member, albeit a positive member, of a command and staff team unparalleled in history. How did he do it?

The secret lay in the personal conduct of the commander as a front-line controller, in the permanence of his operating staff, in the bearing out of Berthier's adage that "speed is the essence of all staff action" and, most important, in the emphasis Napoleon laid on the need for giving him immediate notice of information critical to the operation. This last is all too frequently slighted in today's flood of communications trivia.

The Emperor always stationed himself well forward during battle action, insuring personal observation over the most critical areas. He did not carry the principle to the extreme sometimes displayed by Forrest, getting into an eyeball-to-eyeball confrontation via the pistol or saber route with enemy outposts. But he was always able to position himself so that he could judge for himself how the battle was going. Conversely, he never presumed to override the opinion of an on-the-spot subordinate when he personally was not in a position to see the situation for himself. This view is worth noting in an age when television is proposed by many as a major command and control tool. The Napoleonic idea apparently accepted the fact that a picture was worth a thousand words, but insisted that personal observation was worth a thousand pictures. What a lesson for modernity!

The Emperor knew the value of inspiring troops, however, and occasionally behaved somewhat recklessly as when, at Arcola he picked up the tricolor and urged on the faltering advance guard by personal example. Yet on the whole it would appear that his ability to inspire was mostly due to his ever-increasing command success, or, in other words, his knowledge of his job. From him today's aspiring leader may learn that one need not necessarily be born to the role, but may acquire it. It is significant that when success began to elude him he lost this support; even more significantly, defeat coincided with the loss of Berthier and, with him, the command and control system that had conquered all Europe.

Staff selection procedures in the Grande Armée

were the quintessence of logic. The Emperor had no use for a staff officer who had not previously demonstrated beyond all question his ability to lead combat troops under trying conditions, regardless of how fine an administrative record. For example he initially disapproved the nomination of General Girard, who was later to distinguish himself spectacularly, on the grounds that his troop experience was insufficient for service on a combat staff.

But combat staff assignments were exactly that. The work demanded courage, leadership, dash and stamina. Where routine was involved, and confrontation with the enemy unlikely, staff posts were filled by civilians. These latter were not subject to attrition and rotation to the degree of their military counterparts. Then, as now, personnel instability was a bugaboo, even to the Supreme Commander. The civilians, sometimes Gs but more often assistant Gs and clerks, provided staff continuity with the consequent teamwork that is so essential to a tactical staff.

It is reasonable to ask why the same system might not promote mobile command and control in modern units. At least it would be a step, if an experimental one, in the amelioration of instability.

Napoleon's personal mobility would have been only slightly improved by the use of a helicopter, though he certainly would have revelled in one. Sleeping only at intervals, and mainly from 1900 to about 0100, he seemed to be everywhere; a nap of an hour or two was always enough to restore his energy, which was translated into travel of some 75 miles a day as a usual thing, moving either by saddle horse or coach. In the battle area he was always at the gallop. Although his forces were numerically much larger than a modern army corps, it should be remembered that dense troop formations reduced the scope, or actual span of control, to what was probably reinforced corps size.

The equivalent of today's command vans was also employed. Napoleon's mobile headquarters was housed in a specially constructed wagon, pulled by eight horses. Within were folding tables, a seat capable of being transformed into a bed for the emperor, a place for Berthier to doze enroute, a map compartment and a larder. The coach was escorted by relays of chasseurs who ringed it during halts, when the commander and his chief studied the complex situation maps, continuously up-dated by the Engineer, Bacler d'Albe.

Two tents were pitched in bivouac, one being a command tent and the other containing cots for catnapping. A full battalion of the Imperial Guard furnished automatic security.

The personal staff of battle-tried aides included three major generals and two brigadiers. Berthier also had a "cabinet" with a secretary, aides, and Engineer and two civilian "commissioners." The Chief personally supervised a Chief of Troop Movements (with six civilian assistants) and a "secret section" of civilians which was given a quasi-intelligence role supervising spy activities and handling communications with the far-flung marshals.

The staff itself involved three *bureaux,* the first handling daily orders, letters, implementation of troop movement (march tables were meticulously used) and situation reports. The second dealt with the role of the modern headquarters commandant, plus that of military police, subsistence and medical-hospital functions. The third supervised prisoners of war, military government and conscriptions.

Additionally, Chiefs of Cavalry, Artillery and Engineers directed the activities of their specialties.

Thus the essentials of modern staff actions were present, though differently organized. Admittedly, the intelligence function was severely restricted, but in that day information was obtainable mainly through paid native informers, a source which notably dried up in later years. The Emperor depended otherwise on his heroic aides to get strategic information, the men often riding alone deep into enemy territory. Tactically, intelligence came wholly from local attacks to develop the situation (really the prime source today), backed up by an ability to react quickly to changes in troop dispositions.

The basis of quick reaction was the closeness of the Emperor to the critical tactical details and the rapidity with which Berthier's retinue was able to sift through the masses of reports to provide Napoleon immediately with the basis of continual decision-making.

To facilitate this process, all excess personnel and impedimenta were left in rear. "Rear" was by no means a skimpy affair, even in those days. General administration involved branch staffs, Health, Finance, Postal Services, Transport and Printing. The headquarters rolls included some 400 officers, 5000 men and 500 horses. Hence the problem of keeping routine administration from clogging the tactical processes was as real as it is today. The important fact is that Napoleon and Berthier solved the problem.

The battle command post was simplicity itself, Provisions were made for alternate CPs. The advance

command post, analogous to today's tactical operations center, was generally manned by the Emperor, two general-officer aides, Berthier, one general staff officer and orderlies. The composition of this group varied according to the demands of the situation, perhaps including the Chief of Artillery if heavy support fire was demanded. But the group always occupied a position affording maximum observation of the critical fragment of the battle area.

The limited range of the weapons of the day permitted a second tactical grouping, usually some 400-600 yards to the rear. This group was split, one element comprising Napoleon's aides and orderlies and the other containing Berthier's aides and orderlies, the principal Gs and the branch Chiefs.

Some 800 yards further to the rear were stationed the remaining elements of the tactical staff under a general officer.

There is nothing here that differs essentially from modern thought or practice except in relation to the degree of deployment. The important feature is that Napoleon exerted a firm command over his staff personnel and was never led by them. He never retreated to an ivory tower, to be informed when the staff had arrived at a complete and time-consuming study of comparatively simple options. He was personnally the most indefatigable of the lot. Also, Berthier's strong supervision of the process of information gathering, collation, reduction to decision-making essentials and rapid dissemination fully supported his policy that speed was the greatest essential of mobile staff action.

As to mobility, even today's airmobile deployments should not wallow in self-complacency. It is only necessary to recall that Marshal Davout's column marched 90 miles in two days, only to arrive at a critical moment in the Austerlitz battle and, without rest to be launched into action and to score a great victory. There were giants in those days!

Supervision of the planned action in a tactful manner was, however, probably the greatest key to Napoleon's success. The system not only insured rapid information exchange but provided a rapid and ready means of checking the accuracy of reports, overly pessimistic or overly optimistic, that filtered back from units in contact.

The aides were the instruments of this policy. Their names read like a guided tour of the streets of Paris, to show the reverence for their records and the degree of their importance,—Rapp, Lemarois, Bertrand, Mouton and many others. Their heroism made D'Artagnan a fairly pallid figure.

In addition to being combat-experienced, these aides were close confidants of the Emperor and were thus privy to his detailed ideas on the way a battle should be conducted. Therefore they would be sent to key areas on the battlefield, to observe, guide and report back on the progress of the action. Further, they would often be entrusted with temporary command of special elements such as advance guards (task force) or the commitment of a reserve. Sometimes the branch Chiefs, as suggested, would be put in command of massed cavalry or artillery.

In contrast to the idea of an aide today, these men were general officers of repute, whose association with Napoleon was such as to inspire trust in the commanders whom they visited. They were not intended to spy upon subordinate commanders. Na-

poleon made it clear that his relationship with these commanders would not be impaired by tactless behavior on the part of the aides. As a result, a visit from one of the aides was welcomed as evidence of command support. Their reports cut quickly through the normal channels of command, their recommendations insured rapid support in the form of additional artillery, engineer or assault-force efforts at a critical point and they guaranteed accuracy in routine reporting through command channels.

The practice is perhaps impracticable in modern times when officers of such rank and qualifications cannot be spared for aide-de-camp work at any level. Further, present-day personnel instability may result in green staff officers being regarded with suspicion throughout the command hierarchy.

However, where simple observation tasks can be handled tactfully and closely coordinated with the local commander, the system promises great rewards, especially where radio reports supersede horse-mounted aides. Patton used a variation of the system to ease reporting burdens in the Third Army. Von Manteuffel called his aides "cowboys" and swore by them in the German panzer units. Forrest copied the Napoleonic system exactly, which accounts in great measure for his phenomenal success.

A possible solution for the problem of using staff observers mounted in motor vehicles or aircraft is dependent upon careful selection on the part of commanders. It is vital that there be a thorough understanding of command and staff relationships as imparted by the commander himself, to show that the primary relationship is that which exists between the commander and the leaders of the next echelon below. The staff exists only to facilitate this relationship.

Perhaps, in the division echelon, supervision of a system of staff observers would most conveniently be delegated to the assistant division commander, whose post in the modern Army is often obscure. Staff observation by helicopter of course enhances effectiveness and, especially in the airmobile units, even the chief of staff can afford occasionally to be mobile.

The lessons to be learned from these experiences of the distant past are largely reiterative to those who are experienced in highly mobile warfare with larger units. Command forward is almost axiomatic in today's doctrine, yet a lapse into static warfare may result in forgetting this cardinal principle. A television set and a computer offer inviting possibilities in an age when nuclear battlefields are in prospect. The experience of the past, however, suggests that no technology substitutes for forceful command presence at the critical point of action.

The use of data processing in today's tactical command post promises to be solely a command and staff aid, much in the manner that Napoleon was helped by his card index system. Information retrieval in microseconds, however, while it saves time for staff personnel who might otherwise be questioned, does not mean that a machine can give staff advice, nor mechanically speed information flow. There is no present method of programing a computer to sift out the critical information from the routine. As to speed, studies at Stanford Research Institute have shown that 100 percent efficiency in mechanical performance, which includes data processing concepts, will not significantly speed up the flow of information as long as people must get into the act. Whatever the final possibilities, it is mandatory that machines be designed and geared to fit the command and control system rather than have them develop into malevolent robots to whom weak commanders and inept staffs pay homage.

There is nothing new about staff and command supervision of battle action but the idea is not always easy to put over. Liddell-Hart wrote in his *Memoirs* that "one of the most notable features of these 1931 exercises was the new (?) method of leadership that General Broad had introduced to quicken the delivery of thrusts. . . . For years I had been urging the idea of what I called 'liaison forward' as a modern application at all levels of command. . . . of Napoleon's practice of employing expert aides, both to obtain early information and to convey the senior commander's intentions to the local commanders, instead of waiting for them to send reports back . . . by which time the situation may have changed. . . ."

These are just a few highlights of the fascinating command system that was the primary reason for the success of the Grande Armée. A thorough study is recommended to serve as a basis for the application of modern electronics to speed up the transmission of decision-making information.

COLONEL WESLEY W. YALE, USA-Retired, commanded Combat Command B of the 11th Armored Division in World War II combat, earning special commendations for skill in combining air, tank, artillery and infantry action. Since retirement he has served over 10 years as Senior Analyst for Stanford Research Institute, specializing in command-control projects. He has recently served on a consultant basis at Headquarters, European Command and at the German Ministry of Defense in this specialty. Colonel Yale is a former Editor of The Armored Cavalry Journal, the immediate predecessor of ARMOR.

DIPLOMATIC OBSERVATIONS

Roger A. Beaumont

sketches by the author

From the field report of Mr. Ernest Fervid, U. S. Consul in Borovia, 16 September 1981:

It is very hard to tell it like it was, when recovering from the effects of Borovian hospitality. Borovia is hard-pressed, its very existence threatened by its neighbors, the Dravonians; but this seems to sharpen the Borovians' senses and produces what Americans used to call a gut-love of life. When I was invited to visit their forces in the field, it was really because my mother's parents had come from that country, and my knowledge of the language helped me to gain a consul's post. Since the U. S. has been traditionally pro-Borovian, I was given better-than-average treatment.

I was introduced to the Minister of Defense, Colonel Blarz, who then proceeded to show me around, within the normal limits. He answered most questions, trusting my diplomatic discretion and, as he put it, my latent Borovian loyalties. I was, of course, not shown everything, but I saw enough to make the trip most interesting.

The Borovians have for some time been involved in a nasty limited dispute of sorts against their eastern neighbors, the Dravonians, over the forest highlands that lie between the two parallel coastal ranges. Mining prospects in the area are tantalizing to both countries, whose economies could use such a fillip. Attempts by the Borovians to seek U. N. intervention, and by the Dravonians to force a plebiscite, since they control most of the villages by terror, have been the background to a continual, nasty bloodletting. Each side is, of course, receiving various types of aid from interested countries.

It had been over a decade since I had seen troops in the field, and thirty years since my own experience in Korea. Therefore, I had a frame of reference, but only that. My interview with Colonel Blarz suggests this.

As we approached the area known as the forward action zone, I commented to the colonel on the relative quiet. Although a somewhat clearly defined front had been developing along the Marva river line, and we were within ten thousand yards of the enemy, I heard no sound of friendly batteries.

"Of course not," the colonel said, shrugging. "We will hear their shells falling and, later, their guns, but not ours. We have soundless, flashless artillery. Not only is it easier on our gunners' ears, but it denies the enemy ranging assistance and heat traces. They fortunately are short on counterbattery radar."

"Yes," I said, "but how does it work?"

The colonel then doodled on a pad, explaining that there were things faster than the speed of light, which upset me somewhat, and that an extension of this principle with the application of a vacuum chamber and spring pressure produced sufficient force to propel a missile some distance. Unfortunately, he did not let me keep the sketches, and we saw these artillery pieces only at a distance.

The next thing I noted was that the troops were not in a standard uniform.

"Oh," the colonel said, who wore a uniform himself, "only we regulars affect conventional haberdashery—sometimes. We are rather strict on hygiene, but like Wellington, Montgomery, Lee, Washington, and Dayan, we have other things to worry about. After all, uniforms were functional in the age of black powder, when battles were fought in sight of the commander. We insist on the armband specified in the laws of land warfare, and hygienic hair length, but little beyond that. Like Montgomery, however, we do frown on silk hats and the like. And our cyborg troops are a bit more standardized, you see."

"Cyborg troops. But cyborgs are expensive, aren't they?"

"Initially, yes," the colonel agreed, as the jeep we were riding in turned into a dirt track off the main road into the mountains. "But, well, you'll see."

We proceeded into a wooded area, and then down into an underground chamber, which had been

formed by the filling of a camoufleé with a plastic bag, then coated with foam. The interior was sparkling with instruments and rows of cabinets.

"This is one of our aid stations. You see, when we have a serious wound case on the battlefield, the man is given an injection and then placed in a cocoon made of special plastic."

He held up what looked like an opaque plastic mattress cover. "Once he is in here, he is quick frozen by pulling this string. That little box in there, a chemical refrigerant unit, does the job. He can be left on the field forty-eight hours without any metabolic change or infection problem. Then he is evacuated by available transport. He comes back here and, if physicians are on duty, is operated on. If not, he is transferred to one of those metal cases, where he can be kept, well, for quite a while. Naturally, we try to get a man back to duty as soon as possible."

"Does this reduce the battlefield death rate?" I asked.

Colonel Blarz nodded. "Yes. And it avoids problems like the old immediate demand for helicopter air evacuation that added to the confusion of battle."

At that point I asked about the cyborgs, and Colonel Blarz led me to another section of the underground complex, to a large barracks room and an attached workshop which had an adjoining operating room.

"This is the 12th Cyborg Platoon. These men are all volunteers, naturally."

The men looked relatively normal at first glance, and then, after I put my glasses on, I could see that there were electrodes, flat junction boxes, and other fittings visible on some of those who were not fully clothed.

Colonel Blarz called over a uniformed sergeant.

"Sergeant, a visitor. Mr. Fervid, the American Consul. He'd like a briefing."

The sergeant saluted. I breathed a sigh of relief. They did still salute.

"As you know, sir, there are certain types of operations where high casualties can ordinarily be expected. Our medical people can't always go along. Say, we want to man a special outpost that must hold out for a certain period, and we know it'll be under direct fire all the time. Something like that.

"Instead of sending a platoon of men who would need sleep, who would be knocked out by wounds easily, and who would suffer normal shock, we send about a third of the number of regular troops, except they are our chaps.

"This lot can survive and fight for days after being exposed to fatigue and wounds or worse that will wipe a regular unit three to six times its strength off the books. And what's better, they can be spared a lot of the anxiety. You see, they can control the flow of adrenaline, various steroids, uric acid level. They can take a direct hit in any vital organ and a substitute kicks in. We're working on an electronic eye . . ."

Colonel Blarz coughed and frowned, and the sergeant blushed and stammered.

"Well, anyway, you can see that there's another benefit. We keep the enemy off balance, because he doesn't know where or when or what kind of cyborg we're committing, or if it's a cyborg at all. So he has to prepare for the worst. It's getting to the point where regular infantry doesn't stand much of a chance, what with smell, heat, and sound sensors.

"You'll notice too, sir, that their weapons are a little more sophisticated . . ."

Colonel Blarz took me by the arm.

"Thank you, sergeant," he said curtly. We went back out through the medical section, where a team of doctors was now working in the operating theater, and then up into the daylight.

"Sergeant Kronj," the colonel said, as we reentered our jeep, "is naturally enthusiastic about his work. That can be a problem. Creativity versus stability is the greatest dilemma that any organization faces, I'm sure you'll agree."

I nodded, trying to remember the configuration of the unusual weapons that I had glimpsed at the end of the room; but they were wrapped in plastic sheets, and in the shadows.

As we proceeded along the main road, I noted that there were no more signs. Instead, there were only planks on stakes, that looked very much like camouflage samples or tests for color blindness. The driver stopped and put on a pair of goggles.

"The road signs cannot be read except with the special goggles of the day. It's a color-coding system. The enemy can penetrate it, of course, but not easily.

It definitely makes it hard for his armored units to use our road signs at short notice."

After we had stopped for lunch, we turned off the road again.

"A bit of a counterinsurgency problem here," Colonel Blarz explained. "There are about three villages here that they've been using as bases for their handiwork. Biggest headache is tunnel complexes. This is a mining district, and they dig as easily as they breathe. But we think we've got that under some kind of control."

As we arrived, I noticed camouflaged trucks and much interesting looking equipment. We got out of the vehicle near what looked like a large piece of radar equipment.

"Not radar, really," Colonel Blarz said. "It's a tough steel alloy shaft that we drill into the ground. We have an adjustable flywheel up there, you see, which is operated from that generator over there. We can control the amount of eccentric of the flywheel and set up some rather interesting vibrations. Over there is an ultrasonic projector. Not quite as good, but better in built-up areas, so we don't shake the buildings down. They'll want to clear the area now, so we'll be on our way."

We passed several engineer trucks that were also leaving the area. As we reached the main road, I commented that the road seemed to be roughening up.

"Not at all," Colonel Blarz said, smiling. "They've just begun to shake the moles out of their holes."

He asked the driver to stop, and the jeep continued to bounce.

"That's done it, I'm sure," Colonel Blarz said, and we drove on. "Their tunneling business will be very bad this year."

The sound of shellfire—or rather shell impact—began to grow; and the colonel and I left the jeep and driver and proceeded on foot to visit an armored unit commander, a major, with a total command of twelve vehicles, each less than a yard high, and two assistants. The major was rather busy during our visit. His zone was under attack by a small patrol of Dravonian armored cars and light tanks. The major scanned the twelve television screens in his underground command post. Resembling a concert organist, he zoomed the cameras on the vehicles in and out, fired the weapons of the low silhouette drone vehicles, and displaced them as they came under fire. His assistants helped when things got tight. After half an hour, the enemy was leaving the zone and three drones were pursuing them with harassing fire.

Finally the major, drenched with sweat, turned to us and greeted me with what I thought was remarkable amiability, considering his recent ordeal.

"Glad we could show you our stuff."

"I should think," I offered, "that it's most disheartening for them to lose to peopleless tanks."

The major shook his head. "No, those may have been drones, too. Probably just a probe. That old stuff is expendable. They have a new mobile command module which may be better than ours. Chinese, we think. Been this way for a week. Keeps us hopping."

"How about jamming of your control frequencies?" I asked, trying to sound knowledgeable.

The major smiled. "Oh, we have several modalities, eh, Colonel?"

Colonel Blarz nodded. "Yes. Laser line-of-sight; infrared, and although it's more limited, direct wire. But all less effective than our shaved frequency stuff."

We kept moving forward and encountered one of the major's repair teams, working on one of the drones, whose track system had been damaged in the recent encounter.

"Have to tow it back, eh?" I asked.

The ordnance corporal shook his head. He was wearing a kind of armored suit, and proceeded to pull the track off and remove one of the idler wheels in deft, easy motions.

"These man-multiplier things," Colonel Blarz said, "have changed our whole logistical picture. Our freight handling units have been reduced to a fifth their former size. And these chaps can fix things in the field that would have required echelon support a few years back. Of course, you've had them for some time."

I shook my head. "I'm sorry, Colonel," I said. "I'm one of the old brown-boot army."

"I beg your pardon?"

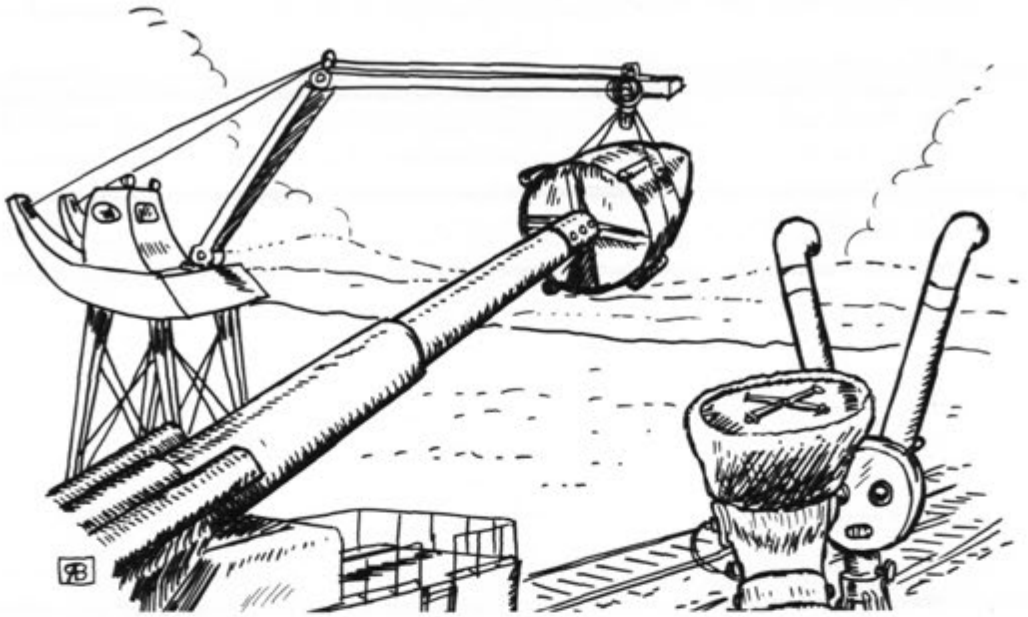
"Just a folk-saying back home," I replied. "One thing that puzzles me—among others—Colonel, is the lack of supply traffic on the road. We've seen few trucks and ambulances, considering all the units we've seen . . ."

Colonel Blarz nodded. "Quite right. In your day, the so-called main artery of traffic was rather clogged with various vehicles. We avoid that several ways. First, the river is used now, as are open fields. Hover-transport, you know."

"Of course," I said.

"We'll be going back that way. But we also resupply units that are independent of our contiguous front . . ."

"Sir?"



"Units beyond the front line."

"Thank you."

"You see, we've learned a lot from those old blue sky projectors of the future, like Robert Sheckley and Colonel Rigg. We haven't leaped quite so far. But take our resupply techniques, as I was saying. We sometimes use old railway guns, coastal defense things that we bought up after World War II. We owe a lot to old General Schmartz who saw their eventual utility. Some thought he was regressing in his dotage. Well, those guns are a great help. Not only do we use them as artillery against pin-point targets—with rocket assist, and a high-altitude monitor watching them and guiding them in—but we can loft special supply pods at closer range."

The colonel drew a little sketch. "The supply units fit into the end of the barrel, we crank the gun up, and coming down they break out a series of parachutes using VT fuzes to bring them into a DZ right where we want them. At two tons a crack, we can get a lot of things to our boys out there."

"No fine crystal."

Colonel Blarz shook his head. "No, nor the mess silver. Our high-altitude bombers "bomb" the supplies in, too. For the more delicate items we sometimes use small low-altitude blimps, that creep in. The blimps use a warm air heater in addition to the helium, in case they get hit. A little life insurance, so to speak. But for most things, we use drone armored tracked or hover convoys, guided by radio. They run at inhuman speed and make ambushes difficult. I mean, what can a Molotov cocktail do to a crewless vehicle if the cargo's insulated and fireproofed?"

Colonel Blarz decided we should turn back. He said that he couldn't afford to get me hurt, but I had a feeling that it might be more of the security treatment I had seen with the cyborgs. He did make some general remarks, which reinforced my suspicion.

"A problem with the business of combat is that there is emphasis on killing. Of course, a soldier has to be ready to kill, just like a policeman. But an old British soldier, General Fuller, noted that the Western image of war was a sword, and the Eastern the bow and arrow. For example, Mr. Fervid, it is more valuable to wound a man in some circumstances. It costs more to take him back and patch him up. Unless you decide not to. Then you have to face the erosion of morale. Once a man is wounded, he may be smarter. That is, more cautious. At any rate, he will go home, and the folks will see that he has a wound stripe."

I tried to press this point, but the colonel began to discuss the species of trees in the valley. We finally got to the jeep; and as we climbed in, a yellow light flashed on the dashboard, and a buzzer. Colonel Blarz handed me a set of what looked like earphones.

For ten minutes we sat as the jeep rocked with the recoil of what seemed to be huge explosions. It was quite annoying. Then the colonel took his ear covers off.

"One of the advantages of our air superiority. We subject the insurgent supply routes to a random pattern of sonic booms. It may not kill, but it does have some effect on the efficiency of their bearer teams. Some of them have to be drugged, we've learned. Even then, there is a rather unpleasant psychological-physiological reaction. You can understand. We're a good way from the zone, and with ear defenders, it is still most unpleasant."

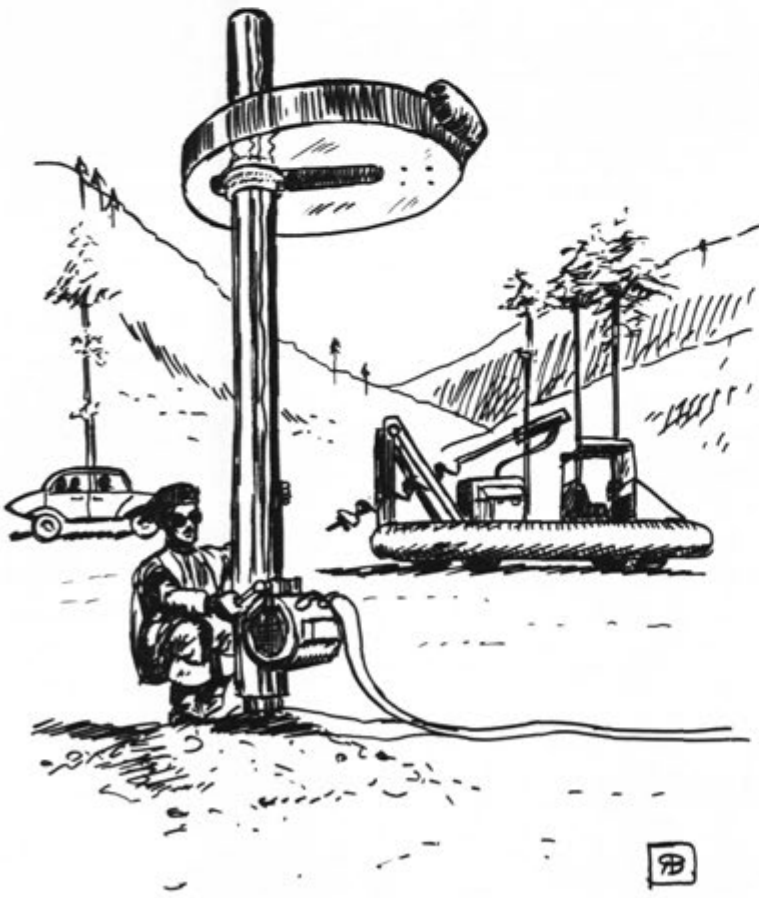
I agreed, and we proceeded back toward the sup-

port zone. At one point, we passed a prisoner of war cage, and I noted that the PWs seemed quite animated and cheerful.

"A week ago," the colonel said, "those men were the fiercest junior officers and NCOs the Dravonians had in the field. Now, they are our staunchest assets. They will lead volunteer teams against the Dravonians in a month."

I raised my eyebrows. "Narcotized?"

The colonel shook his head. "No, no. Our system was initially developed by our Institute for Psycho-Military Research. You see, at first we were just interested in personnel selection and pre-screening. Oh, the advances there were dramatic enough. We stopped paying attention to what people wanted to be in terms of rank, but started looking for those who had what it takes. We owe the Germans something there. They had a very low failure rate among junior officers with their crude tests, so we got a little more sophisticated. Well, then we became aware of another aspect of the problem. We found out that there was a way of telling what people liked and didn't like. What they found pleasurable and painful. And what they recognized and didn't recognize. Far easier than the old lie detector test, really."



The colonel was most animated when discussing this program. "A political scientist in the group remembered something about an old Middle Eastern murder cult . . ."

My eyebrows must have gone up again on that one, because the colonel insisted I wait until he was through.

". . . the original Assassins."

"Yes," I said. "The Old Man of the Mountain's pleasure palace."

"Of course," Colonel Blarz said, "you can see the general picture. For thousands of years, men have tried to change each other's minds through the use of terror, intimidation, threat, argument. All quite ridiculous. The Old Man of the Mountain knew that. He got his men to work for him through the pleasure principle."

"Yes, I recall. An artificial paradise, with hot and cold running, very specific pleasures."

The colonel frowned at that. "That's the schematic basis of it. I can't tell you about actual techniques, but, believe me, the carrot is better than the stick."

At that point, we entered the supply zone and picked up speed on the improved roadway. By the end of the day, we were at the Recuperation Point Officers' Mess, a kind of resort area for men just back off the line. The atmosphere was simple, with A-frame quarters and various therapeutic and sporting facilities. In the evening, we dressed for dinner and I found myself immersed in rich Borovian hospitality reminiscent of my mother's cooking—and the wild Borovian beverage, *bor*. Under the effects of *bor*, one is invariably amiable, but less than discreet. Of course, amateurs succumb quickly to its effects, so that breaches of discretion are usually lost to memory. Perhaps they thought that I was such an amateur, but I am no stranger to *bor*. It is, therefore, difficult to tell if the stories I heard in the mess were told in the expectation that I would not remember them, or that I would, and relay them to my superiors.

Much of the discussion among the officers was in reference to new techniques of armoring vehicles, and highly technical, with much scribbling on tablecloths and napkins. There were schemes for encasing the vehicles with cellular rubberoid self-sealing jackets, which enclosed liquids to absorb or extinguish shaped charges. Another design which I can recall is one incorporating many thin layers of light alloy, rather than one layer of solid armor. An argument developed on this point, the question being whether such an arrangment would slow an armor-piercing shell more effectively. One version had the plates sprung or

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hydraulically buffered; another had the spaces between the plates packed with liquid or asbestos. Basic to the discussion was the application of such light armor systems to air-cushion vehicles.

I also overheard discussions about the morale problems among armored commanders and troops—not drone operators—due to the effects of direct laser light on the eye. Filtering without dimming the field of view was, it seems, causing much trouble, and the laser was being used as a night attack support weapon by the Dravonians.

Also frequently mentioned was a recent triumph by the Borovian psychological warfare service, whose field teams are rated as a combat branch. It seems that several roving columns of troops were deployed behind the Dravonian lines, some of which were actual infantry units, and the others "simulator" teams, resupplied by "bombing" and the big guns. By using artificial heat emanators, sound generators, and faked radio transmissions, they had drawn large numbers of Dravonian forces into their area. Then the Borovian air force and the long-range artillery had chopped them up. The psywar teams also suffered, but the losses inflicted were so dramatic that the technique was repeated. Most effected, Colonel Blarz said, after his fifth *bor*, was the "phonying" of a large fortified outpost. Aircraft flew in and out, faking massive supply deliveries and troop movements, but the actual number of the garrison was about thirty, controlling an array of electrically-controlled positions. Since this was closer to the main front, conventional artillery was able to really smash the surrounding forces, or so the psywar officers insisted. Most of them wore wound badges.

Another device mentioned in passing was an area compass deflector. But my questions on that were met with stony glances, even by those most advanced in their drinking. The generation of enough power to create a compass variation would require something like atomic power. And the Borovians are most anxious not to discuss any aspect of their nuclear program, research or application.

My resistance to Borovian hospitality was limited, of course, and the evening ended more marked by conviviality than technical discussion.

In summary, I can only say that I enjoyed my stay with the Borovian field forces and that Colonel Blarz was most gracious and hospitable. Their procedures and attitudes are conditioned, of course, by their unique position and their economic resources. As hunger is the best sauce, slimness of resources—within limits—may be a stimulant to creativity and efficiency. It may be that the growing role of esoteric technology makes simplicity rather more of an ideal than an operating principle.

CONSCIENCE-CLEARING STATION

The old Cavalry sergeant had served his colonel for many years through long and short campaigns, good days and bad until the colonel was *detailed east* for staff duty in Washington. As they said their warm good-byes, the sergeant announced that he preferred not to serve under anyone else and would therefore retire from the Army.

A few years later the colonel went out to the frontier to inspect one of his old posts and promptly ran into his old sergeant, still in the Cavalry.

"What are you doing here, sergeant?" he asked. "I thought you were going to retire."

"I was, sir," answered the old soldier. "But when they checked my records they found I had three years of Artillery service and I didn't want to retire without making it up."—BILL HERMAN

the ARMOR BATTALION

INTEGRATION 1970s

Major James T. Roberts, Jr.

Armor organization, as it is known today, has evolved from the concepts first developed and used so successfully by the German Army of the 1930-40's. The tank battalion, the basic fighting force of the regiment, brigade or combat command, has had, almost without exception, the tank as its basic weapon. The tank battalion has also been oriented in its configuration toward the principle of mass to enhance its fighting capability. The German theorists visualized, as did other military leaders in later years, that the tank with its cross-country movement, firepower, shock action and communications means, was the key to mobility and penetration power on the battlefield. This is still true today.

Traditionally, the tank battalion has contained three to four tank companies composed of a varying number of platoons of five tanks each. Rarely, however, does this "pure" battalion operate in the field with only its organic elements. The battalion organization for combat has almost always included attachment of mechanized infantry elements, usually of company-size strength. In reality, it becomes a mixed unit for field use and retains its "pure" identity only during garrison duties. As the mechanized infantry, by evolution, experience and doctrine has been considered part of the armor team, the next step may be the inclusion of organic infantry in the tank battalion. Whether or not this will happen is an open question but battlefield experience indicates the trend.

Much more radical, however, is the impact of the helicopter, that mobile, aerial weapons platform used so successfully in Vietnam. In recent years an increasing number of Armor officers have been trained as aviators and have been able to apply armor concepts to the Army aviation field. Using, and expanding on, doctrine written for the divisional armored cavalry squadron air cavalry troop, these aviators have made the air cavalary squadron a permanent part of the inventory of Armor units.

Armor now utilizes the helicopter in three types of units: the air cavalry squadron, the divisional armored cavalary squadron and the armored cavalry regiment.

Interestingly enough, deep thought apparently has not been given to the addition of the helicopter to the tank battalion. Immediately recognizable are the problems of specialized maintenance, increased logistical support requirements and splitting of assets which usually dampen any desire to experiment with, or tactically control, such an addition.

However, the trend is toward increased use of helicopter support in all tactical facets of the future battlefield environment. MG W. M. Hutton of the British Army, in an article in the December 1968 *Military Review,* envisions greater use of helicopters in conventional formations and writes that they "provide a perfect partner for the tank, particularly the advanced tank of the future. Based on this, can the helicopter be integrated into the tank battalion of the future?

Before attempting to visualize possible organizational configurations of the tank battalion of the future, a look must be taken at the type of battlefield on which it will be called upon to fight and survive successfully. Although the battalion must be adaptable to all forms of warfare, from low intensity to high intensity, it is the high intensity level of conventional or nuclear conflict that the battalion must be oriented toward. In any case, mixed units will be used extensively.

Mobility will be the key to survival because of the extended battle area brought about by the destructive effects of nuclear weapons together with rocket,

artillery and aerial fires on static elements. To counter this threat, units will be dispersed widely, massing only at the moment of attack and penetration. Fluidity of battle will predominate with extensive observation and reconnaissance being vital. Quick massing of firepower on the enemy's weakest point will continue to have a high priority. And prompt follow-up for his destruction will be paramount. Much of the tactical effort will be through extensive use of aerial attack, reconnaissance and transport elements.

The present tank battalion is fairly inflexible in relation to what may be desired of it under the conditions described above. There is a danger of retaining such an organization through the ages just because of its proven worth in the past. The King of France certainly thought the knight was the answer at the battles of Crecy and Agincourt when in reality it was the English longbowman.

But reorganization of a unit structure is a costly and lengthy process which must be fully justified through extensive study and analysis before its final adoption. Some proponents of reorganization urge changing the tank battalion structure by increasing the number of tanks through the addition of a fourth company. Others are most emphatic that the large headquarters company be divided to place its combat elements in a combat support company. Both concepts have merit, and each has been tried in the past with varying success. In all this, however, one rarely hears of any radical alternatives that would produce greater flexibility, mobility and firepower for the tank battalion of the future.

Imaginative alternatives can be visualized if one wishes to think in terms other than the tank. The future brings the new *MBT70* family of tanks to the battlefield. But under the battlefield conditions described above, even this tank cannot long survive unless integrated into a combined, flexible battle team. This team should include infantry mounted in mechanized infantry combat vehicles (MICV) and aviators flying observation and attack helicopters.

ORGANIZATION

Two formations are visualized for the battlefield of tomorrow. The first would be for "tank country" where armor-heavy units are desirable. The second would be for "neutral country" where a mixed force is needed. Both utilize observation and attack helicopters as an integral part of the formation. The latter uses increased mechanized infantry.

The basic tank battalion would be structured around three tank companies of four platoons each. Three of these platoons would be tank platoons armed with the *MBT70*. The fourth platoon, the aerial assault platoon, would utilize an Advanced Aerial Fire Support System (AAFSS) helicopter. This integration of the helicopter platoon in each company would provide the company commander a flexible and useful tool of aerial firepower and reconnaissance that he could use in all phases of combat. The battalion scout platoon would include a section of four light observation helicopters.

An alternative would be the retention of the aerial assault platoons at battalion level in a fourth company. This company would provide direct or general support to the battalion while retaining control of the helicopters for command, maintenance and logistic support. This concept has the advantage of retention of tactical flexibility at battalion level, but precludes a closely integrated working relationship with the tank platoons which the aerial assault platoons would be operating with.

It can be noted immediately that the addition of the aerial assault platoons would increase the vehicle and equipment inventory over that of the present table of organization and equipment. As this is not a desirable feature due to increased size and cost, thought must be given to reducing the number of vehicles and the amount of equipment in each company to an acceptable level while retaining the same organizational characteristics of the present configuration.

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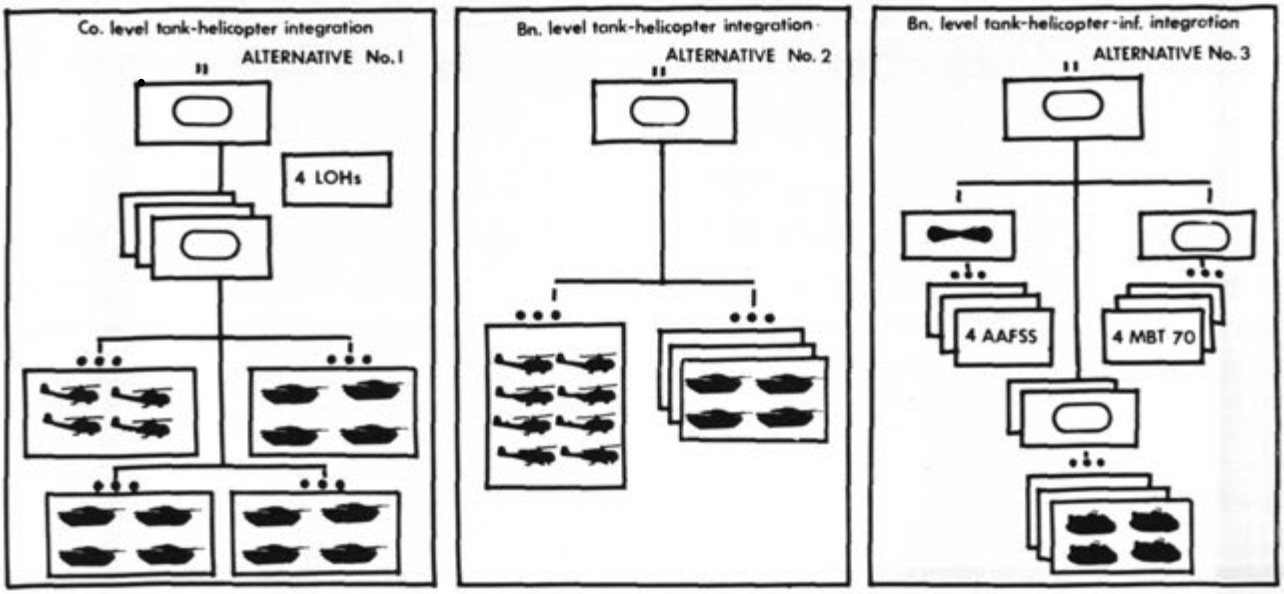

The advances made in the target acquisition and weaponry fields certainly will not hinder a reduction of combat vehicles. In fact, management and control of a smaller number of combat vehicles will be much more important in the future.

It is proposed, therefore, that a standard number of four be applied to each platoon. Each platoon would have four tanks or four helicopters. This permits the retention of the capability to operate in sections or pairs while reducing the span of control. A tank company would then have in its basic organizational structure 14 *MBT70s* and four AAFSS helicopters. A battalion would have approximately 48 tanks and 16 helicopters under this concept.

The proposed integrated configuration of the tank battalion would include mechanized infantry in recognition of the fact that the tank-infantry team is necessary to create a well rounded flexible organization capable of fighting on all types of terrain. Infantry support is just as necessary under desert conditions as it is in the jungles of Southeast Asia.

Each tank company would contain two tank platoons, one MICV platoon and one aerial assault platoon. The inclusion of the MICV platoon gives the company commander the same relative flexibility that he has today when in the cross-reinforced role with an infantry unit. The heavier light weapons system on the MICV, in relation to the caliber .50 machine gun on the *M113*, would partially compensate for the loss of the third tank platoon. A company so organized would have a total of 10 *MBT70s*, four MICVs and four AAFSS helicopters. The battalion would have its tank inventory reduced to 36 tanks with a corresponding gain of 12 MICVs.

The inclusion of mechanized infantry as an integrated part of the tank battalion will cause little radical change to present armor concepts and doctrines. The mission of the infantry will remain the same while its effectiveness will be increased through its close relationship with the other members of the integrated team.

EMPLOYMENT

The combination of tanks, mechanized infantry and aircraft into a completely integrated team has yet to be fully exploited. The experiences of World War II and Vietnam indicate that there is a need for such integration, but to what extent is not equally clear. Although there is an excellent understanding among armor commanders of the concept of employment of the tank-infantry team, only recently has the concept of helicopter utilization been introduced. Little doctrine has been published on the use of the helicopter as a battlefield weapon. With specific reference to armor, only the role of armored cavalry support has been formalized. Nothing has been written on the capability of the helicopter to perform as an attack aircraft in concert with other armor elements.

Employment of the fully integrated tank battalion will be discussed here briefly with specific reference to its capability to accomplish various tasks it may be assigned. Much of this discussion will center on the use of the helicopter, since the tank-infantry team will continue to use essentially the same tactics that have been developed in the past.

On the conventional or nuclear battlefield, it is

envisioned that the integrated battalion will continue to be the backbone of the forces of mobility and striking power. In the attack, the battalion initially will employ its aerial assault platoons, in coordination with supporting artillery, to soften the objective designated for the assault. This constant observation and attack in the designated battle area will allow the battalion commander to keep his ground elements well dispersed until the time of attack, missing them only at the most opportune time for penetration and destruction of the enemy. When the actual ground assault begins, all available helicopter support is thrust into the battle area to destroy, or suppress, any enemy that moves to defend, reinforce or retaliate. As the objective is penetrated and overrun, helicopter employment changes to that of pursuing the enemy, reporting his movement and attacking to destroy or to frustrate his regrouping efforts. Reports from aerial assault elements over the objective area will lead the tank-infantry forces to the enemy positions for mop-up and destruction. During the reorganization and consolidation phases, the aerial assault platoons range outward from the objective to seek out and report on the enemy and to disrupt or destroy his attempts to counterattack.

Because of the potential threat of enemy nuclear strikes on the attacking forces, all action must be characterized by the use of maximum firepower on the objective, quick massing for the assault, and rapid penetration and destruction of the enemy defenses. Just as important is the quick dispersal of the ground elements during the reorganization phase. The use of helicopter elements in coordination with the ground forces fulfills these requirements and helps to reduce the risk of a set-up for nuclear destruction.

Armor has as its greatest assets mobility and firepower. It is ideal for deep penetration and wide envelopment. The helicopter is employed over a large area during the initial penetration to seek out weak points in the enemy line, destroy enemy positions and vehicles, identify troop concentrations and support the movement of ground forces through coordinated fire and maneuver with those forces. In simpler words, it finds the enemy, fixes the enemy for ground elements, starts the fighting and finishes the enemy by its own means or in coordination with its team members on the ground. At the critical point of penetration, once the ground force has been committed, the aerial members of the team can provide forward and flank observation and security, striking at targets of opportunity as they do so. Through its aerial eyes, the helicopter element can guide the ground echelon to or away from the enemy.

In planning for such an attack, the battalion commander with organic air assets can use these in a very flexible manner. Initially, he can mass his helicopter force for the softening up process, using it on the initial objective as the ground attack progresses and, when penetration is obtained, release the helicopter platoons to each company and thus give the company commander his own aerial eyes, ears and fists.

In the exploitation, the integrated team is quite flexible. The use of aerial suppressive fire allows the ground commander to bypass enemy positions that otherwise he would have had to commit a portion of his ground forces to screen or hold. As the ground elements move rapidly on the enemy's heels, the helicopter force ranges far out in front on reconnaissance and harrassment missions. In some instances, important unoccupied crossroads and critical hill masses can be denied the enemy through aerial interdiction. As the ground elements race to seize the location physically, the aerial force, using nap of the earth tactics, seeks out enemy columns to destroy or, at the least, hinders their movement. On European terrain, for example, this would be an excellent tactic against mechanized forces because of the numerous physical features that canalize movement into distinct avenues and in themselves set a force up for destruction.

An integrated battalion attached to a task force in the mobile defense role will have more flexibility than the present tank battalion. Whereas the present tank battalion elements habitually reinforce the infantry battalions of the fixing force, the integrated battalion may be used as a complete unit. Further, the integrated battalion's aerial elements will give the task force commander close aerial support. As part of the covering force, it is envisioned that the aerial assault platoons will perform a variety of reconnaissance assignments, harrassing enemy movement, and forcing his deployment well forward of the forward edge of the battle area. Moreover, they will facilitate his canalization into desired areas for destruction by the division reserve.

The integrated tank battalions of the division reserve, when committed to the counterattack, can use their massed aerial assault elements to find the enemy, fix him, disorganize his tactical movement, and stop him in place at a disadvantageous location. This action will allow the battalion's ground elements to enter into the conflict with maximum momentum

directed against an enemy preoccupied by the aerial assault.

Other than the firepower aspect, the aerial assault platoon is important in that it provides the aerial eyes needed by the tank company commander. The present configuration of the tank battalion leaves open a certain weakness in the areas of tank company reconnaissance and security. Where the aerial reconnaissance section of the scout platoon may be used to investigate areas of criticality or special importance, the aerial assault platoons would form an all-around protective shield minutely checking areas of suspicion in those sectors assigned by the company commander. During movement, the aerial assault platoon would provide forward, flank and rear security in the immediate vicinity of the moving columns, to the point of contact. The aerial reconnaissance section of the scout platoon would be concerned with the area forward of the direction of advance. Here the doctrine laid down for the use of the armored cavalry units could be applied to tank companies and battalions.

Counter-guerrilla operations in rear areas pose a particular problem for the current tank battalion. As the enemy is usually para-infantry and operates for the most part in populated, forested or mountainous areas, the battalion must be tailored to be infantry heavy. The mixed battalion with infantry mounted in MICVs is one answer. The battalion will certainly use its helicopter forces to the maximum to seek out enemy movement, positions and base camps and to destroy them if possible by aerial assault. The infantry must be offensive minded, ready to move when the aerial elements make contact. The heavier tank elements usually can provide only limited support and thus are limited to passive protection missions. The projected organization appears to lend itself much more readily to rear area security, however, than the present battalion structure.

Internal defense/development missions pose considerable problems for the proper employment of tank elements. As with rear area security missions, the main elements utilized will be the infantry and aerial assault elements. Tanks will be used to provide protection as escorts for convoys, protect vital installations and support other battalion elements after enemy contact. The measure of success will be indicated by the proper degree of utilization of the forces available for offensive and defensive tasks and the flexibility to adjust from a passive role of development of an area of responsibility to its defense by violent action against any enemy which dares intrude into that area. If given such a mission, the ability of the current tank battalion to react is marginal unless it is properly augmented with forces that can be used, not only to develop such an area, but to seek out and destroy the enemy through extensive aggressive patrol action.

LOGISTICS

When creating an organization such as that proposed in this article, considerable thought must be given to the advantages and weaknesses of that organization with respect to its logistic demands. Two potential problems that are immediately foreseen are those of maintenance requirements and fuel resupply.

It is hoped that, with the new family of helicopters being developed, field maintenance and down time will be minimized. Excessive deadline rates would be unacceptable, and would negate the advantages of integration.

Fuel resupply, on the other hand, poses the problem of movement. The vast amount of fuel used on offensive operations must somehow be brought forward in sufficient quantity to keep the maximum possible number of aircraft in the air. A solution to this problem might well be the extensive use of wheel bladders that could be airlifted to multiple locations in the battalion rear area or to other locations designated by higher headquarters. *CH47 Chinook* helicopters carrying interior fuel pods could also be flown forward to designated points to act as "gas stations" for the front line aerial units.

CONCLUSION

Integration of tanks, helicopters and mechanized infantry is one way to answer the needs of the battlefield of the 1970s. However, by no means has this article presented the one answer to the question of the organization of the tank battalion of the future. Rather, it has merely presented a brief concept conjured from imagination in the hope that others will share their thoughts on using future vehicles, weaponry, equipment and people in the best possible way.

The Armor battalion as we know it today may continue in its present organizational form or it can be reorganized on the basis of old remedies or new inventions. It can continue to function under the same concepts and doctrine which have served well for the last 25 years or it can become the basic organization for an updated doctrine of air-ground integration. The concept of air mobility is here to stay, and it is up to all of us to develop ways to use it to our advantage.

Realism–link to professionalism

by Major Leighton O. Haselgrove, Sr. and Captain Gary F. Ramage

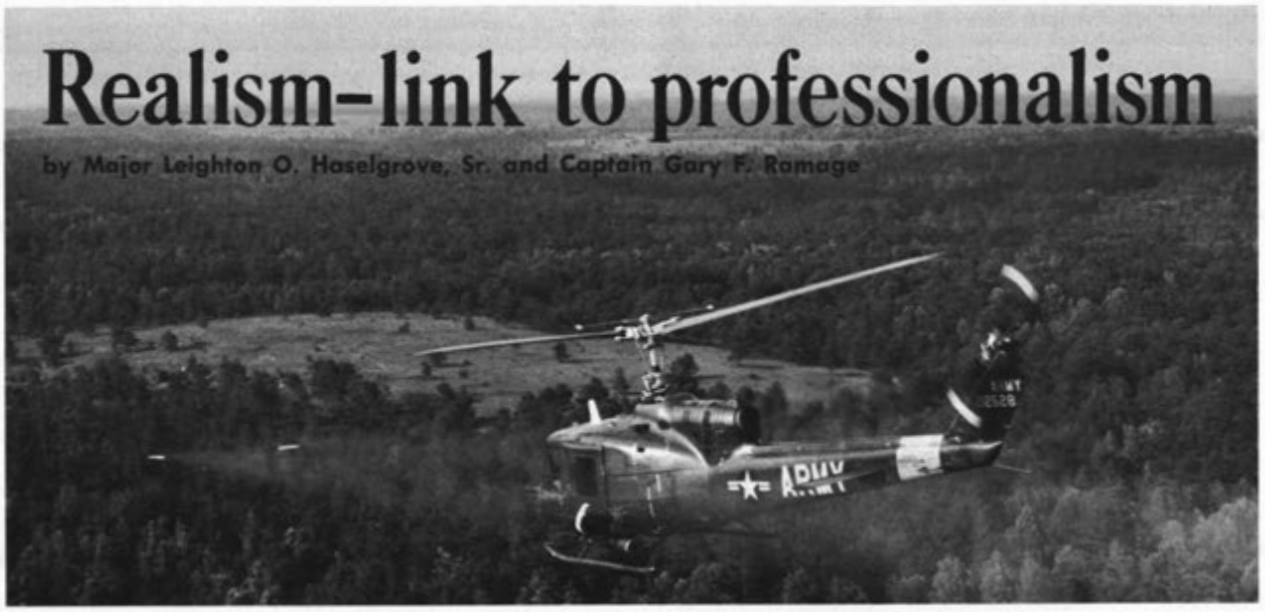

PHOTO COURTESY OF U. S. ARMY AVIATION DIGEST

FOREWORD

The emergence of the helicopter as a dominant factor in the conflict in Vietnam has served to place the spotlight on the United States Army Aviation School at Fort Rucker, Alabama, and the Army Aviation School Element, at Fort Stewart, Hunter Army Airfield, Georgia.

While the aviation training story is well known by now, what is less well known is the wide diversification of the Army Aviation School mission. The following article pinpoints one of the many training missions presently underway at Fort Rucker.

The gunnery qualification program, while not specifically air cavalry oriented, forms a sound base on which additional expertise may be gained. It is not surprising that one detects some air cavalry flavor in the program since, at last count, the Aviation Armament Division, Department of Tactics, boasted representation from all the air cavalry squadrons presently stationed in Vietnam and the Chief of the Gunnery Training Branch is Lieutenant Colonel Clemon G. Courtney, who commanded one of the troops in the 1st Squadron, 9th Cavalry in 1967-68.

"Abort! Break right, Lead, you're taking heavy fire from your 9 o'clock position! Gunslinger 22 is rolling in hot! Have you got me covered, 26?"

"This is 26. Roger, right in position."

The lead gunship rolled into a steep right turn, while the second armed Huey, his wingman, began his attack on the new target.

"This is 22. Attack 210 degrees, race track, expand maximum guns and two pair rockets. Break right, over."

"Roger," came the response, as the wingman led the attack into the threatening woodline. Then an adjustment command crackled over the radio.

"22 is breaking. From my rockets, right 25, add 25, over!"

"This is 26. We are drawing heavy fire from three directions. You scared up a hornet's nest here. I think we've got too much to handle with just one fire team!"

"This is 22. Roger. Let's back off and keep the area under observation. I'm going to Charger 6 push and see what he has to say about the situation."

"Charger 6, this is Gunslinger 22, over."

"This is Charger 6, go ahead, 22."

"This is 22. The area you selected for the Charlie Alpha is loaded with Victor Charlie. We have drawn heavy fire from three quadrants. At present, we are keeping the area under observation. Recommend we put some artillery on it and get six sorties of Alpha Foxtrot boys on the way. Over."

"This is Charger 6. Looks like we found them this time. Agree with your recommendation. Charger 3 will get the Alpha Sierra on the way and my FO will start the artillery. We'll hold the slicks over

ACP Hamilton. Get the big stuff in and see what develops. Keep your fire team to the north and to the west and shoot anybody evading the area if they have a weapon. Stinger 36 is moving in from the east and his 26 element is closing from the south. Good job, 22."

"This is 22. Roger that. Give us three KIA so far. We have one hour left on station."

Sound like Vietnam to you? It's not. Action like this takes place every training day at Fort Rucker, Alabama, home of the 189th Attack Helicopter Company, alias for Gunnery Training Branch, Aviation Armament Division, Department of Tactics, United States Army Aviation School.

The Gunnery Training Branch conducts helicopter gunnery qualification training for approximately 25 percent of each initial entry class; that is, students in the final phases of their training prior to being rated as officer or warrant officer rotary wing aviators. Armor officers are well represented in this group. Following graduation, these gunnery qualified aviators are assigned to attack helicopter units throughout Vietnam. Most Armor officers and a number of new warrant officer aviators receive assignments to units with a proud cavalry heritage such as 1/9, 3/17, 7/17, 7/1, 3/4, 1/10 or 11th ACR.

The instruction given each new group of future gunship pilots is realistic. The instructors, all veteran attack helicopter pilots, have an aggregate total of over 25,000 combat flying hours. Their experience ranges from the DMZ to the southernmost tip of South Vietnam. This small nucleus of 40 instructors is one of the most highly decorated groups of officers and warrant officers in the Army. The students are exposed to situations that these instructors actually encountered in combat.

On his third day of gunnery training, 2LT John P. Custer was given the mission of leading a three-helicopter reinforced fire team on a simulated reconnaissance mission to select possible landing zones and pickup zones for an airmobile assault. Warrant Officer Candidate Brown was assigned to fly the second gunship, as wingman, providing support by firepower and observation as necessary. A senior instructor, Major William E. Bailey, was to fly the reinforcing third Huey, monitor the performance of the students, and create the simulated tactical situation through radio transmissions.

The mission had proceeded smoothly. Lieutenant Custer had led the team acceptably, locating several suitable landing zones in the designated area. He was beginning to relax, confident of successful mission completion.

Suddenly, the excited voice of his wingman, WOC Brown, interrupted 2LT Custer's reverie, and posed a new problem for him to cope with. "26, this is 22. Gunslinger Lead (Major Bailey) has gone down! I have him spotted in a field at your 5 o'clock position. Cover me, I'm going in to get him, over!"

"Roger 22," answered Custer, trying to keep his voice from betraying his momentary loss of confi-

PHOTO COURTESY OF U. S. ARMY AVIATION DIGEST

One of the highlights of the course is firing the M5 system during the qualification course program. The system launches 150 40mm grenades with a lethal bursting radius of 10 meters.

dence. "I have him in sight. I'll plot his position and call it in. Go in and get them while I climb to altitude to get radio contact with Operations."

"This is Gunslinger Lead!" interrupted the sharp, cutting radio voice of Major Bailey. "Don't you split your fire team! 22, you stay with 26 to give him support. I'm coming out. We'll discuss your actions later. Out!"

2LT Custer and WOC Brown's ears were burning after Major Bailey completed his debriefing of the afternoon's missions. They were learning about fire team tactics in a short concentrated period. They will remember points learned today, and avoid making, in the future, mistakes which had cost them only a punctured pride and a slightly deflated ego today.

In addition to flight training in attack helicopter tactics, Custer and his classmates receive classroom instruction on the capabilities, limitations and maintenance of helicopter weapons subsystems. They learn how these weapons could best be employed in performance of the three basic attack helicopter missions of escort, reconnaissance/security, and direct fire support. Factors of METT are discussed along with principles of target attack. Combat-proven guidelines for the employment of gunship helicopters, called "Cardinal Rules," are stressed throughout the instruction.

One of the most important phases of gunnery training is, of course, weapons qualification. One of the two weeks of flight training is spent firing on Fort Rucker's aerial gunnery ranges. The gunnery student is qualified to fire the *M16* and *M21* subsystems. He learns to use both the flexible 7.62mm guns and the fixed 2.75 inch folding fin aerial rocket capabilities of these subsystems. A highlight of the range firing is qualification on the *M5*, the nose-mounted 40mm grenade launcher turret for the *UH1* helicopter.

For Lieutenant Custer and his 47 fellow students, the week spent firing applied the final touches needed to prepare them to fill cockpit seats as copilot/gunners in attack helicopters in Vietnam.

Each month, 96 future gunship pilots are produced by the gunnery qualification course. The Gunnery Training Branch does not provide them with "school solutions" to tactical situations, but provides guidance based on combat-proven methods and techniques which can be applied to the constantly fluid combat situation the graduates will encounter. As one student said, "I've been taxed to the maximum in the gunnery course. I have not yet been in combat, but I honestly feel prepared for any eventuality I may enconter in Vietnam."

The instructors of the Gunnery Training Branch, Aviation Armament Division, Department of Tactics, are proud to be assisting to develop that special breed of aviator—the attack helicopter pilot—to better fulfill his destiny on the battlefield. The confidence, professionalism, and esprit associated with gunship pilots in Vietnam begins to take form at Fort Rucker, Alabama, in the Gunnery Qualification Course.

MAJOR LEIGHTON O. HASELGROVE, SR., Armor, was graduated from Officer Candidate School at Fort Benning in 1962. Following duty at Fort Benning and at Fort Knox, he became an Army Aviator in 1966. After completion of flight school, he served as an aerial-weapons section leader, scout platoon leader, and troop operations officer in Troop B, 1st Squadron, 9th Cavalry, 1st Air Cavalry Division. He is now a student at the Armor Officers Advanced Course. Just prior to this he was Operations Officer, Gunnery-Training Branch, Aviation Armament Division, Department of Tactics, US Army Aviation School.

CAPTAIN GARY F. RAMAGE, Infantry, was graduated from Officer Candidate School at Fort Benning in 1962. Following Airborne Training and the Jungle Survival Course in Panama, he completed Aviation Training in 1964. Captain Ramage is a veteran of two Vietnam tours, one as a transport helicopter pilot in the pioneer Chinook Utility Tactical Transport Helicopter Company and the other as a pilot with the 228th Assault Support Helicopter Battalion, 1st Cavalry Division (Airmobile). Ramage is currently assigned to the Aviation Armament Division, Department of Tactics, US Army Aviation School.

STAY BEHIND FORCES

in armored cavalry operations

by Captain Kendall M. Lemley

PHOTO COURTESY OF 221ST SIGNAL CO.

AWARD WINNER

ARMOR OFFICER ADVANCED COURSE 2-69

The first rays of early morning sunlight preceded the chopper which would deliver the frag order for the days' operation. Captain X waited impatiently on the small landing zone, realizing that there would be precious little time to get underway.

The troops were busily engaged in a well-established pattern, making final preparations for the days' activities. Occasionally, the heavy silence was broken by a noisy rumble from one of the tracks on the perimeter.

For the past week, the squadron had been operating in a densely-jungled VC stronghold north of the Iron Triangle. Intelligence had indicated that the area was a major staging area and supply point for VC adventures to the south, and indeed, hardly a day went by without the discovery of a base camp or rice cache. To the frustration of all concerned, however, the only contact that had been made thus far was the harassing fire from well-concealed snipers or the havoc created by roving RPG squads, a favored Viet Cong tactic.

Several of the base camps that the troop had discovered showed ample evidence of very recent habitation—smoldering camp fires, half-consumed meals, laundry hanging out to dry. The self-evident fact was that the Viet Cong had no appetite for engaging the superior firepower of the armored cavalry assault vehicles, even from well-fortified positions. Also self-evident was the fact that surprise was virtually impossible with the noisy ACAV's. Establishing an effective cordon to block routes was equally difficult.

For the past several days, though, there had been some reason for optimism. This resulted from a plan to employ an often overlooked infantry tactic, the stay-behind force. The idea had been that of Lieutenant Y, and had received the enthusiastic endorsement of Captain X and the squadron commander. Lieutenant Y elected to lead the operation personally, whenever the opportunity arose, and he briefed and rehearsed his infantry squad on the plan as time permitted.

The squadron frag order arrived, designating the day's area of operations. Following a hurried map reconnaissance, the troop moved out in three platoon columns to begin the search of its assigned zone.

At approximately 0930, the 3d Platoon on the troop's right flank received two RPG rounds and heavy small arms fire. After some initial confusion, Captain X succeeded in deploying the remaining two platoons roughly on line with the 3d Platoon. Thus he was able to concentrate the majority of available firepower into the Viet Cong position. In the meantime, an aerial forward observer had entered the troop command net and was adjusting artillery fire to within 100 meters of the friendly position.

At 1005, Captain X reported to the squadron commander that enemy fires had decreased considerably, and requested permission to assault the position on line. After moving forward for a distance of approximately 50 meters, the platoon in the center

reported discovery of numerous bunkers and trenches. No further enemy fire was received. Captain X ordered his platoon leaders to fan their units out to locate and secure the outer defensive trench line. Once this was accomplished, a methodical search of the area was begun. Five Viet Cong bodies were found, along with three weapons. Several distinct blood trails leading out of the area were discoved. The Viet Cong withdrawal had been hurried and disorganized.

Further investigation revealed what was estimated to be a battalion-sized base camp, with three concentric defensive trench lines and numerous well-constructed squad-sized bunkers.

Captain X theorized that the Viet Cong main body had probably withdrawn some 15 to 20 minutes prior to the initial contact, and that the 3d Platoon had actually encountered a squad or platoon-sized covering force.

To Lieutenant Y, the situation seemed tailor-made for executing his stay-behind plan, and the troop commander concurred.

The exhaustive search and destruction of bunkers which was to occupy the troop for the following two hours afforded Lieutenant Y an ample opportunity to make a thorough reconnaissance of the immediate area and to conduct his final briefing. After analysing the most likely avenues of approach into the area, he selected a defensive position consisting of two crescent-shaped trenches approximately 10 meters apart in the center of the base camp complex. These were roughly five feet deep, protected in part by overhead cover, and capable of providing all-around security. Next he conducted a briefing and inspection in which escape and evasion routes and rallying points were designated, and weapons, ammunition, and other equipment were given a final check. Particular attention was devoted to the two AN/PRC-25 radios, to insure that they were in perfect working order. Lastly, he made final coordination with his scout and tank sections, which, under the command of the platoon sergeant, would act as the primary reaction force.

The stay-behind force was in position as the troop moved out. All eyes strained to catch a flicker of movement as silence slowly replaced the roar of the engines. It was not sight but the crackle of underbrush which signaled the first alarm. Suddenly, eight men burst into view at a distance of about 75 meters. The excited jabber of voices could clearly be heard as the VC, clad in grey trousers and blue shirts, with the distinctive checkered bandana of a well-known main force regiment, approached. At a distance of 30 meters, the stay-behind force opened fire. Five of the eight crumpled to the ground, as the remaining three scattered and ran.

In the meantime, the reaction force, followed by the remainder of the troop, had responded and was rapidly approaching the base camp area. Following directions from Lieutenant Y, it attempted to pursue the fleeing enemy, but was slowed by heavy underbrush and failed to make further contact.

As a result of this successful combat action, the squadron used the stay-behind force technique frequently on succeeding operations, often with favorable results. On several occasions, the reaction force arrived at the scene of the action in time to contribute decisively.

Success of a stay-behind force mission depends on:

- Selection of a defensive position with 360 degree security and excellent observation, fields of fire, cover, and concealment.
- Employment of a force having adequate combat power and consisting of experienced soldiers capable of superb fire discipline.
- Provisions for fail-safe communication.
- Employment of a reaction force that is mobile and responsive.

With the imaginative use of stay-behind forces, Armor commanders in Vietnam can compensate for the difficulties in achieving surprise which have plagued so many operations in the past.

CAPTAIN KENDALL M. LEMLEY, Armor, was commissioned in 1965 from the United States Military Academy and then attended the Ranger and Airborne Courses. He was assigned to the 1st Squadron, 11th Armored Cavalry Regiment at Fort Meade and in Vietnam, where he served as a platoon leader, liaison officer, and troop executive officer. In 1967 he returned to CONUS and was assigned to the Staff and Faculty, U. S. Armor School. In June 1969 he was graduated from Armor Officer Advanced Course 2-69. Captain Lemley is now attending Army aviation training.

The Cavalry-Air Cavalry Team

by Captain Charles W. Donaldson

One of the previously untried concepts which the Vietnam conflict proved valid was the cavalry-air cavalry team. This article proposes to examine that team from the point of view of a ground-dwelling cavalryman. The cavalry-air cavalry team is found in the Army division in the form of the divisional cavalry squadron. This unit performs reconnaissance, security, and economy of force missions. In the Vietnam conflict, the economy of force role has become increasingly important as cavalry units have been called upon to secure large areas with few personnel, freeing other resources to expand the area under control of Free World military forces.

To accomplish its mission, the divisional cavalry squadron has a headquarters troop, three armored cavalry troops, and an air cavalry troop. Headquarters troop has command, combat support, and combat service support elements similar to those found in the headquarters company of a tank battalion. It does, however, have an enlarged troop maintenance section, and lacks the scout platoon found in a tank battalion. Each of the squadron's three armored cavalry troops has nine tanks, 12 scout vehicles, 3 infantry carriers, and 3 mortar carriers divided equally among three platoons. The air cavalry troop has undergone several Vietnam-oriented modifications, but it is most often organized with nine light observation helicopters (LOH), 11 gunships, and six lift ships. These ships normally operate as an aero-scout platoon, an aero-weapons platoon, and an aero-rifle platoon.

This combination of cavalry and air cavalry assets forms a potent force in the hands of the division commander. The experiences of the Americal Division's 1st Squadron 1st Cavalry (First Regiment of Dragoons) provide examples of the cavalry-air cavalry concept in action. These experiences also

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demonstrate the reduction in effectiveness which results when the cavalry and air cavalry elements of a squadron are used separately.

The 1st Squadron, 1st Cavalry, minus its air cavalry troop, deployed to the I Corps Tactical Zone of Vietnam in August and September of 1967. First assigned to Task Force Oregon, the squadron became part of Oregon's successor, the Americal Division, in January 1968. Actions by the squadron from September 1967 through January 1968 clearly demonstrated that the lack of its air cavalry was a serious impediment to efficient operations.

The squadron area of operations during the period was north of Tam Ky and south of Hoi An in Quang Tin Province. The area was characterized by a sandy plain along the South China Sea which gradually blended into the open rice paddies of Que Son Valley. While this terrain was generally good for armored vehicles, it favored an enemy who desired to escape detection by mechanized units. As squadron elements moved through the area, the enemy, warned by the noise of the vehicles, moved out of the way. Noise was also a problem when ground elements attempted to cordon an area for search operations. Prisoner interrogation frequently revealed that Viet Cong or North Vietnamese Army elements had been in the area prior to the arrival of squadron elements but had fled ahead of the vehicles. Islands of trees and villages obscured visibility so that reconnaissance capability was limited to areas within a few meters of ground elements. The combination of these factors meant that all too frequently, contact with the enemy was begun and ended at his pleasure.

Troop, C, 7th Squadron, 17th Air Cavalry came under the operational control of the Americal Division in December 1967. They were further placed under the operational control of the 196th Infantry Brigade. Although the troop compiled a good record while in this relationship, several problem areas came to light which resulted from the employment of air cavalry without a highly mobile, heavily armed ground force such as armored cavalry.

A major problem was the inability of the troop to exploit situations encountered during its reconnaissance operations. When the troop encountered ground fire it could return fire but it could not determine accurately the size of the composition of the enemy force. Information was gathered in abundance by the air cavalry scout teams, but this was in many cases not exploited because of a lack of ground forces to search the area and develop leads gathered from the air. This lack of exploitation came about because of the impracticality of air assaulting companies or larger forces of infantry into areas to check out what were in many cases only fragmentary bits of information.

Another problem which plagued the air cavalry was lack of reliable communication with the ground forces. Scout elements were required to establish communication with each of three infantry battalions as they entered the battalion areas of operation. Once this contact was established the scouts were further directed to establish communication with each of the battalion's four companies. Frequent SOI changes and occasional misorientation by ground elements in heavy vegetation, made air-ground coordination less than optimum. It was frequently impossible for the air cavalry's firepower to be brought to bear because of the lack of positive identification of friendly and enemy locations.

The third and perhaps most unfortunate problem was a lack of understanding of the mission of the air cavalry which was prevalent among the commanders who used it. Missions were frequently stated in terms of "Get some gunships out there", or "Send your lift ships over for a combat assault". The aero-scout platoon and, to a greater extent, the aero-

rifle platoon were not used in a way that capitalized on their full capabilities.

A number of the problems encountered by both cavalry units were solved when, in late January, Troop C, 7/17 Cavalry was placed under the operational control of 1/1 Cavalry, which then assumed responsibility for a greatly expanded area of operations. The increased effectiveness of cavalry and air cavalry working together was soon evident. During February 1968, the Quang Tin Province headquarters at Tam Ky had been under an increasing threat from NVA and VC units in the hills to the west of the city. A previous attack during the abortive 1968 Tet truce had failed, due in part to the efforts of Troop C, 1/1 Cavalry, which aided in the defense of the province headquarters. Because of this threat the squadron began conducting security operations to the west of the city.

On the morning of 27 February, a platoon of Troop A was conducting a sweep near the site of a suspected weapons cache. Air cavalry elements were screening to the front and flanks of the ground unit. At approximately 1400 the screening air cavalry spotted numerous well-armed enemy soldiers moving ahead of the ground elements. The air elements engaged these soldiers killing more than 20. The ground unit was vectored into the area by the air cavalry scouts. The first report from the ground unit upon reaching the area was that there were NVA soldiers running in all directions and that more forces would be needed. Troop C, 1/1 Cavalry and the two remaining platoons of Troop A were alerted and moving toward the area of contact within 10 minutes. The platoon in contact and the air cavalry elements continued in contact and prevented enemy withdrawal until the arrival of additional forces. The squadron commander attempted to maneuver the arriving units so that two sides of the area would be covered by ground elements. However, the troop attempting to move around the area of contact also ran into large groups of disorganized NVA soldiers. At this point it became obvious that there was no organized resistance by the enemy and the engagement became one of killing the disorganized NVA in the area.

The actions of the air cavalry during this engagement were invaluable. They made the initial discovery of the enemy. They repeatedly blocked his escape from the area. They guided ground elements around obstacles and into pockets of the enemy. Gunships accounted for a large number of enemy casualties and gave immediate and accurate fire support for the ground units. This action accounted for more than 200 NVA and VC killed in action. U. S. casualties were 1 man lightly wounded.

In addition to dramatic incidents such as the foregoing, the addition of Troop C, 7/17 Cavalry to the squadron greatly facilitated day-to-day operations in the squadron's large area of responsibility. Aero-scouts were instrumental in preventing many ambushes and reacted swiftly to those which were successful. Daily reconnaissance of the area located rocket firing sites and generated other valuable intelligence information. Those intelligence leads which appeared promising were then searched by nearby ground units. Aero-scouts working ahead of ground units frequently spotted fleeing enemy and either engaged them or vectored the ground forces into their location. Ground commanders could count on a verbal picture of their locations and dispositions whenever this became necessary in the confusing terrain.

Increased effectiveness was not a one-way street. The air cavalry gained the support force on the ground which could exploit the information gathered—a ground force which had the large caliber weapons, armored vehicles, and infantry necessary to dig the enemy out of bunkers and trenches which were relatively invulnerable to attack by helicopter-mounted weapons. The close coordination of air and ground units made friendly and enemy locations easy to determine, allowing the fire power of the air cavalry to be used effectively. Finally, the air cavalry gained the advantage of working under a headquarters which fully understood its mission, its organization, its capabilities, and its limitations.

The combination of cavalry and air cavalry produce a team with the firepower and shock action of armor and the speed and mobility inherent in the helicopter. The use of this highly mobile and deadly team in the terrain for which it is suited frees multi-battalion infantry forces for use in less negotiable terrain.

CAPTAIN CHARLES W. DONALDSON, Armor, was commissioned in 1965 from the University of California at Berkeley. He graduated from the Armor Officer Basic Course in 1965 and was assigned to USAREUR where he was a platoon leader with the 3d Battalion, 37th Armor. In 1966, he returned to the U. S. Army Training Center, Fort Lewis, Washington. In 1967, Captain Donaldson was assigned to the 1st Squadron, 1st Cavalry at Fort Hood. He deployed to Vietnam with the squadron in August 1967 and served as a troop executive officer, squadron intelligence officer, and a troop commander. He was graduated from Armor Officer Advanced Course 2-69 in June. Captain Donaldson is now on ROTC duty at his alma mater.

Jeep Rally

AWARD WINNER

ARMOR OFFICER ADVANCED COURSE 2-69

by Captain Michel V. Charrier, Canadian Army

A Jeep Rally is an unorthodox training vehicle used to test the team and individual skills required for crew served equipment. The term "Jeep Rally" is therefore a misnomer, as the competition is not restricted to quarter-ton trucks. The system has been adapted for reconnaissance vehicles, personnel carriers, tanks and could conceivably be used for rotary wing aircraft. However, to utilize the original term "Sports Car Rally" would not only deter nervous commanders from reading further, but might also needlessly interest hyper hot rodders. Therefore, to set matters straight from the outset, it can be stated with assurance that military rallies are tests of skill and not speed. A limit of 30 or 40 miles per hour is strictly enforced.

The rally is a combination of the sports car rally and the military stakes, the latter being a form of round robin training test used in the Officer Basic Course and the NCO Candidate Program. The crews compete in driving skills, navigation, team efforts and individual military skills. The vehicle merely provides a common denominator for the crews as well as carrying them over a timed course which is interspersed with test stands.

The aim of the Jeep Rally is the welding of the crew into a team. Our training cycle unfortunately places litle emphasis on this level of organization. Team members are instructed in their individual skills, then placed in crews. At the units, vehicle crews are given some team training, but emphasis is placed on battalion and company exercises. It is assumed that the vehicle teams can perform efficiently if the unit or sub-unit does well. The rally merely exercises the team in their own small environment.

The vehicle Team, with a capital T, is more than the sum total of individual skills. It is a mixture of skills, experience and mutual support among the crew as a whole. The Jeep Rally acts as a catalyst which encourages the proper balance of this mixture we call teamwork. Needless to say, the imaginative commander can expand the team test further. For example, casualties among the crew is a common hazard. Each crew member should have a degree of proficiency in all positions. This contingency can easily be programmed into the examination.

The Jeep Rally is a pleasant and rewarding form of exercise. It is a most useful tool to relieve tension in a unit which is super-saturated with training. The rally can also be used to brighten up an otherwise dull period in the normal training cycle. When followed by a unit party, this type of training not only injects competitive spirit into the group, but can also be a considerable asset to general morale. The Jeep Rally has been used in inter-unit, international and just plain officer—NCO—enlisted men competitions.

Assuming you have now become interested in the rally, let us examine the exercise in detail. The one-quarter ton rally will be used initially, as it is the basic form. The participating teams are warned well in advance of the up-coming competition. The crews are advised in general terms of the skills they may be tested in, and the equipment they will require for the course. Needless to say, it is not necessary that information be given in great detail. The test should only cover known skills and common sense. Changing a tire, dismounting a machinegun, or replying to authentication are all normal requirements of any crew.

The course is laid out over an extended area, which hopefully includes as many types of terrain as possible. The route for soft skin vehicles should cover hard surfaced roads, secondary roads, trails and cross country movement. A rough terrain obstacle course is normally included at some stage in the exercise. In a skilled driver competition, a flagged slalom event is added using steep hills, streams, and other similar terrain. The primary and secondary roads should be patrolled by umpires, and if possible, VASCAR to discourage personnel from making up lost time by exceeding the speed limit. At one point, the driver can be removed from the vehicle and a selected member required to proceed to the next stand. Driving tests can include the use of the fording and night driving capabilities of the vehicles.

Navigation is a skill seldom examined on an individual or team basis after basic training. This precious asset is stressed throughout the rally. At the majority of stands, crews are given magnetic bearings, true headings, back azimuths, map directions or route cards to get to the next station. It is revealing to note the number of personnel who attempt to take compass readings with helmets on or while seated in a vehicle. Some of the stated directions should utilize route and street names reflected on the map. Again, it is humorous, yet sad, to see the results of rotating a few street signs or the displacement of route markers. Crews must learn to use their maps and confirm all directional information.

The skills required in each crew position are also tested to insure that all members are effective. This procedure encourages teamwork as the more experienced members are required to assist weaker crewmen. The vehicles, weapons and equipment are systematically employed at different stands. One test should examine the use of crew served equipment and weapons on the move. At a minimum, the weakest member of the crew (usually the driver) should be required to use the main vehicle weapon and/or the radios. Some stands should have unserviceable equipment, vehicles, and mired vehicles on hand where fault finding and recovery procedures can be analyzed.

Basic military skills, such as small arms firing, grenades, LAW and minefield probing are added for variety. In these cases, both the team and the individuals are tested. Similarly, servicemen are expected to be observant. One method of examining this talent is to place several pieces of military equipment enroute and to question the crew on their observations. Varied subjects, such as first aid, adjusting of artillery and mortar fire, and CBR are other basic requirements, which we pay lip service to, but practice little.

That, in general terms, is the competitive portion of the Jeep Rally, the fun facet. Unfortunately, this system of test and training requires a large umpire and coordinating staff, as well as a rather long administrative tail. This disadvantage is greatly counterbalanced by the interest and excellent results obtained. However, it is more efficient to conduct a battalion rally than to attempt one on a company or platoon level. The umpire staff and the administration required remains the same in all cases. The examining team consists of umpire headquarters, the scoring staff and the communications personnel. Each stand requires timing and directing staff. Stations which have problems or skill tests must have guides, a parking area and the personnel required to administer the problem. Ammunition, rations, stop watches and malfunctioning equipment are only some of the administrative requirements which must be coordinated flawlessly. The Jeep Rally is one exercise which does not require an inclement weather program. Foul weather and poor visibility generally add to the test. Rations need not be prepared for the teams, but can be presented unexpectedly at a stand enroute.

PHOTO COURTESY OF 8TH CANADIAN HUSSARS

PHOTO COURTESY OF 8TH CANADIAN HUSSARS

Scoring the test is a most exacting matter. Any imbalance in the method of weighting portions of the test will cause bitterness and a complete loss of interest among the participants. An equitable system of scoring must be adopted which will deduct points for minutes late from the "ideal time," failing to analyze a fault, speeding or getting lost. Weakness in one individual team member must not be penalized to such a degree that it causes ill feeling among the crew. The aim is group proficiency and cohesion, not individual frustration. The Jeep Rally is a closely timed, finely coordinated effort. Such an exercise will never succeed without at least one dry run on the part of the coordinating staff.

That is the basic one-quarter ton exercise. Units can also place most, if not all, of their vehicles in a competition together. This results in a complex scoring system; however, it becomes a much more interesting and truly competitive exercise. Tanks, self propelled guns, 114s, 113s, etc., can compete together on the same course. In this case, the only further requirement is for an equitable system of credit and debit points for the types of vehicles which are participating in the test. The aim is to place the different vehicles and equipment on the same scoring basis.

Secrecy and leakage of information concerning the test are probably the most important considerations for success. The exercise is pointless if the competitors obtain more information than what is given in the warning order. Caution must be taken to ensure that the leading teams do not cross over or communicate with the following crews. It is more equitable to have another unit or headquarters staff act as umpires, and administer the exercise.

The Jeep Rally is a method of training and testing vehicle crews as a team and in their individual skills. This level of military proficiency is often taken for granted. It is an exercise which is most efficiently conducted on the battalion level and involving most, if not all, the unit. The administrative preparations and the coordinating staff required in such an operation are considerable. However, the fruits of the competition far outweigh the disadvantages.

The short period of service of most crewmen has resulted in a constant rotation of personnel, which undermines teamwork and esprit de corps at the lowest level. The Jeep Rally is a useful tool in encouraging team cohesion and effort. In addition, the rally is one of those unusual combinations which, more by chance than intent, not only achieves its teaching points, but is pleasant and encourages a healthy competitive spirit in the unit.

CAPTAIN MICHEL V. CHARRIER was commissioned in the Canadian Army in 1958 upon graduation from OCS. He is an armored officer and has served in Canada and Germany with his regiment, the 8th Canadian Hussars. He has commanded both tank and reconnaissance platoons. On his return to Canada from Germany, he became an instructor in the Army Language School. Captain Charrier's next assignment saw him back with his regiment as executive officer of a tank company. In 1965, he attended the Canadian Land Forces Command and Staff College. Following Staff College, he was assigned to the GI Staff of Training Command Headquarters. Prior to attending AOAC 2-1969, Captain Charrier was an aide-de-camp. Captain Charrier now commands a troop in the newly formed 12iéme Régiment Blindé Canadien, a cavalry regiment.

WE'RE ON FIRE!

WE'RE ON FIRE!

AWARD WINNER

ARMOR OFFICER ADVANCED COURSE 2-69

by Captain Samuel R. Slaughter

"SCRAMBLE! SCRAMBLE! SCRAMBLE!" The sergeant ran toward our aircraft at break-neck speed. We leaped into our gunships. And as the rotor blades began slowly turning, I jotted down the coordinates the sergeant had hastily written on the back of his hand. We were off in less than two minutes.

While we were enroute, the American advisor on the ground with the ARVN marines briefed me on the friendly and enemy situation. After marking his position with smoke, I had no problem identifying the specific trace of friendly locations. The ARVN had the south perimeter of the Viet Cong battalion blocked, and another airmobile lift to the north of the enemy positions had almost completed the seal. Charlie was now sandwiched between the two closing forces. His intense return of machinegun and mortar fire reflected his awareness of the critical situation. From bunkers and fortified positions, the Viet Cong began placing effective fire on the marines. With his back to the wall, Charlie was fighting fiercely. The marine advance had been stopped; they were pinned to the ground by the heavy fire. Over forty friendlies were now dead and many more wounded.

On our first pass we flew toward the target area with every weapon blazing and were stunned to receive such a heavy volume of fire. In spite of heavy ground fire, Captain Tony Clemente, piloting, fired several pairs of rockets with deadly accuracy beginning a violent right breakaway from the target. Appearing to defy the enemy tracers lapping up at our aircraft, the left door gunner, SP/5 R. Honkola, maintained a constantly effective barrage of fire on the enemy positions. My chase aircraft simultaneously began his fires, covering my break away from the target. I could see his tracers and rockets pass just meters below our aircraft—he was a good chase.

We rolled back in toward the target attacking from a new direction; again Charlie's machineguns opened fire. However, this time they reached their target. I heard the bullets rip into the aircraft and felt the stinging bits of spalling splattering inside the cockpit. The sickening smell of burnt metal, so characteristic of aircraft hits filled the compartment with a misty smoke. A group of Viet Cong not in bunkers came into my gunsights. They were dispersing, scrambling and stumbling frantically to escape their inevitable fate as I saw clearly the lethal effects of our miniguns and door guns firing over 5000 rounds per minute.

It was then that an enemy round penetrated the cargo floor and punctured the only white phosphorous grenade in the aircraft. The grenade did not explode as one would expect. But the hole in the spinning grenade sprayed the compressed and burning phosphorous around the cargo department.

The crew chief screamed without the use of the intercom, "WE'RE ON FIRE! WE'RE ON FIRE!"

I had already taken control of the aircraft but could barely see for the thick and stifling smoke swirling inside the cockpit. I felt the heat as the back of my seat became covered with phosphorous. Lowering the collective and pushing abruptly forward

on the cyclic, I placed the aircraft into a nose-low dive, attempting to get on the ground before the anticipated explosion.

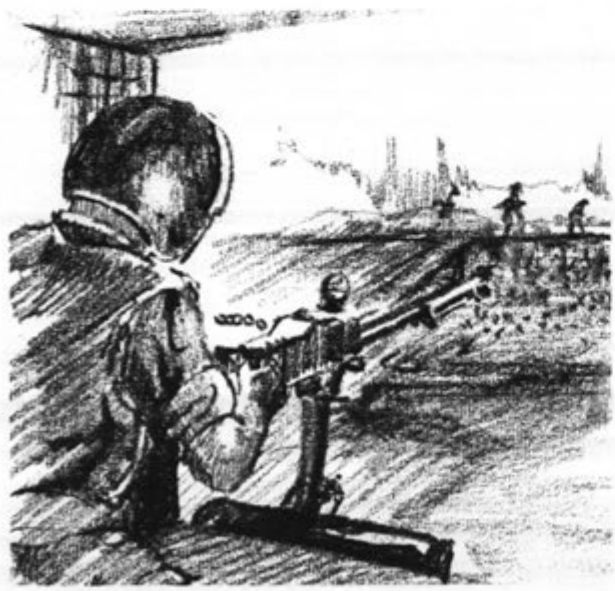
Captain Clemente and I fought violently over the controls: Most of the fire was on my side of the aircraft and I had now lost all visual contact with the ground. Clemente convinced me he could still see. I reluctantly released my tension on the controls while he piloted the aircraft toward the earth's surface. In an exaggerated maneuver, which I have yet to reconstruct, he landed abruptly.

In the split second events—that were yet to climax —we had landed within the Viet Cong perimeter and came instantly under fire. I dove from the aircraft head first into about three or four feet of rice paddy mud and water which half filled my flight helmet and rinsed my face as I raised to my knees. Pulling off my helmet, I could hear the passing bullets cracking through the air; frightfully louder, hitting the aircraft, and churning up the surrounding water.

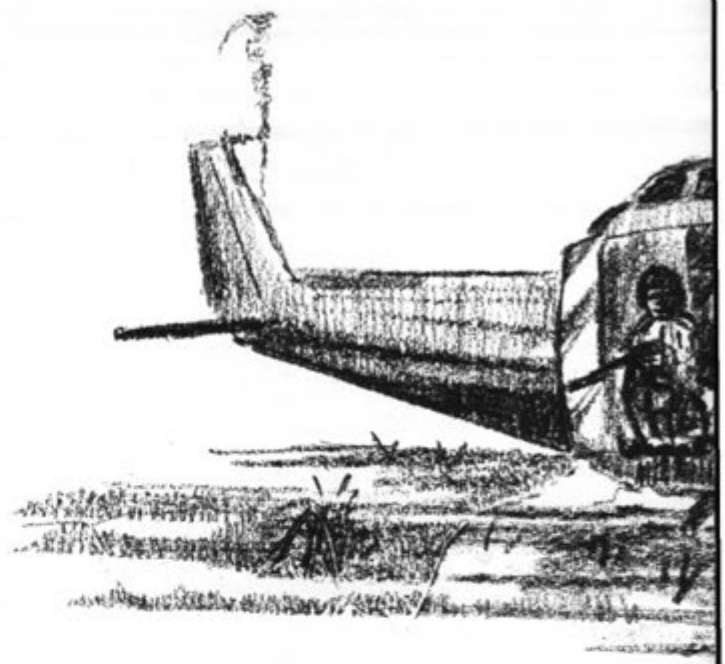
The aircraft sat, still running, with the rocket pods submerged in mud and water and the tail rotor spewing water high into the air as it intermittently made contact.

With his arms already burnt raw, the crew chief, appearing unconcerned over the presence of the Viet Cong, was standing erect with a flight jacket and fire extinguisher continuing to fight the fire.

Captain Clemente had run to the right side of the aircraft, and lying with only his head and carbine above the water, he began rapidly firing toward the Viet Cong.



I splashed back to the aircraft and assisted the crew chief in extinguishing the remaining flames. Simultaneously we leaped for the *M60* machine gun



still hanging in the cargo door. Loading the muddy weapon from the left side, I was surprised to see it function as Honkola began firing at such a rate he could not effectively control the recoil. However, stubbornly he maintained his position and fired wildly back at the oncoming Charlies who seemed compelled to reach our aircraft. I tried to get back into the running aircraft but was forced back to the ground by the Viet Cong fire. The right door gunner finally got his machinegun working and was also in the battle.

Though noise of the running helicopter could still be heard, a quiet lull suddenly overcame the area. Neither side was firing, and compared to the previous minutes of chaos, the silence seemed unreal. I screamed to Clemente, "Let's go! The aircraft is still running. Let's get the hell out of here!" I dashed to the aircraft; as the door gunner again opened fire. Again I screamed, "Let's go." I pulled upward on the collective pitch getting the aircraft light on it's skids and out of the mud just before the crew leaped on board. Taking off out of the small area was going to be a miracle!

I made a left pedal turn toward the most open portion of the confined area and simultaneously saw about 20 Viet Cong charging toward our position. The door gunner, making the same observation, wasted no time in returning their fire as he sat in the side door with the machinegun between his legs. I began to take off with the overloaded gunship and saw the main rotor blades cut the trees as I

forced the aircraft forward. I could hear the tone of the turbine engine whine lower and lower from the excessive load. The rotor blades were visually slowing down and the RPM was now dangerously low. Somehow, the chopper continued on with the rotor blades now barely clearing the tree tops. Branches slapped the plexiglass windshield and the fuselage ricocheted off several remaining trees as we climbed safely to altitude.

I placed the aircraft in level flight, and after replacing my flight helmet, lighting a wet cigarette, and shaking hands with all the crew members, returned to Dong Tam airfield.

The lessons I learned from this experience might make good reading in any air cavalry troop's S.O.P. Some items might be:

- Never carry white phosphorous or fragmentary grenades in the aircraft unless required to accompany assault troops.
- A detailed plan for downed aircraft. But, most important, the pilots and crew members should know the plan thoroughly.
- The senior aircraft commander remaining airborne over crash site should:

Notify command control, giving as many details as possible and request med-evac, if necessary, and that troop operations be notified.

Secure the downed aircraft with available resources.

Determine the extent of damage and advise operations of the requirement for recovery.

- The aircraft commander of the downed aircraft will:

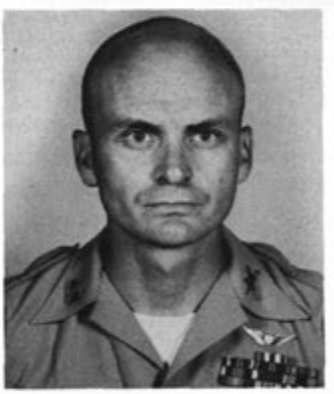
Immediately attempt to establish radio communications with the other aircraft.

If there is *no* immediate enemy threat, place the pilot and gunner in defensive positions and then assist the crew chief in evaluating the trouble and measures necessary to correct it.

If there *is* an immediate enemy threat: Equip personnel with available weapons and ammunition, let them take up defensive positions around the aircraft and stay as near as possible to aircraft.

If rescue from present position is not feasible and aircraft recovery is impossible, move rapidly away from aircraft to a pickup site if one is available. If such a site is not available, equip the entire crew with weapons, ammo, smoke, and survival gear.

- Transition training for new aviators will emphasize these procedures.
- Remember that accomplishment of the assigned mission is the primary consideration in determining any course of action. Aircraft commanders must exercise the highest degree of sound judgment in determining which course of action to follow. But things will certainly go better in emergencies if they are forearmed, by good training, to carry out automatically standing procedures based on common sense and experience.



CAPTAIN SAMUEL R. SLAUGHTER, Armor, was commissioned in 1964 from the Infantry Officers Candidate School. He graduated from the Armor Officer Basic and Airborne Courses in 1964 and the Army Aviation School in 1965. He was then assigned to the 2d Squadron, 4th Armored Division in Germany, where he served as scout platoon commander, heavy weapons section commander, and aero scout platoon leader. In 1966 he returned to the 3d Squadron, 5th Cavalry, 9th Infantry Division then at Fort Riley, Kansas. He deployed with that unit to Vietnam where he served as heavy weapons section commander in the air cavalry troop. In 1968, he returned to the Primary Helicopter School at Fort Wolters, Texas, to instruct. A June 1969 graduate of the Armor Officers Advanced Course, he is now assigned as an instructor at the Armor School.

AWARD WINNER

ARMOR OFFICER ADVANCED COURSE 2-69

Get Out Of The Shadows!

Traditionally, the new second lieutenant has been the subject of numerous jokes in the military society. Unfortunately, many of us have heard the old jokes and cliches so often that we now tend to believe them. More unfortunate, too many of our new lieutenants start off their careers as officers believing them. It is time that everyone awaken to some facts about the modern Army in which we serve.

by Captain James A. Dickens

For decades the first, and sometimes only, advice the new officer received was that he stand back for a while, see how things are done, watch Old Sarge handle it, and then step out of the shadows and make his presence known. There are some officers who spend an entire career without ever stepping out of the shadows. They spend their lifetimes watching Old Sarge and never contribute anything of value to the Army or to themselves. Much too often, their sole contribution is to continue the ranks of the "shadow officers" by giving young lieutenants some of the advice mentioned above.

Perhaps there was some merit to this "think but don't act," "look but don't touch" philosophy in the years following the Civil War when a lieutenant could look forward to being a lieutenant for 10 or 15 or more years of his career. Then there was time for the new officer to ride at the end of the column and just observe. Even fairly recently, in the period just following the demise of the brown shoe Army, the young officer had time to relax and step out of the shadows at a leisurely pace without suffering any serious consequences. However, in the last five years this situation has changed abruptly. The U. S. Army, is a new and different army, fighting a new and different war. Sadly, everyone in the Army has not become a new and different soldier along with the change. The new second lieutenant is still told the same story that went with the old Army; stand back and watch for a while.

Pay no attention, Lieutenant, you haven't the time to stand and watch, even for a second!

Fortunately, today's newly commissioned officer has no need to stand aside and watch. The Army spends billions of dollars and billions of man-hours to insure that today's second lieutenant is the best trained and best prepared officer ever to wear a gold bar. This holds true regardless of the officer's background or source of commission. The new lieutenant starts his officer training as a more educated person than ever before, and he is trained by the most professional and experienced instructors in our history. All of these efforts have been designed to insure that the new lieutenant begins his career with a maximum of professional knowledge, and no need to stand in the shadows.

The new lieutenant comes equipped with everything he needs except experience. No school has yet been able to provide an adequate substitute for the experience that comes with doing something for real. However, there is little reality to be found, and no experience to be gained by hiding among the shadows.

By the time the average lieutenant reaches his first assignment, he has spent four to six months in schools, preparing for this first day. If he is fortunate enough to be assigned as a platoon leader, he has but six short months before he becomes a first lieutenant, and must move aside and let the next new "brown bar" have a chance.

Then, after the most quickly passing year of his

life, he will find himself a captain. He is no longer competing with young lieutenants of similar experience. Now he must compete with officers of equal rank, but five times his own level of experience. He will be expected to accept the same responsibility and to make the same sound decisions as any captain in the Army. He better have spent his months as a lieutenant wisely. It should be obvious why a new lieutenant has no time to stand idle and watch.

Currently, there is an even more pressing need for not wasting time. Long before the average new lieutenant need become concerned about what he will do as a captain, he must prepare for his role as a lieutenant in combat. This new kind of war in Vietnam is somewhat different from past wars. In earlier wars, the platoon leader followed the company commander, who followed the battalion commander. In Vietnam, the platoon leader will often find that there is no one to follow, and the decision at hand is his to make. He will not always be able to turn to Old Sarge in Vietnam, because Old Sarge might not exist. The platoon leader may find that the experienced platoon sergeant has been replaced by a qualified young noncommissioned officer with few more years of experience than himself, and perhaps even less. Decision making and responsibility will be forced on the new lieutenant and hopefully he will have done everything possible to prepare himself for the challenge.

What can you, the new lieutenant, do to gain maximum benefit from the short time you have as a lieutenant? As a start, forget everything you have been told about coasting for a while until you get your feet on the ground. Next, pay close attention to your new commander's briefing and ask questions. Do not leave his office until you understand your job, your extra duties, the current mission and status of the unit, and generally everything you can learn about what is expected of you. Rarely will this be spelled out in black and white. So you must listen closely, read between the lines, and ask questions. You will have many, and the only stupid one is the question you did not ask. Take a copy of the unit standard operating procedure home with you and digest it; you will find many answers there.

From your very first day on the job, jump in with both feet and get good and wet. Ask for and willingly accept responsibilities that are put before you. Volunteer to teach classes, lead physical training and command the company at drill formations. Speaking forcefully to large numbers of subordinates requires practice, and a platoon leader has too few

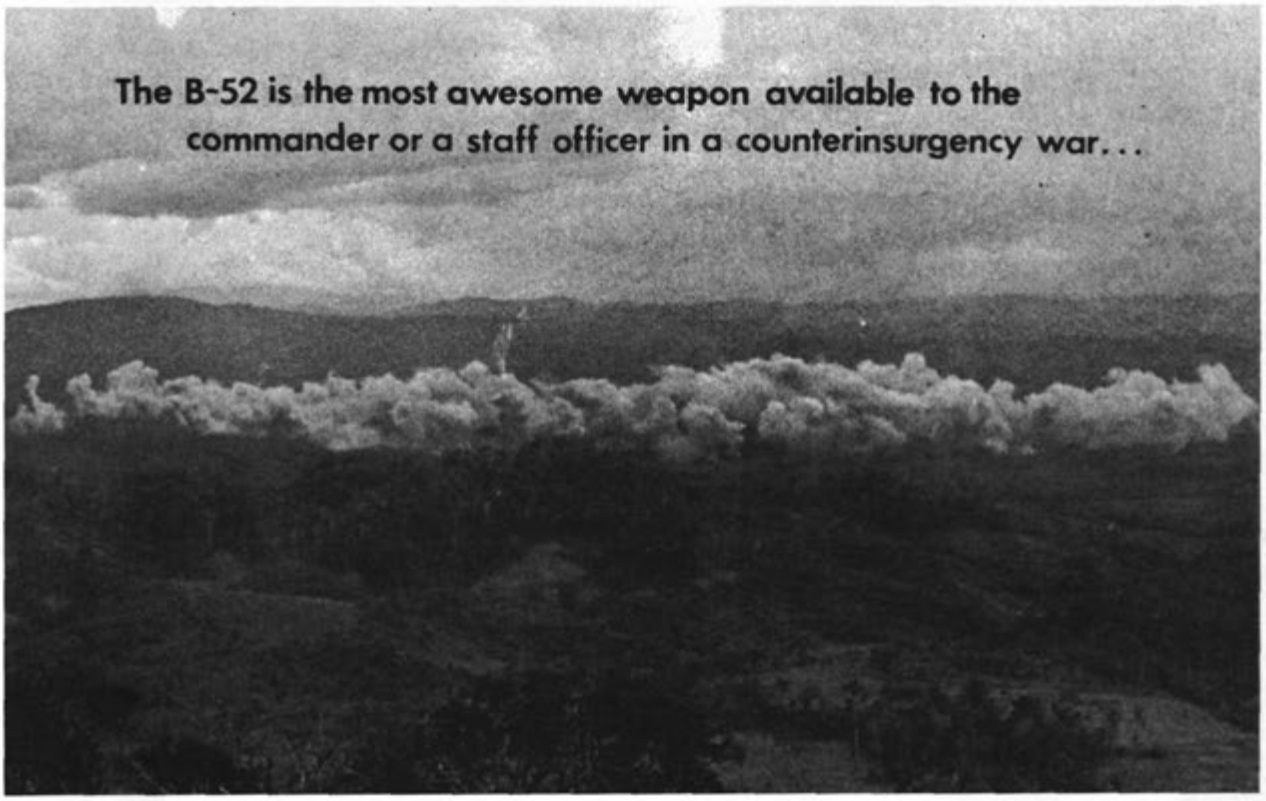
opportunities for this experience to miss a single one. Since there are few born leaders, most leaders are made through practice in the execution of leadership.

One of the most important facets of leadership is the ability to make decisions, and you should address your efforts to learning how. From the time you first step in front of your platoon, let every decision made in that platoon be yours, not your platoon sergeant's or your squad leaders'. Accept their advice on matters, but you make the decision.

You will be wrong sometimes, but every decision you make will enable subsequent decisions to come more easily and more quickly. Your mistakes now are free ones, but later, when your responsibilities are greater and you are in combat, your mistakes may be indeed costly. Take advantage of your chance to learn while your errors are still free. The ability to make sound, timely decisions will make you a better officer and leader, but more importantly, it will save lives.

Finally, what can the rest of the officer corps do to assist in the development of our successors? Recognize that the new officer has a good foundation in professional knowledge when he joins your command. Give him every opportunity to use his knowledge and gain experience in his profession. Give him the freedom to make every decision commensurate with his level of command, regardless of his inexperience. You are, or should be, too busy to do your job and his, so let him have the reins. You already know how to lead a platoon; he does not. If we can remember that the new lieutenant must become the "expert" that we are, much sooner than we were required to, and assist him in becoming the expert in time, the new lieutenant should have no difficulty keeping up with the demands of our new Army.

CAPTAIN JAMES A. DICKENS, Armor, was commissioned in 1966 from the United States Military Academy. He was then graduated from the Ranger and Airborne Courses. Next, he was assigned to the 1st Battalion, 81st Armor, 1st Armored Division at Fort Hood, where he served as a platoon leader and company executive officer. Reassigned to the 1st Squadron, 1st Cavalry, 1st Armored Division he deployed with that unit to Vietnam in 1967. There he served as a platoon leader, assistant S3, and aide-de-camp to the Commanding General of the Americal Division. In 1968 he returned to CONUS and attended Armor Officer Advanced Course, 2-69. He is now assigned to the 3d Battalion, 37th Armor, 4th Armored Division.



AWARD WINNER

ARMOR OFFICER ADVANCED COURSE 2-69

arclight
THE TACTICAL SLEDGE-HAMMER

by Captain Harry H. McWilliams, II

"Heavy artillery warning coord: _____. Aircraft stay clear. All ground personnel with _____ meters will be in protected postions from _____ hours to _____ hours." How many times have you, as a ground commander in Vietnam, received a message such as this and thought to yourself; "What does headquarters think they are doing now? How can those B52s expect to hit that area, and where do they get information to select targets? They're just wasting bombs and delaying my operations." This article will answer these questions and explain how you, as a commander or staff officer, can influence these answers.

The Strategic Air Command (SAC) has, since its creation in 1946, maintained both a nuclear and "Iron Bomb" delivery capability.[1] Its primary mission has been, and continues to be, deterring communist nuclear attacks (in peacetime) and destroying the enemy's war making capability after hostilities have commenced. Until John F. Kennedy became president, little attention was directed toward the delivery of high explosive ordnance by heavy bombers.[2] The increased emphasis on limited warfare in the early part of his administration caused SAC to orient some forces and modify certain equipment to meet the requirement of supporting ground troops in a conventional (non-nuclear) battlefield environment.

Studies determined that B52s could best be employed against logistics centers and base areas such as those in War Zones C and D and in the Iron Triangle. These bases had, thus far in the war, been impenetrable to ARVN (Vietnamese) and U. S. ground forces and had given the enemy areas of complete sanctuary. The first target selected for the Arclight (B52) program, in April of 1965, was one of these typically secure VC areas, measuring two by four kilometers, in the Ben Cat Special Zone in Binh Duong Province. Twenty-seven aircraft struck the target using aircraft radar equipment and radar synchronous bombing techniques.[3]

The press was critical of this seemingly unorthodox use of such a complex and expensive weapons system (the analogy of a sledge hammer to kill a gnat). U. S. military commanders evaluated the strike more objectively and reached these conclusions: "the ordnance got to the target area as planned, ground troops were able to penetrate, without loss, an area heretofore considered unassailable, and coordination of the mission had been excellent." Following this analysis SAC was tasked with the mission of harassing the enemy, disrupting his normal activities and denying him the use of his previously secure areas.[4]

To accomplish this mission with maximum effectiveness, SAC began to tailor a portion of its forces to deliver conventional ordnance. Bombers used in the conventional ordnance delivery role were modified to accommodate large pay loads.[5] The standard B52 was limited to twenty-seven internal bombs and two Hound Dog air-to-ground missiles mounted on wing pylons. The modified version can now carry 108 bombs (84 internal and 24 external, mounted on the two wing pylons). A single aircraft can now carry a combination of 750 and 500-pound bombs with a total weight limitation of 30 tons.[6] In addition to modifying aircraft to deliver greater amounts of ordnance, unconventional techniques of delivery control are now being employed to increase bombing accuracy. "The nature of the terrain in Vietnam does not provide good airborne radar returns for aiming points" such as bridges, cultural (built-up) areas, or prominent coastal features. To compensate, SAC has applied "sky spot" bombing techniques to Arclight operations. This system employs ground radar sites to direct strike forces to target release points and instructs the crews when to release their bombs. These ground control stations (ASRT/TPQ-10) are now located throughout South Vietnam and provide coverage of the entire country in support of B52s, tactical fighters and air rescue operations.[7]

The introduction of a heavy bomber capability into the war, met with less than enthusiastic acceptance in the United States. One outspoken critic of the war described the strike as:

> "the most ridiculous use of air power to date in Vietnam are the strikes of the B52 superbombers . . . The crews never even see their target . . . and though military planners know that all the bombs from one plane will land in a particular square mile of terrain, they cannot hope for much more accuracy than this."[8]

This reporter's analysis of a strike contradicts itself by its precise description of the degree of accuracy achieved by the crews who "never see their target".[9] A strike consists of six to 30 aircraft[10] delivering 108 500-pound bombs or 66 750-pound bombs (or a comparable combination) each into a target box one kilometer by two kilometers. Evenly distributed in the box, this number of bombs will sufficiently disrupt the enemy's normal activities.

By the end of 1966, more than half the requests for B52 strikes were made by field commanders and initiated at division or separate brigade level.[11] Most were requested for area denial or interdiction purposes, but an increasingly large number were for close support of tactical units.[12]

Close support missions are of primary concern to maneuver commanders; therefore, these will be described in as much detail as possible. A request to strike an enemy force or a suspected enemy area becomes a formal traget nomination when it reaches

CAPTAIN HARRY H. McWILLIAMS, II, Armor, was commissioned in 1964 from the Infantry Officer Candidate School. He was assigned successively to the 1st Squadron, 9th Cavalry, 1st Cavalry Division, the 1st Squadron (Airborne), 17th Cavalry, 82d Airborne Division, and the 1st Squadron, 4th Cavalry, 1st Infantry Division. He has served as platoon leader, troop executive officer, troop commander and squadron adjutant. A graduate of Armor Officers Advanced Course 2-69, he is now assigned as an armor instructor at the US Army Engineer School.

division or separate brigade level but can it be initiated at any subordinate level or by any attached or supporting unit. These nominations can be initiated on short notice following a major contact (Ia Drang Valley) or preplanned for defense of a strategic out-post (Khe Sanh).[13] Target nominations follow Army and Marine command channels through division and corps/field force/amphibious force but are turned over to the Air Force at MACV so capabilities and assets may be evaluated with relation to tactical requirements based on all available intelligence prior to presentation of targets for selection. Twice each day COMUSMACV selects the targets to be struck to insure that the Arclight program is correctly integrated into the support of all present and planned operations. Selected targets are turned over to SAC personnel at MACV. They then determine the axis of attack and the exact time of the strike and forward this information to the Third Air Division for implementation from airfields in Guam and Thailand. They are then "fragged", published in a fragmentary order by Third Air Division, through the appropriate wing to the crews which will fly the mission. Information copies are sent to the Joint Chiefs of Staff, CINCPAC, and the tactical units receiving the strike.[14] This frag reaches the user level as a heavy artillery warning.

This then is briefly the procedure for obtaining a preplanned Arclight strike. Of even more importance to the ground tactical commander is the capability to engage quickly targets of a fleeting nature and thus to deny the enemy an area in which to reorganize his forces after a battle, possibly inflicting heavy casualties in the process. To meet this requirement, SAC maintains a portion of their conventional bomber force on a Quick Reaction Alert (QRA) status. These forces are loaded with bombs and have preplanned routes to target areas.[15]

To allow even faster reaction, SAC can divert an element of a bomber force already en route to a pre-planned target to a more lucrative target.[16] The decision to divert an airborne force is based on the timeliness and thoroughness of the intelligence concerning the new target. The ability to strike a target within a few hours of its nomination depends upon the efficiency of the ground units in gathering and processing information, reaching a decision concerning the available intelligence, and forwarding a target nomination. This applies to all tactical units from the requester to MACV.

One of the most important responsibilities concerning an Arclight strike is, unfortunately, the most commonly overlooked. The *requesting unit is responsible for bomb/ground assessment* whether with organic means (ground exploitation or visual recon by Army aircraft) or by requesting visual or photo reconnaissance from Army, Marine, or Air Force reconnaissance aircraft.[17] The effects of an individual strike, of course, vary with the validity and timeliness of pre-strike intelligence.[18] If there are enemy troops in the target area they will certainly be disorganized and present an obvious target for exploitation by ground forces or for additional bombardment by artillery or tactical aircraft.

The effects of the Arclight program in Vietnam have been described in many ways. Assessing the value of the B52s to the overall counterinsurgency effort General William C. Westmoreland has said: "Enemy troops fear B52s, tactical air, artillery, and armor, in that order."[19] From a North Vietnamese Army prisoner we learned that "one regiment lost three fourths of its men to a B52 strike."[20] It is evident that the NVA, as well as high level US commanders, appreciate the destructive power of our heavy bombers.

The B52 is the most awesome weapon available to the comander or a staff officer in a counterinsurgency war to support his scheme of maneuver and tactical employment of large forces. Its effectiveness is limited only by the lack of understanding of its capabilities and techniques of employment.

FOOTNOTES

1 Letter from COL Virgil R. Sewell, Deputy Director, Operations Plans, Strategic Air Command. (Offutt Air Force Base: US Air Force, 1969).
2 Robert M. Kipp, "Counterinsurgency from 30,000 Feet," *Air University Review*. (Washington: Government Printing Office, 1968), p. 11.
3 *Ibid.*
4 *Ibid.*
5 Sewell, Letter.
6 Directorate of Information, Headquarters, Strategic Air Command, *SAC Operations in the Western Pacific*. (Offutt Air Force Base: US Air Force, 1968), p. 29.
7 Sewell, Letter.
8 James Pickerell, *Vietnam in the Mud*. (New York: Bobbs-Merrill Company, 1966), p. 65.
9 *Ibid.*
10 Kipp, p. 13.
11 Kipp, p. 17.
12 *Aerospace Speech Series: US Air Force Operations in Southeast Asia*. (Washington: Government Printing Office, 1968), p. 12.
13 Sewell, Letter.
14 *Ibid.*
15 John P. McConnell, Speech Presented to Senate Armed Services Committee, *Air Operations—SAC Bomber/Tanker Operations*. (Offutt Air Force Base: US Air Force, 1968), p. 34.
16 *Ibid.*
17 Sewell, Letter.
18 *Ibid.*
19 *Aerospace Speech Series*, p. 12.
20 Harold Brown, Speech before Phoenix Chamber of Commerce, *Air Operations—SAC Bomber/Tanker Operations*. (Offutt Air Force Base: US Air Force, 1968), p. 37.

SHORT, OVER, LOST or...TARGET

A range for firing novel ideas which the readers of ARMOR can sense and adjust. This is a department for the new and untried from which the doctrine of tomorrow may evolve. Items herein will normally be longer than letters but shorter and less well developed than articles—about 750 words maximum is a good guide. All contributions must be signed but noms de guerre will be used at the request of the author. ON THE WAY!!

HERE'S TO A SPEEDY RECOVERY

by Captain Peter L. Sawin

If there is one basic driving technique that has received renewed emphasis in Vietnam, it is vehicle recovery. The marginal trafficability encountered in so much of Vietnam has made getting a track stuck or mired not so much the unpardonable sin as an everyday occurrence. Most foundered vehicles are recovered by hooking as many other vehicles together as necessary to pull out the disabled tank or personnel carrier. The double whip-back block and tackle that is always demonstrated at recovery classes is very seldom seen. More often than not, the vehicles use their own tow cables. There are good reasons for this. This method is the easiest and fastest way of getting a vehicle out; and the tow cables are at hand.

Vietnam's mud has given a lot of unscheduled classes on expedient recovery. This mud has also made obvious some very basic recovery facts. For instance, a tank should be able to pull out a stuck personnel carrier, since they habitually operate together. A quick check of the tow cables and tow hooks for the two vehicles will show that the tow cables and tow hooks will not mate. A tank's tow cable will fit into the tow pintle on the back of the personnel carrier, but the cable will develop a permanent bend at an awful angle if used to tow the personnel carrier in this manner. Another fact becomes evident if the vehicle is stuck in a rice paddy. Any vehicle that is to hook up to the stuck vehicle must go into the rice paddy. A longer cable immediately becomes desirable.

Four different tow cables for seven different vehicles leaves much to be desired. The *M88* VTR, *M60* tank, *M113* personnel carrier, and *M114* reconnaissance vehicle each has its own peculiar mix of tow cables and tow hooks.

No exhaustive study was necessary to determine this and there are probably more combinations than these. There appears to be no good reason to have such a variety of tow cables, hooks, and shackles. In fact, there ought to be only one tow cable if for no other reason than the economics of manufacturing and stocking only one cable. There are other valid considerations for there being only a single type tow cable. Tanks could tow personnel carriers. Personnel carriers could tow reconnaissance vehicles. If a tow cable were ordered through the supply system, it would be impossible to get the wrong cable since there would be only *one*.

If someone was to be dauntless enough to propose a new tow cable, then some changes would certainly be in order. If this is the space age, then there ought to be some space age material like nylon or fiberglass that can be made into a new, lighter tow cable. Such a cable might even have the advantage of being non-maintainable. A new and better cable would obviously be longer so that it would not be necessary to get into the same hole with a stuck vehicle just to hook on to it. If it were possible to manufacture this new cable at a savings over the cost of the old cable, it might even be possible to

THE RECOVERY MAZE

VEHICLE	TOW CABLE	ATTACHMENT
M48A3	1⅛ In. X 10 Ft. (FSN2520-202-2425)	Tow Hooks (FSN2540-706-8219)
M60	SAME	SAME
M578	SAME DIMENSIONS (FSN4010-449-6568)	SAME
M88	1½ In. X 15 Ft. (FSN4010-202-2427)	SAME
M113	¾ In. X 10 Ft. (FSN2540-767-3149)	Tow Hooks (FSN2540-679-8035)
M551	SAME	Towing Shackles (FSN4030-914-4705)
M114	⅝ In. X 15 Ft. (FSN410-202-2426)	Towing Shackles (FSN4030-088-1881)

obtain a clevis which would allow tow cables to be hooked together to get a greater length cable for the vehicle stuck in a particularly large hole. Any man rash enough to propose a new common tow cable for all the tracked vehicles in the Army might as well earn his reputation by proposing a tow hook that will mate with the new tow cable. A tour of any track park will find vehicles without their tow hooks. The American soldier, in his deep appreciation of the tactical situation, takes his tow hooks off before they are borrowed. Tow hooks are designed to come off in order to allow tow bars to use the same hole that the tow hook came out of. If there were another hole for the tow bar, movement necessary in the present tow hook would be possible if only the pin was welded. The tow hooks, pins, locking pins, and shackles could no longer be painted, cleaned, displayed, or lost.

Vietnam has pointed up what might well have been evident to anyone around tracked vehicles. Any track with the power should be able to recover another track. Tow cables and tow hooks should not be different. The danger that someone might use a personnel carrier to tow a tank is not as real as it might first appear. In Vietnam, as a combat expedient, personnel carriers equipped with locally fabricated cables have recovered tanks successfully.

It is not a difficult task either to design or manufacture a new, lighter, and longer tow cable. If the *Main Battle Tank 70,* and other tracks to come, have their cables, then a very basic error has been compounded. There should be time to recover.

The Bridge at Remagen

"Cross The Rhine With Dry Feet Courtesy of 9th Arm'd Div" proclaims a weather-worn sign in the Patton Museum at Fort Knox. This historic property originally was erected shortly after 9th Armored Division armored infantrymen seized the Remagen railroad bridge nearly intact on 7 March 1945. As aptly put by the late General of the Army Dwight D. Eisenhower, the action at Remagen, "typified . . . the dash, the ingenuity, the readiness at the first opportunity that characterizes the American soldier."

The most detailed historical account of that action is The Bridge at Remagen by Representative Ken Hechler of West Virginia. (See feature review in ARMOR, May-June 1958.) Commissioned from the Armored OCS in 1943, Hechler wrote a history of the Armored Force and then served as a combat historian in Europe.

Now showing throughout the country, the United Artists film "The Bridge at Remagen" is based on Hechler's book. Representative Hechler and retired Colonel Cecil Roberts, who was S3 of the 14th Tank Battalion, 9th Armored Division, served as technical advisers.

Since the Remagen Bridge collapsed 10 days after its capture and has been since cleared away, a location was chosen in Czechoslavakia. Sixty days after shooting began, Warsaw Pact troops overran the country. In the face of East German charges that cast members were CIA agents, the film company moved to Austria. Fortunately, film, costumes and properties were smuggled out. Production of "The Bridge" was completed in West Germany and Italy.

When interviewed by ARMOR, Representative Hechler commented, "This is a film the Russians couldn't stop. I guess there were more accidents in making this realistic picture than there were casualties in taking the Remagen Bridge in 1945. The tank-infantry teamwork is dramatic. The 9th Armored patch shows up frequently as the men recreate the World War II dramatic action that shortened the war in Europe and saved thousands of lives. Of course, Hollywood always has to improve on the truth. This is a dramatization rather than a pure documentary. For example, all names are changed. But the net effect is a fitting tribute to the tank-infantry-engineer team which staged the first military crossing of the Rhine since Napoleon." (Those who wish to compare film and book can order the paperback edition for 75 cents.)

Letter from Vietnam

This letter was sent to ARMOR by an Armor colonel at Fort Hood who believed that its publication would advance practical professional knowledge. We agree. THE EDITOR

Dear Sir:

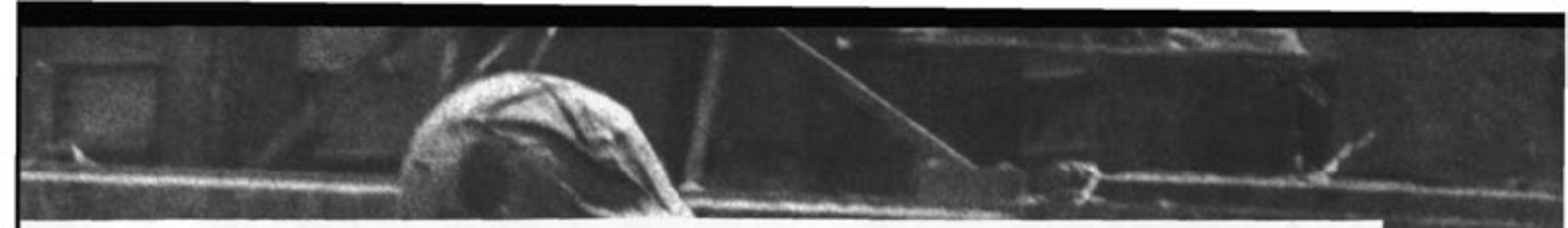
This is a short "lessons learned" type letter. If you have any officers coming over, it might be of some help to them and maybe to the NCOs too.

Know your crew served weapons inside and out. The M2 caliber .50 and the M60 machinegun. Things will go wrong with them in the middle of a fire fight. Not only know them yourself, but be able to explain them to the average trooper. Never forget that you are an instructor always. What I noticed as the weakest point with the incoming officers, NCOs and troopers also was the knowledge of the M2 caliber .50. And the weakest point on that weapon was how to set the head space and timing properly.

Know how to read a map and use a compass. Map reading over here is probably harder than any place in the world. This is because of the type terrain you operate in - jungle, rubber, bamboo, etc. Most of the map data is not complete and, in addition, due to past battles in the area, complete villages shown on maps no longer exist. Many of the terrain features you encounter don't show on the map because maps were made by aerial survey and the cameras just couldn't see through the rubber or jungle. At times, streams and soft ground that you come upon show on the map as high ground. So practice your map and compass work before you get here. Don't tell yourself "I know how and all I will have to do is brush up when I get there." It doesn't work that way.

Be able to call for accurate artillery fire - and fast. By that I mean a maximum of three rounds to bring you in on target. If you make contact and need artillery, it's got to be fast. If not, Charlie will be gone. He will, in most cases, not fight the cavalry if he can escape. Depending on the unit you are in, you will spend most of your time opcon to an infantry unit, and they will expect you as a platoon to act like a squadron. About 90 percent of the time you will not have an FO with you. So you must, initially at least, call your own artillery, until they can get an aerial observer up and over you.

Along the line of calling fires, you must also know how to control gunships and air strikes. The chopper pilots and the Air Force FACs are good. They will help by asking you enough questions to bring their rounds in on target. But that just takes more time and if you are in a tight spot it can get your troops hurt needlessly, and also allow Charlie to escape. If nothing else, be able to tell where you are and where the enemy is by range and azimuth. Since you are the ground commander they will put the fire right where you ask for it. So don't get excited and say 50 meters from your front when you mean 150 meters. This also goes for artillery. But don't forget



the bursting radius, overhead cover and so forth. However, if the action is binding and you need it in close, don't be afraid to call it in because they will put it where you ask for it.

The next item is probably one of the easiest things you will do over here, but it is one that I have seen messed up more than anything else. And this will very quickly affect your troopers' morale. This is calling in the dust-off. Each dust-off company works a little differently but the basic rules apply. Of course you must know where you are. Don't ever call a dust-off into a hot pickup zone (PZ) without telling the pilot about it. If you have a man who is badly wounded and will die if you don't get him out, tell the dust-off. Most of them will come into a hot PZ without a second thought. Remember, though, that you have more to worry about than just one man. You want all your wounded out. Plus that, you and the pilot both have responsibility for that chopper and crew. When you pop smoke on call always let the pilot identify the color of the smoke. Never, and I mean never, tell him what color you are going to pop. Also tell him plenty in advance how many wounded you have, what type of wounds, how many are walking and how many litter carried. He will drop off litters in exchange. If you know of anything that would impair flights in or out of the PZ, tell him; and also the direction of enemy contact from the PZ. If you don't tell him he will have to take the time to ask and you will have just wasted some time that might have kept one of your men alive. Have the wounded ready to load the moment the chopper touches the ground. Your litter cases first, walking second, and last your dead.

Make sure your medics have properly tagged the wounded and HAVE MARKED ANY DRUGS GIVEN. It is a very heart-rending sight to see a man die because the dust-off gave him morphine not knowing that he had already received one shot. I always make it a practice to have my medics tell me what wounded have been given morphine, and I pass this on to the pilot just as a double check. The same two tracks always evacuate the wounded off the line and set up the dust-off area. What this does for you is that after the first couple of times you have a track commander who can run the dust-off and all you have to do is monitor.

When you call higher for a dust-off, ask that the pilot come up on your push. You will find that when you are in contact with the enemy you will have at least the brigade and squadron COs on your net, and at times the division commander, so you are already busier than a three-legged cat changing pushes and giving sitreps plus trying to fight, even without the dust-off.

One of the most important things is, of course, maintenance. I probably should have listed it first. If you can't move you can't fight. It is really surprising how many officers and NCOs of all ranks come over here who don't know the importance of maintenance. And even if the higher-ups do, it is up to the platoon leader, and his NCOs, to make sure it works.

Armor is fighting, and I might say damn well, in terrain that a few years ago the experts said we could not even get into, let alone fight in. We spent days in weather where it seemed as if all we were doing was getting vehicles unstuck. At times we go through jungle so thick that we have to bust our way through in places by firing cannister rounds. And if it's not the jungle, it's the dust. Dust makes those Fort Hood tank trails look like a swamp. Of course this requires continuous maintenance, proper maintenance and a type of maintenance I call common sense.

The M113A1 and the M48A3 are quite forgiving vehicles when it comes to maintenance. And this tends to lull platoon leaders and TCs into a false sense of well-being. Then out of a clear blue sky comes the warning order "Be prepared to road march 40 Ks, bust jungle for 10 Ks, and set up an RON from which you will conduct daily RIF for an unknown length of time." Shortly thereafter you move out, justifiably proud, in the true cavalry spirit.

Then, when you get to the turn-off spot with still 10 Ks of jungle busting to do, you have only one tank and three tracks left. One track caught fire (air-cleaner so dirty that the engine overheated, blew and started a fire in its oil and trash filled engine compartment). The second tank sheared the collar on the main drive. (The nuts were loose. "Don't know why because we put them on tight.")

About this time your troop commander (if he is in the best of moods) is referring to you as everything except a human being. And your squadron commander is very seriously thinking of making you the assistant pencil sharpener to the second assistant support platoon leader as far in the rear as he can possibly send you! Why? Well for one thing each vehicle you dropped out took one more vehicle to secure it. Remember there is a war on and you are in enemy country. And your troop just tied up 10 vehicles to clean up your mess. Also the drop-out vehicles will have to be secured until parts can be flown in to repair them.

You ask yourself that night, "How did this happen to me?" Well, if you were like many junior leaders coming over here, your experience in moving armor from Point A to Point B was limited and was gotten under much more ideal conditions. And if you were like a lot of platoon leaders who came in during an offensive when platoon leaders tend to change quite quickly at times, you hardly had time to meet your squadron commander before you were sitting down in a chopper (you didn't know where you were because you didn't have a map yet!). But you were taking over a platoon. And if you were real lucky you would meet a very tired guy standing there when the chopper landed. He would smile, shake your hand and say "It's all yours buddy" and climb on the same chopper and leave you standing there. All you can see is the dirtiest and raggedest collection of tanks and tracks and men you have ever seen in the world.

A lot of dreams are very quickly shattered at this time. You meet your platoon sergeant and also the men. Although they are dirty and ragged and red-eyed they seem like a good bunch who know what they're doing (and most of them do, believe me!). About this time a runner from the infantry company commander tells you that you're wanted at the CP, ASAP. You are moving out.

Somehow you get a map and compass and you move out on time. About noon you make your first contact with Charlie and you find out that combat is really not that bad. Sure, you had two 50s go out and one M60 blew up and one of the vehicles threw a track, but the crew got it back on under fire in just 30 minutes and you did win didn't you? Plus you crossed two streams that you didn't think you could get tracks across, let alone tanks. Now the day is just about over and you laager up for the night and you feel proud of yourself and your men and rightly so. As you look around you notice your drivers (and they have had a very hard day) falling asleep sitting in their seats, tail gunners are down

inside sleeping, and tank loaders are sleeping in the bustle racks. Well they have earned it. So you let them sleep for a half-hour or hour and then wake them up and put out your wire, claymores, RPG screens, and trip flares, right? WRONG! And, if you're not careful, dead wrong.

What do you do? You do just as the book says and start pulling what I call common sense maintenance. Remember that you were in a lot of water today. Get the grease guns out and pump grease in tank road wheels, get out the oil cans and check out the ACAV road wheels. Check the track tension. Check for dead blocks, nuts on track pins which may be missing. You busted a lot of bush and trees today so let's have a look at the snubbers on your tanks. Have they been knocked out of line? This will cause the tank to throw a track. Also find out why that vehicle did throw a track today. Was it bad maintenance or driver's error?

Find out. You were lucky to get it back on, but what would have happened if that contact had been an ambush and you had to fight your way out? If it is the dry season, get air-cleaners cleaned, and check all oil levels in the engine and transmission and water levels in batteries and ACAV radiators. Check the cherry juice for your main guns. Get your weapons cleaned.

These are just a few of the things you have to check. The list is endless and changes daily depending on the situation. Make it SOP to check these things each time you stop for any length of time so that this will become habit.

You can't check all of this yourself, but you have a platoon sergeant and track commanders. Use them! But you can spot check. You have plenty to worry about getting your food, water, fuel, oil and parts resupply in, plus being briefed on the next day's operations. Then, when all this is done and each track has its radio watch set and a man awake behind the .50 cal, then, and only then, let the men rest. If a track is down, that crew and the platoon mechanic work on it all night if necessary so it's up and ready to move in the morning. Hard life? Sure it is, but combat is a very hard proposition any way you look at it. And if you can't move, shoot, and communicate, then you are in trouble.

Security: About all that I can say here is - never forget it. When you stop for the day, get your claymores, trip flares, and RPG screens up. Get OPs out right after dark. What I have always done is to tie a long wire between the OP and the track to his rear. This is an easy way, by means of prearranged signals, to receive sitreps from him. Also, in case of ground attack, it gives the OPs a quick route to follow back in. Never, I say never, let your men open up until the OPs are in and accounted for.

Well sir, that's about it. There are many more things, but a lot of them a man must learn as he goes along.

Sincerely,

Bill

WILLIAM J. WALKER
1LT, Armor

1st Squadron, 4th Cavalry
1st Infantry Division

GENERAL WRIGHT PRESENTS AWARDS

Tradition was observed again this year when Lieutenant General W. H. S. Wright, United States Army-Retired, 23d President of The United States Armor Association, recognized the two top Armor graduates of the United States Military Academy Class of 1969. Under a bright June sun at Trophy Point, General Wright presented Association Award sabers to Cadets Frame J. Bowers, III, and William J. Gregor. The saber awards are made annually by the Association to recognize the outstanding Armor officers commissioned from the United States Military Academy and the Army Reserve Officers Training Corps.

Lieutenant Gregor was 11th in the USMA Class of 1969. During each of his four years at West Point, he was designated a Distinguished Cadet and was on the Dean's List. Following the Armor Officer Basic, Airborne and Ranger Courses, he will join the 3d Armored Cavalry Regiment. Lieutenant Gregor was appointed to the Military Academy by Senator Everett M. Dirksen of Illinois. ▶

◀ Lieutenant Bowers stood 10th in the 1969 class of over 800. During each of his four years at West Point, he was designated a Distinguished Cadet and was on the Dean's List. Following the Armor Officers Basic, Airborne and Ranger Courses he will join the 3d Squadron, 8th Cavalry, 8th Infantry Division. Lieutenant Bowers, the son of a Regular Army officer, entered the Military Academy on a Presidential Appointment.

A REVISED MECHANIZATION POLICY

by Timothy K. Nenninger

Many military experts recognized that tanks possessed characteristics similar to horse cavalry. As the mobility of tanks increased the similarity became more apparent. Although the tanks available were unsuitable for a mobile role, the War Department organized the two mechanized forces in 1928 and 1930 to carry out mobile, independent missions. Yet the opposition to an independent mechanized organization hampered development. Such a force threatened the infantry's exclusive control of tanks, while the cavalry feared that a mechanical force might completely take over its traditional mobile role. As Chief of Staff, Douglas MacArthur attempted to allay these fears by ordering all branches to mechanize so far as practicable.

On 1 May 1931 MacArthur issued a memorandum entitled "General Principles to Govern Mechanization and Modernization throughout the Army." For nearly a decade this memo governed the Army's mechanization policies. In this document MacArthur stated, "Too often in the past organization has been attempted from the standpoint of equipment rather from the standpoint of missions assigned." He considered this unsound policy because few classes of equipment belong exclusively to one arm. As tanks gained strategic mobility they appeared in organizations having missions beyond those normally assigned to infantry. At the same time, modern weaponry eliminated the horse as a decisive factor on the battlefield. To assist the cavalry in developing its organization and equipment for modern warfare, MacArthur ordered the Mechanized Force at Fort Eustis reorganized as a mechanized cavalry regiment. He also recognized that one of the principal roles of tanks remained close support of the infantry. Tanks with infantry were primarily assault weapons and depended on armor, tactical mobility, and firepower to dislodge the enemy from defensive positions. Speed and strategic mobility were the important characteristics of tanks in mechanized cavalry units. Finally, MacArthur declared that the evolution from mounted trooper to mechanized cavalryman would be complete only when vehicles could perform those tasks formerly assigned to the horse. In an attempt to distinguish between cavalry and infantry tanks and to bypass the National Defense Act which assigned tanks exclusively to the infantry, tanks operating with the mechanized cavalry were called "combat cars."

MacArthur's mechanization program encountered opposition from several quarters. Colonel Van Voorhis, the Mechanized Force commander, feared that branch jealousies would disrupt the proposed program. He advocated strengthening the Mechanized Force and continuing development independent of any branch control. Subsequent events proved Van Voorhis' fear correct. The Chief of Infantry, Major General Stephen Fuqua, who opposed the formation of the Mechanized Force, disagreed with the new War Department mechanization policy. According to Fuqua, tanks were infantry weapons and this arrangement should remain unchanged. Furthermore, he pointed out that the assignment of tanks, or combat cars, to the cavalry violated Section 17 of the National Defense Act. Fuqua believed that neither the cavalry nor the infantry should contribute the personnel required to build up mechanized units.

Cavalry reaction to the new policy was mixed. Major General Guy V. Henry, Jr., the Chief of Cavalry, welcomed the addition of mechanized units to his arm and thought that combat cars could replace

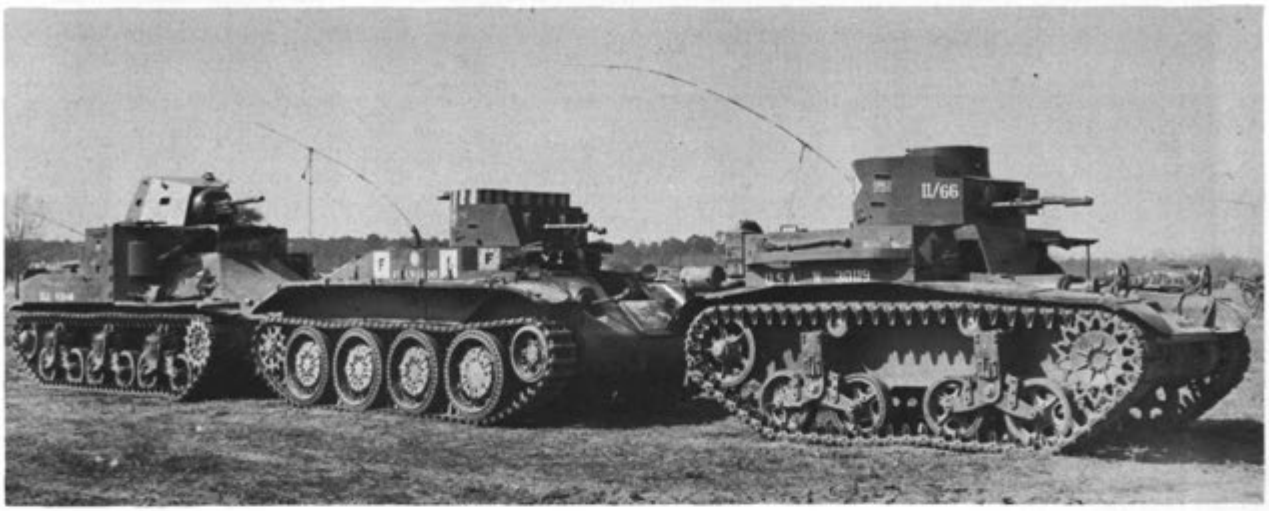
Major General Guy V. Henry, the Chief of Cavalry (facing camera) believed that mechanized cavalry could apply the tactics and techniques of horse cavalry to motor vehicles. This heavily retouched photo shows General Henry in conference at Camp Lee, Virginia, in June 1931. With him (left to right) are Colonel L. W. Oliver, (who, later as a Major General commanded the 5th Armored Division in Europe in WWII) Colonel Daniel Van Voorhis, and Major Sereno Brett.

horses without changing the essential mission of the cavalry. Mechanized cavalry would not be in any way analogous to the infantry tank units. Henry believed that mechanized cavalry could apply the tactics and techniques of horse cavalry to motor vehicles. This depended on the development of mechanized vehicles capable of great mobility.

Not all cavalry officers shared Henry's enthusiasm for mechanization. Many could not accept the fact that the horse had a limited use on the modern battlefield. Brigadier General Hamiltion S. Hawkins epitomized this staunch horse cavalry group. Even after World War II Hawkins wrote articles for the *Cavalry Journal* pointing out what he considered the limitations of tanks and advocating an increase in the number of Army horses. Even one of the most ardent advocates of mechanization but also an ardent horse lover throughout his life, Adna Chaffee, had reservations about ending the service of the horse. Most cavalrymen took a moderate, somewhat philosophical view of the subject. Both literally and figuratively, cavalrymen thought they had a wider perspective than others: one could see farther from the back of a horse than walking in the dust. Above all they hated to see the elimination of the horse. But most recognized the necessity of fighting from something more substantial than a horse's back. Mechanized cavalry offered a logical alternate to the horse.

Some Congressmen expressed concern over MacArthur's change in the mechanization policy. Despite the claims of its proponents, mechanization was expensive. During the Depression, Congress was reluctant to appropriate funds for the military. Some people in Congress as well as in the Army considered mechanization an unnecessary expense. Among the Congressional supporters of an aggressive mechanization was Ross Collins, Democrat from Mississippi, the Chairman of the Subcommittee on Military Affairs of the House Appropriations Committee. When MacArthur appeared before his committee, during hearings on the 1932 War Department Appropriations Bill, Collins asked the Chief of Staff why the Mechanized Force had been abandoned. Collins declared that his committee was always the champion of an independent mechanized organization. MacArthur replied that "a small independent Mechanized Force could not reach the ultimate development of mechanized possibilities." Furthermore, as mechanized and motorized equipment increased, the number of Army horses and mules would decrease by about 3000 per year. Reassured that this would keep the cost of mechanization to a minimum, Collins replied that he was most encouraged about future developments.

Despite the optimism of its strongest Congressional supporter and the apparent support of the Chief of Staff, War Department budget appropriations restricted the development of mechanization during the thirties. The cost of equipping one light tank battalion was approximately $2 million. During the early thirties this was a great deal to spend on any single item in the military budget. The *Army-Navy Journal* editorialized on the cost of mechanization and the prospect of acquiring the needed appropriations: "While Congress might feel kindly toward the mechanization of the Army it was realized that the extreme cost of any extensive mechanization would run up against the 'wall of budgetary limitations.'" Congress was



Three types of Army tanks lined up at Fort Benning in 1940. Left to right are the M2 medium tank, T4 medium tank, and M2A3 light tank. European tank battle experiences caused new American designs to be adopted and none of these 66th Infantry Regiment tanks saw action.

actually more willing to appropriate funds than the *Journal* anticipated. The problem was one of priorities. The War Department, not Congress, determined the priorities.

Rather than spending money for many tanks and complete mechanized units, MacArthur advocated a gradual approach. He believed that progress in mechanization should consist of producing the best pilot vehicles, making arrangements to speed tank production in time of emergency, producing sufficient tanks for thorough tactical tests to develop doctrine, and indoctrinating the entire Army as to the capabilities of mechanized units. At that time he thought production of large numbers of tanks an unnecessary expense because they would become rapidly obsolete. MacArthur hoped that eventually tank technology would become stable. As the effective life of tanks increased, additional investment in mechanization would be warranted. But during the early Thirties mechanization received only a small share of military appropriations.

Some years later MacArthur claimed he "stormed, begged, ranted and roared; I almost licked the boots of certain gentlemen to get funds for motorization and mechanization and air power." The Chief of Staff did strongly support mechanization in theory. But he had to make a choice between appropriating funds for mechanized equipment and money to support more personnel for the Army. Faced with this decision, MacArthur chose the latter. The General Staff wanted to maintain a large, well-trained officer corps and strong civilian components capable of rapid expansion in time of war. An expandible Army, they reasoned, could better meet any threat facing the country. Mechanized units were not as adaptable; weather, terrain, and availability of gasoline limited mechanized combat.

Congressman Collins strongly opposed this policy. In a House speech on 10 May 1932 he declared that the United States Army and the General Staff, in particular, were "utterly unable to lift themselves out of the rut and apply new principles to military science in the United States." Collins emphasized the need for developing modern weapons such as tanks and airplanes. According to Collins, a comparatively small Army of well-trained experts, utilizing the newest concepts of warfare, would provide the best security for the United States. Because MacArthur put preservation before progress, Collins opposed increasing War Department appropriations. If Congress appropriated more money, Collins feared that the Army would spend it on pay for more men and not on modernization.

It is apparent that budgetary limitations played a significant role in determining such purely military matters as tactical doctrine. Because of the limited funds available, prospects for a large mechanization project were bleak. Until the late Thirties when the Roosevelt Administration began spending more for defense, American mechanized forces consisted of two regiments of mechanized cavalry and the infantry tank units remaining from the 1920s. Because of insufficient equipment, the War Department actually skeletonized several of the infantry tank companies during this period. Conforming to the policy outlined by MacArthur, the Army concentrated on developing tactical doctrine for mechanized combat and on producing a few pilot models to improve the mechanical capabilities of tanks.

Although the War Department mechanization program of 1931 directed all branches to mechanize, this order concerned primarily the cavalry and the infantry. Throughout the Thirties officers with the mechanized cavalry developed new concepts for the use of tanks. The tactics employed by armored divisions during World War II evolved from these concepts. For this reason the infantry tank organizations of the period are often forgotten. During the 1930's infantry tanks functioned as they had in the past: their primary mission was to assist the advance of the rifleman.

The *Infantry Field Manual* of 1931 outlined this mission. Leading tanks preceded the main assault force, broke into the hostile defense, and penetrated deeply to facilitate the rapid and extensive advance of friendly troops. Fast tanks were best suited for this task but firepower was even more important since close support of assault troops was the primary consideration. Normally organized in light tank platoons and attached to infantry battalions, accompanying tanks reduced points of resistance which developed in front of, or to the flanks of, the unit they supported. Apparently the infantry still thought in terms of fighting a static war similar to the Western Front from, 1914 to 1918. Certainly they did not envisage the mobile warfare of World War II as practiced by the Germans in Poland and the Low Countries or by the Americans in France. When confronted by hostile troops in prepared positions infantry tanks assisted the foot troops in a frontal assault. Infantry doctrine gave no thought to bypassing these positions and isolating them from their command and supply facilities. Mechanized cavalry might attempt such a solution but the infantry rejected the use of tanks in independent, mobile missions.

In 1933 Major General Edward Croft, the Chief of Infantry, expressed his views on tanks in a letter to the President of the Infantry Board. According to Croft, the infantry should leave the development of mechanized forces to the cavalry. Croft, who believed in concentrating on the use of tanks with foot troops, said, "Personally I doubt very much if in the next war tanks will be able to go charging about the battlefield in the face of antitank weapons no matter how hard we try to overcome inherent weaknesses. The success of tanks in battle will lie . . . in cooperation with the Infantry foot troops."

The Infantry Board, disagreeing with Croft's assessment, pointed out that possibilities existed for the employment of tanks other than as direct support for infantry or as mechanized cavalry. Often tanks could effectively support riflemen from a position other than immediately in front of them. Members of the Infantry Board thought, "The modern tank should not pull the foot troops forward by their boot straps if there is any possibility of maneuvering against the position holding up such foot troops from the flank or rear." Nevertheless, Croft's ideas prevailed. His successor, George A. Lynch, restated official infantry views on the employment of tanks in order to ensure a unity of views within the branch. Infantry training needed to stress the use of tanks in close support of the foot soldier. Lynch said that tank attacks should be launched against clearly defined objectives. Only in exceptional circumstances and only when mechanized cavalry was unavailable would infantry tanks engage in the pursuit of a defeated enemy or any similar mobile mission. The limited use of tanks by the infantry, exemplified by the views of Croft and Lynch, prevailed until the spring of 1940.

For some time the Army had planned to move the Tank School from Fort Meade to the Infantry School at Fort Benning where tank doctrine would more likely conform to the dictates of the infantry. In January 1932 the Secretary of War directed that the Tank School move to Benning and become the Tank Section of the Infantry School. The curriculum of the Tank Section remained similar to what it previously had been at Fort Meade but some changes were made. One improvement was that all officers in the Infantry Company Officers Course received sufficient instruction in tank tactics to enable them to understand the powers and limitations of tanks. However, the Secretary's directive reduced the course for officers regularly assigned to tank units from one year to five months. Tank personnel had to learn conventional infantry tactics before studying their specialty. The Secretary wanted to avoid too much specialization.

During the Thirties infantry tank units, often skeletonized and understrength, were stationed at many posts. Forts Benning, Meade, and Devens held elements of the 66th and 67th Infantry (Light Tanks). Company F at Benning was the only active unit of the 67th. Divisional tank companies, organic to infantry divisions, served at the home stations of their parent units. Posts housing the seven divisional companies stretched from Miller Field, New York to Schofield Barracks, Territory of Hawaii. About 2,000 enlisted men and 120 officers served in the two regiments and seven divisional companies.

By 1939 unanimity of opinion existed throughout

M2A3 light tank of the 68th Infantry at Fort Benning in 1940. The M2A3 appeared in 1938. Maximum armor was .75 inches and weight was 13 tons. Speed was 40 mph. Armament consisted of a .50 caliber machinegun in one turret and a .30 caliber in the other.

Production of the M2 medium tank began in 1939. A 350 hp Wright radial airplane engine pushed the 19-ton M2 to speeds up to 30 mph. Maximum armor thickness was 1 inch. Armament consisted of one 37mm gun and six caliber .30 machineguns.

the Army on the need to eliminate the light tank company as an organic element of the infantry division. New infantry doctrine called for the use of tanks in mass formations. The Chief of Infantry, General Lynch, ordered the organization of all light tank companies into battalions; training would proceed on the basis of the battalion organization. Only in rare circumstances would tanks be used in units smaller than a battalion. Redesignated the 68th Infantry, all divisional tank companies concentrated at Fort Benning in January 1940. Combined with other infantry tank units, the 68th participated in the 1940 maneuvers as part of the Provisional Tank Brigade. At this time the infantry tanks and the mechanized cavalry became closely allied.

A caustic letter from Lieutenant Colonel James R. N. Weaver, a battalion commander in the 66th Infantry, to the Office of the Chief of Infantry aptly reflects the state of infantry tank development during the Thirties. Writing in 1939, Weaver presents a case for the adoption by the infantry of the M2 medium tank, "We can get what we want if we insist on it. I saw the cavalry get everything it asked for including the non-statute light tank by calling it a *combat car;* I saw them get 56 so-called combat cars when all we had was 18; I saw them get (through General then Colonel Chaffee's intercession as Chief of the budget and Legislative Branch, WDGS) $600,000 of the President's reserve for equipment of the cavalry mechanized brigade."

Throughout the Thirties the mechanized cavalry overshadowed the infantry tanks. The mechanized cavalry developed new tactics and generally projected a more spectacular image. Furthermore, Adna Chaffee, a proponent of mechanized cavalry since its inception, served as chief of the General Staff section which planned War Department budget requests. From this powerful position he lobbied for the cause of mechanized cavalry. All these factors contributed to limiting the infantry's share of the already small War Department mechanization appropriations. This further stifled development of infantry tanks during the 1930's.

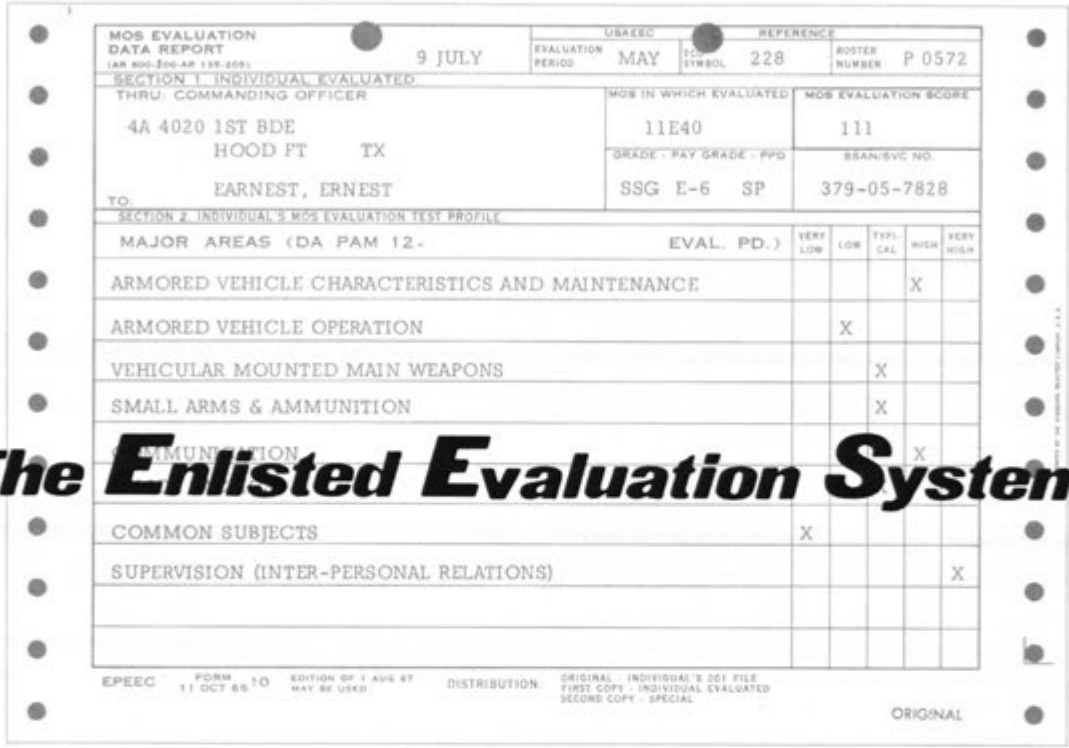
Bibliographical Note

The author used numerous sources in preparation of this article. Correspondence of the Chiefs of Cavalry and Infantry found in RG 177 at the National Archives was most useful for statements of official policy on mechanization. Material in RG 94, the Adjutant General's File, was another source for this as were *War Department Annual Reports.* The proceedings of Congressional hearings, particularly House hearings on the 1932 and 1933 Military Appropriations Bills, provided another perspective on the difficulties of mechanization. John W. Killigrew's dissertation from Indiana University, "The Impact of the Great Depression on the Army, 1929-37," contains much valuable information on budgets and military policy. Personal insights were obtained from General MacArthur's *Reminiscences,* Charles G. Mettler's obituary of General Chaffee in the April 1942 *West Point Assembly,* and from correspondence with officers involved in mechanization during this period. Information from the author's interviews with LTG Willis D. Crittenberger and from a letter from the late MG Guy V. Henry to the author was used in this article.

Sergeant Smith receives a fine assignment . . .

Specialist Jones is promoted . . .

Sergeant Miller achieves neither . . . Why?



MOS EVALUATION DATA REPORT (AR 600-200-AR 135-205)

9 JULY

USAEEC REFERENCE

EVALUATION PERIOD: MAY

ICC SYMBOL: 228

ROSTER NUMBER: P 0572

SECTION 1 INDIVIDUAL EVALUATED

THRU: COMMANDING OFFICER

4A 4020 1ST BDE
HOOD FT TX

TO:

EARNEST, ERNEST

MOS IN WHICH EVALUATED: 11E40

MOS EVALUATION SCORE: 111

GRADE - PAY GRADE - PPD: SSG E-6 SP

SSAN/SVC NO.: 379-05-7828

SECTION 2 INDIVIDUAL'S MOS EVALUATION TEST PROFILE

MAJOR AREAS (DA PAM 12- EVAL. PD.)	VERY LOW	LOW	TYPICAL	HIGH	VERY HIGH
ARMORED VEHICLE CHARACTERISTICS AND MAINTENANCE				X	
ARMORED VEHICLE OPERATION		X			
VEHICULAR MOUNTED MAIN WEAPONS			X		
SMALL ARMS & AMMUNITION			X		
AMMUNITION				X	
COMMON SUBJECTS	X				
SUPERVISION (INTER-PERSONAL RELATIONS)					X

EPEEC FORM 10 11 OCT 68 EDITION OF 1 AUG 67 MAY BE USED

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ORIGINAL

The Enlisted Evaluation System

by Lieutenant Colonel Bernard N. Brown, AUS-Retired

FOREWORD

From recent visits to eight major military installations, I have become increasingly concerned at the apparent lack of interest in and knowledge of the Enlisted Evaluation System that exists in the field. With the advent of Management of Enlisted Careerists, Centrally Administered (MECCA), I believe greater emphasis must be placed on seeing that all officers and enlisted persons truly understand the Enlisted Evaluation System. Furthermore, command support of enlisted evaluation at all levels is essential to realizing the very real potential benefits of the system.

This article explains the basic elements of the system. Hopefully, it will create a better understanding of the Enlisted Evaluation System by those to whom it is so important.

C. A. CURTIS
Colonel, Armor
Commanding Officer
U. S. Army Enlisted Evaluation Center

The Enlisted Evaluation System (EES) is designed to provide a comparative measure of military occupational specialty (MOS) competence for Regular Army (career or eligible) soldiers and enlisted members of the Reserve Components in the same MOS, skill level, and pay grade.

The system was established in 1958 to select eligible enlisted active duty people for additional pay for proficiency. Since that time, the impact of the system on the soldier has expanded. It now influences his promotion, training, assignment and retention as well as pay.

Evaluation is accomplished by using a combination of measuring instruments. A paper and pencil test is used to determine the soldier's ability to apply his knowledge, training, and experience to the requirements of his MOS code (MOSC). The enlisted efficiency report (EER) is the supervisor's appraisal of certain characteristics describing how well the

individual actually performs on the job. Performance tests are used when appropriate. The written tests include performance-type questions wherever possible to determine how competent an individual is in his MOS.

ELIGIBILITY FOR EVALUATION

To be eligible for evaluation an active army enlisted man must (1) be in pay grade E3 or higher and must (2) have completed 24 months active duty. A PFC in Regular Army status who has completed 18 months or more continuous active duty with a commitment obligation of four or more total years active service is also eligible.

Enlisted personnel in the Reserve Components must (1) be in pay grade E4 or higher and must (2) be a member of a unit as of the last day of the month preceding the evaluation period. USAR and NGUS enlisted personnel called to active duty who are otherwise eligible for evaluation will be evaluated.

Individuals must be classified in an authorized MOS and must meet all of the eligibility criteria for evaluation as of the last day of the calendar quarter preceding the test period.

THE EVALUATION SYSTEM

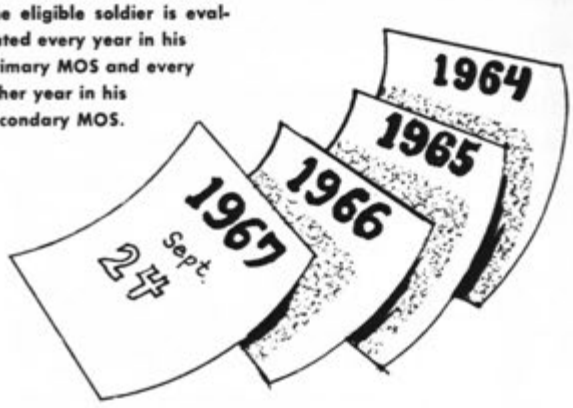
The evaluation system is supported by a worldwide network of 350 test control officers. There are 32 item-writing and 10 supervisory agencies that prepare test materials in the test development process. The item-writing agencies are located within United States Continental Army Command (USCONARC) schools, and Department of the Army (DA) and Department of Defense (DOD) organizations designated as responsible agencies for selected military occupations. Subject-matter specialists from these doctrinal agencies furnish basic reference lists for test aids and provide items (or questions) for the tests, using the reference lists as a source. Test development, publication, and distribution of tests and other allied materials are among the actions accomplished at the U. S. Army Enlisted Evaluation Center.

Test control officers administer the system in the field. They determine the reference of personnel by MOSC to be tested and requisition test aids and tests. The test control officer is the local authority on the evaluation system and is responsible to his commander for field implementation. He establishes the time and place for testing, composes a test roster, and forwards test results to the U. S. Enlisted Evaluation Center. Here, evaluation of the individuals tested is completed. Test results are computed for each major subject-matter area and the degree of comparative proficiency noted. An evaluation score is developed. This information is then returned to the test control officer for distribution to the soldier *through* his commander in the form of an evaluation data report (EDR).

An evaluation score is developed by combining the values of test results, enlisted efficiency reports, and performance tests when used. An evaluation score indicates each individual's relative standing compared with all others who have the same MOS, skill level, and pay grade. The score helps to identify the quality soldier for recognition in assignment. There are instances where evaluations are made and scores developed by using the EER as the only instrument of measurement. This method of evaluation is the least desirable but is necessary for several reasons including lack of reference materials for test development and study, lack of equipment, and lack of training. The ultimate goal is to prepare a test for every MOS and to reduce the number of evaluations made by EER alone.

EVALUATION PERIODS

The eligible soldier is evaluated every year in his primary MOS and every other year in his secondary MOS. Testing in the secondary MOS permits continued identification of trained skills and assures depth in manpower resources for assignment purposes. Enlisted members of the Reserve Components (Army National Guard and U. S. Army Reserve organizations) are evaluated yearly in their duty MOS. Organizational requirements and needs are often not related to the active duty experience and training of individuals assigned to Reserve Com-



The eligible soldier is evaluated every year in his primary MOS and every other year in his secondary MOS.

ponent duties. Individuals who cannot be used in their active duty primary MOS are assigned and used in an MOS descriptive of the duty performed.

Four testing periods have been established throughout the year to spread the workload of evaluation. Test announcement circulars are published quarterly to announce the testing period and the MOS to be tested.

USE OF ENLISTED EVALUATION

Information developed through enlisted evaluation is used as a basis for various personnel management actions:

- **Verification of military job proficiency.** Each soldier must attain an evaluation score of 70 or higher in his military occupational specialty code (MOSC) to be considered qualified in his job. A score of 100 is average; a score of 110 to 160 indicates the top of the group.
- **Evaluation of soldiers in other than their primary skills.** Evaluation of secondary skills enables the Army to retain and improve skills to insure efficient use of manpower resources.
- **Promotion of enlisted personnel.** The Department of the Army has designated the evaluation score of 110 as mandatory for promotion unless a waiver is approved.
- **Proficiency pay program.** Extra pay is awarded to those who attain an evaluation score above a specified cut-off score and to persons in selected MOS which are considered critical.
- **Retention.** Enlisted evaluation assists in determining the individual's potential value to the Army and his ability to learn a new job when persistent failure to verify his MOS causes assignment into a different MOS or lower skill level.
- **Grade.** The evaluation assists in determining a grade for officers and warrant officers who revert to enlisted status.
- **Training status.** The individual EDR and the profile summary report can be used to determine training strengths and weaknesses of the individual and the unit MOS requirements.
- **Readiness posture.** The reports can assist in evaluating the readiness posture of civilian soldiers assigned to reserve components.

THE EVALUATION REPORT

The Evaluation Data Report contains a listing of major MOS code areas in which the individual is tested and adjectively rated. Five categories of evaluation ranging from very low to very high define the relative standing of the individual when compared with all others who took the same test. Commanders and the soldier concerned can see the areas where additional study is required. The commander can establish formal training where necessary or possible and the individual is alerted to improve

E X A M P L E
(Not an actual report)

EVALUATION TEST PROFILE SUMMARY REPORT
PART V FORT KNOX KY (UNITS)

_____, 1969 EVALUATION PERIOD

MOSC 11E40	EVAL	SMA1	SMA2	SMA3	SMA4	SMA5	SMA6	SMA7	SMA8
BLANK ARMOR GRP	100	HIGH	TYP	HIGH	TYP	LOW	TYP	LOW	LOW
BLANK TNG CEN	100	HIGH	TYP	HIGH	TYP	TYP	TYP	LOW	LOW
BLANK BDE	50	HIGH	HIGH	HIGH	LOW	LOW	TYP	TYP	LOW

****LEGEND

SMA	01	CHARACTERISTICS AND MAINTENANCE
SMA	02	VEHICLE OPERATION
SMA	03	SMALL ARMS AND AMMUNITION
SMA	04	MOUNTED MAIN WEAPONS
ETC		

SMA = SUBJECT MATTER AREA
HIGH = SIGNIFICANT PERCENT OF EXAMINEES HAVE ATTAINED HIGH OR VERY HIGH ON EDR.
TYP = SIGNIFICANT PERCENT OF EXAMINEES HAVE ATTAINED TYPICAL RATING ON EDR.
LOW = SIGNIFICANT PERCENT OF EXAMINEES HAVE ATTAINED LOW OR VERY LOW RATING ON EDR.

himself in those areas where he is notably weak. An explanation of how to analyze the evaluation data report is contained on the back of the form.

THE EVALUATION TEST PROFILE SUMMARY REPORT

An MOS Evaluation Test Profile Summary Report reflects performance of men within the unit as a group using their MOS evaluation data reports as source data. This report gives senior commanders an indicator of the status of training within their units as revealed by the MOS evaluation of their career enlisted personnel. Instead of five categories of evaluation test scores announced on the evaluation data report, the profile summary report uses only three categories—high, typical, and low. A rating of "high" is given when a significant number of men tested in that particular MOS code and skill level received either a "very high" or "high" on their individual EDR. A rating of "low" is given when a significant number received either a "very low" or "low" on their EDR. A rating of "typical" simply means that neither of the other two possible ratings is applicable to the group. The number of individuals who constitute a significant number of a given population for purposes of the high and low ratings is determined from a computerized "Table for Significant Differences." (This table has been issued to test control officers for informational purposes.) Strong, weak, or typical designations can be determined for a given unit in major subject-matter areas of the MOS code. Although the report is most useful as an indicator of the status of unit and individual training in a command, it is also useful for other purposes such as unit readiness evaluation and reporting on and evaluation of the quality distribution of career enlisted personnel. The report should be interpreted as a summary of results of the MOS evaluation testing of an organization's career enlisted personnel at a specific point in the past and not as a unit or command evaluation. The MOS Evaluation Test Profile Summary Report can be a valuable command and personnel management tool. It is distributed to all commanders down to installation level and includes distribution to Reserve Components.

THE VALUE OF THE SYSTEM

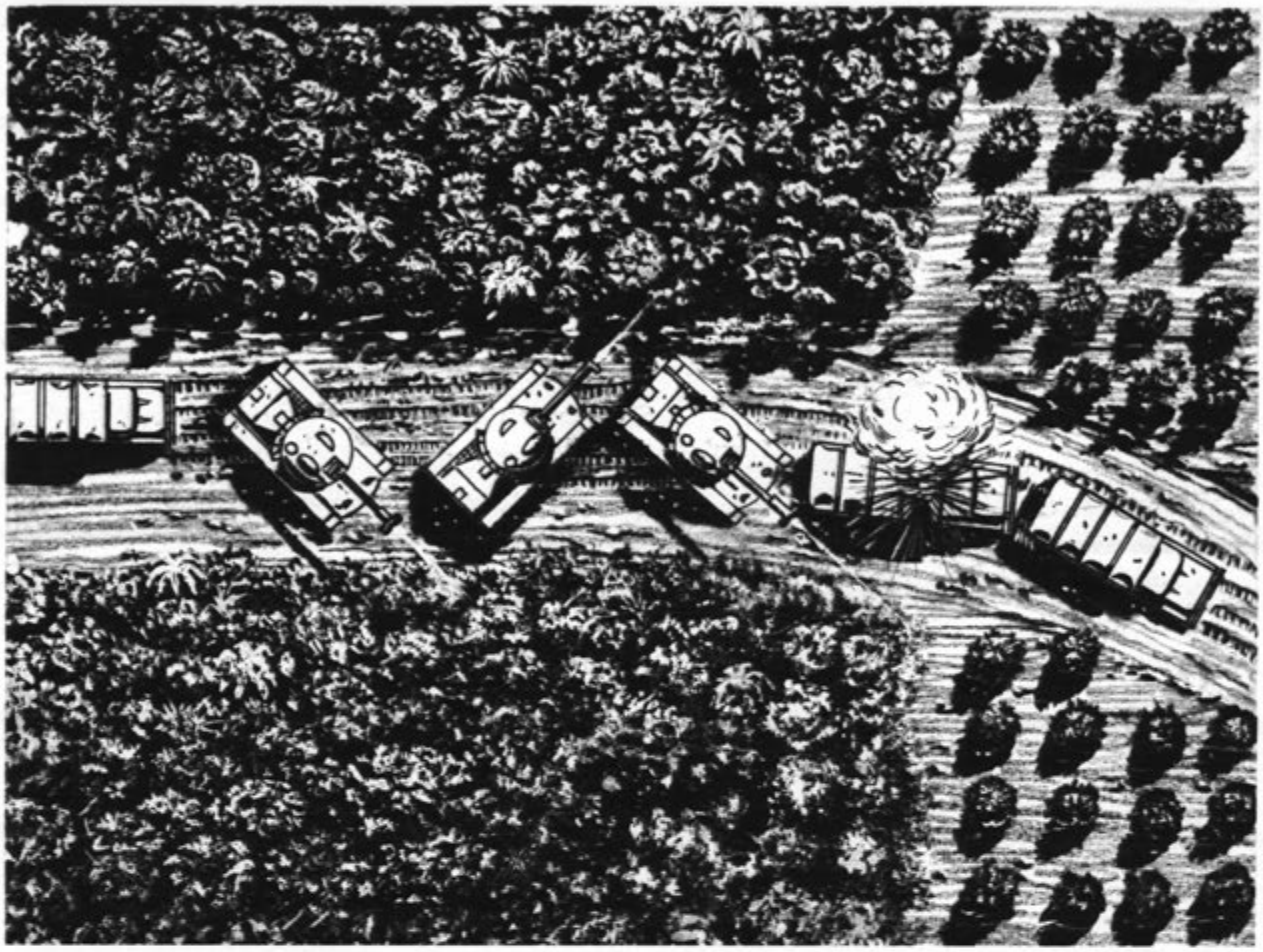
The EDR tells the individual that he is considered qualified in his MOS code when he attains a score of 70 or higher and is considered promotion qualified if he attains an evaluation score of 110 or higher. The profile of his strengths and weaknesses based on test results alone in the various major areas of his MOSC tells each individual his relation from very low to very high in comparison with all other individuals who took the same test. An analysis of the EDRs by the unit commander for all his assigned personnel permits him to identify necessary on-the-job training and specific formal training needs for his unit. Continued analysis of the Evaluation Data Profile Summary Report and application of the data to training programs will develop our soldiers proficiency in their respective military specialties.

Data developed through enlisted evaluation makes for a versatile personnel management tool which forms a solid foundation for analyzing and improving the training effort at all levels. Evaluation by intuition has been replaced by scientific method. Thus our officer and senior non-commissioned officer leaders have available to them reliable means to evaluate the capabilities, competence and knowledge of their soldiers as compared with all others in a like skill or specialty.

HOW TO GET A TV TAPE ON THE ENLISTED EVALUATION SYSTEM

A tape of the Enlisted Evaluation System entitled "Earnest Tees Up" is now available for distribution to those installations or organizations having a closed circuit television capability. The tape was designed for use during information and training periods and possibly for the commander's call. The tape presents basic functions of the evaluation system, its impact on career enlisted personnel, and the use of results in personnel management and training. The theme is based on an individual's effort towards self-improvement and possible consequences if efforts are not made to learn his job requirements. The tape may be obtained from the Commandant, United States Army Armor School, ATTN: Instructional TV Division, DIT, Fort Knox, Kentucky 40121. For organizations not authorized CONARC distribution, a blank tape must be forwarded in order to receive the evaluation system tape.

LIEUTENANT COLONEL BERNARD N. BROWN, AUS-Retired, was formerly the Assistant Secretary of the Armor School at Fort Knox, Kentucky. He retired from that assignment in 1966 and joined the U. S. Army Enlisted Evaluation Center in 1967 as Chief of Plans and Programs. His varied Armor assignments included service with the 3d Armored Cavalry Regiment and the 2d Armored Division. He was a member of the 79th Infantry and the 16th Armored Divisions in World War II; General MacArthur's Honor Guard and the 24th Infantry Division during the Korean War.



HOW WOULD YOU DO IT?

US ARMY ARMOR SCHOOL PRESENTATION

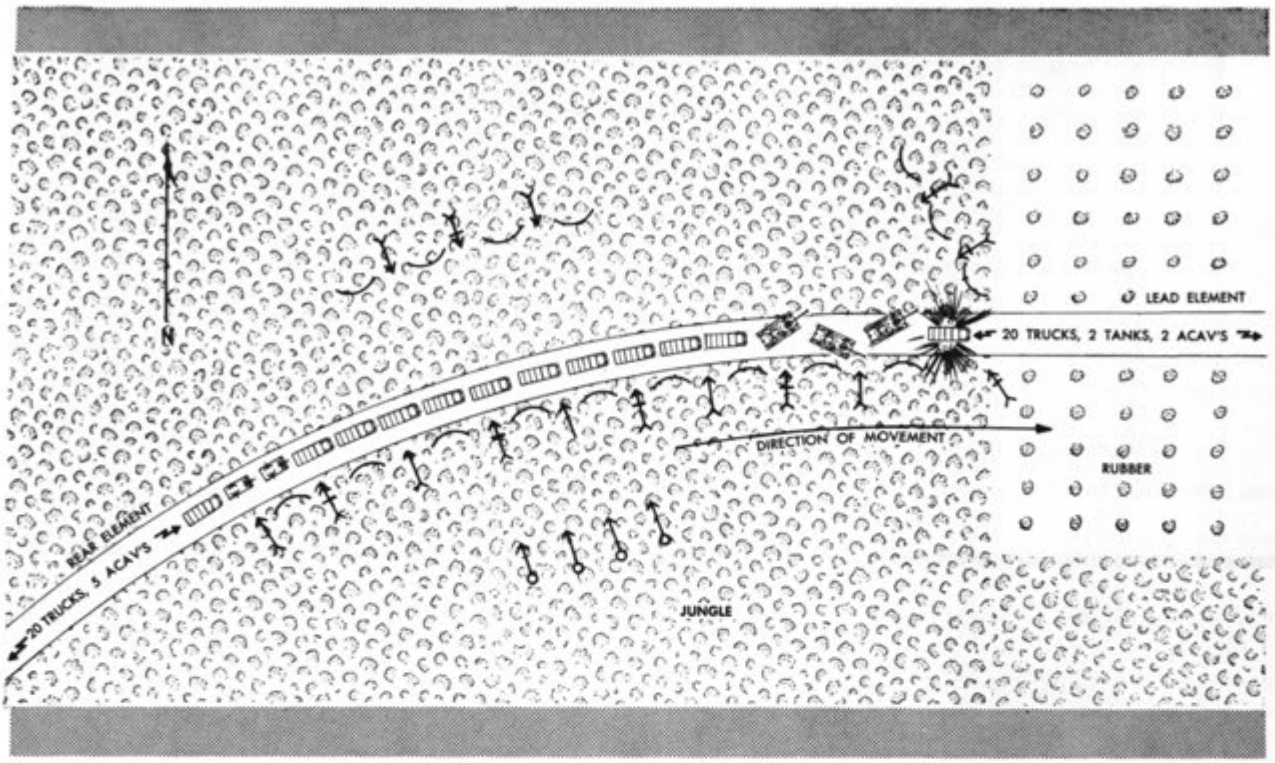
SITUATION

You are the Platoon Leader of the 2d Platoon, D Company, 1st Squadron, 201st Armored Cavalry Regiment. At the present time, your tank platoon and an armored cavalry platoon (9 ACAV's) are escorting a 50-truck convoy along Highway 1 traveling from LONG BINH to the Regiment's base camp near XUAN LOC. *You are the Convoy Commander.*

The convoy organization is as follows: Two tanks, ten trucks, two ACAV's, ten trucks, three tanks (including yourself), ten trucks, two ACAV's, ten trucks, two ACAV's, ten trucks, and three ACAV's. Air support is available through a FAC (forward air controller) who is orbiting your convoy as it moves along the route of march. Artillery support is also available to you, through an aerial forward observer.

The convoy is moving along well and has just entered a possible ambush site. Suddenly, the truck in front of your tank element is destroyed by a command detonated mine. At the same time, a heavy volume of automatic weapons, recoilless rifle, and mortar fire rakes the convoy. It is evident that the center of the convoy is in the kill zone of a Viet Cong ambush. *How would you do it?*

AUTHOR: CPT BARTOSIK **ILLUSTRATOR: JOE WARD**



SOLUTION

Immediately return fire, firing the round in the tube of the main gun and all machineguns. Form a herringbone: all armored vehicles turning alternately right and left (see diagram). Immediately notify higher headquarters of the ambush. While your tanks return fire, call in the supporting fires available to you. The tank immediately behind the destroyed truck should inform you if the road is open. If it is, continue movement; if it isn't, *clear the road!* In both cases, use your mobility if possible. Move the convoy *out* of the kill zone of the ambush while your tanks provide covering fire. Direct the supporting fires on both sides of the ambush, placing the majority on what you determine to be the location of the *main* ambush force.

DISCUSSION

The key to this entire action rests in four steps: (1) Taking immediate action, (2) Gaining fire superiority, (3) Developing the situation and (4) Deciding on a course of action. Let's examine each one of these steps. The first step was to take immediate action. The action here was the immediate return of fire using all weapons and the assumption of the herringbone formation. After performing the above actions and continuing to return fire with organic weapons, call in all supporting fires available. Notify the FAC and your artillery FO to place airstrikes and artillery fires on the enemy. Artillery should direct their support to one side of the road and the airstrikes should be brought in on the other side. The road can be used as a coordination line between air and artillery allowing continuous support from all available resources. We have already partially developed the situation by fire; let's see what else must be done. Notify your higher headquarters that you have been ambushed, giving them as much information as you can. Contact the tank commander in front of you and find out if the road is open or is it blocked. Depending on his information, you must then decide on a course of action. If the road is open, move the convoy out of the kill zone. If it isn't and the road is blocked, direct your vehicle commanders to push the damaged vehicle off the road. Then move the convoy out of the kill zone of the ambush. In either case, you must provide covering fire. If you cannot move in your primary direction, move in the direction from which you came, taking the convoy out of the kill zone. If both directions are blocked, you must stay and fight. Consider short thrusts into the enemy's ambush position. Keep firing. Move your vehicles back-and-forth as much as possible. Call in all supporting fires.

ARMOR CENTER innovations

LASER TRAINER

The Department of the Army has approved a proposal for a *Laser Tank Gunnery Trainer* developed by the CDC Armor Agency. The trainer is designed to permit realistic year-round tank gunnery training without the firing of live ammunition.

The laser trainer mounts easily in place on the 7.62 coaxial machinegun on the *M48* series, *M60, M60A1* and *M60A1E2* tanks as well as the *M551* armored assault vehicle. Powered by the vehicle's electrical system, it is capable of operating at a sustained rate of one pulse every three seconds for up to four hours. With carrying case, the laser trainer weighs less than 35 pounds. Its overall length is less than 24 inches.

Initially, the device will be used at service schools, in training centers, and by units of all components of the Army around the world.

It will replace an earlier test model now in limited use at the Armor School.

The device will permit training indoors or outdoors in the techniques of zeroing, preparation of range card data, and the application of burst on target on moving and stationary targets without the expenditure of service ammunition or the requirement for range firing areas. In night gunnery training, the impact of the laser beam can be detected with presently used infrared scopes whereas the 7.62-mm round cannot.

CEV GUNNERY TC

A printed final draft Training Circular 17-14 *"Combat Engineer Vehicle M728 Gunnery"* presents interim guidance on CEV gunnery principles and techniques. It is designed to be used in conjunction with FM 17-12 and TM 9-2350-222-10.

IT'S A HIT

The *Sheridan M551* gunner aims his 7.62mm coaxial machinegun down range and opens fire on a standup rectangular target. Instantaneously, a light flashes on in the control tower. It's a hit!

The 1st Training Brigade, US Army Training Center, Armor recently conducted a government acceptance field test for the *Hit Indicator Device X3A109*. Developed by a Los Angeles engineering laboratory, the electronic device was evaluated for its ability to accurately and instantaneously score all tank gunnery hits from the *7.62mm* machinegun to the *152mm Shillelagh*.

The hit indicator itself is constructed of corrugated aluminum with a ¼-inch thick rubber facing. Operating on a vibration principle, a transducer transmits an electronic signal back to the firing line when a round makes metal-to-metal contact. At the present, AITA instructors depend upon their eyesight to determine direct hits. This becomes especially difficult when watching the tracers of machinegun fire. With this electronic device, there will be no doubt whether or not a direct hit was made. Indications are that range exercises can be completed much more rapidly without the necessity to cease firing while scorers move into the impact area.

Two happy admirers join Captain Peter G. Schmeelk, a member of the U. S. Armor Association Executive Council, after graduation ceremonies at Fort Knox where he was declared Distinguished Honor Graduate of AOAC2-69. His wife, Darlene, holds the Armor Association sterling silver Revere bowl presented to CPT Schmeelk by LTG Charles W. G. Rich, Deputy Commanding General, U. S. Continental Army Command. CPT Schmeelk holds the Draper Award .45 caliber pistol which he also received. Future trooper Gregory seems to be thinking "Wait 'til AOAC 1-92!"

ARMOR SCHOOL CONSTRUCTION

A host of original instructional facilities, built into the Armor School Automotive Department's newest building, Richardson Hall, highlight the $1.6 million structure completed this spring. Housing the Engine and Electrical Division and the Support Division, the new 54,600 square feet building was designed to facilitate the instruction of General Vehicle Repairmen (GVR) students and the officers attending the Organizational Maintenance Officer (OMO) course. Within the walls of the red brick E-shaped building, classes once held in eight World War II temporary buildings are now taught under one roof.

One wing is divided into 48 classrooms each designed as an engine laboratory. Although only half of the rooms are used to instruct on live engines, all of the rooms have the exhaust and ventilation systems needed for such training.

Each classroom is individually heated and the entire building is air-conditioned.

Furthermore, the new classrooms are completely soundproofed with sand filled walls separating them to reduce vibration from operating engines. Each classroom is also equipped with self-contained amplifier units. Students working on live engines plug into this system with earphone communicators which allow them to talk with each other and the instructor despite noise of an operating engine.

The front wing of the new building contains two 100-man lecture type classrooms with complete closed circuit television facilities and offices for the instructors.

The third wing of the building is used by the support Division for vehicle maintenance services; here too, students receive practical *on hands* training.

As one building was completed, ground was broken for a second Automotive Department permanent facility nearby. Scheduled for fall 1970, completion of the new C-shaped red brick building will house the department headquarters, Management Division, and Maintenance Supervision Division. Programmed to cost $1.8 million, the 65,000 square feet air-conditioned facility will include offices, four 150-man classrooms and 38 cubicles for small-group instruction. These can be expanded as needed. Two 10-ton overhead cranes will permit heavy training aids such as engines to be moved about easily.

The completion of these fully modern and efficient institutional buildings specifically designed for their intended purpose, together with installation of air-conditioning in Boudinot, Gaffey and Harris Halls see the US Army Armor School well on the way toward acquiring a physical plant which affords optimum living conditions comparable to the best anywhere.

AUTHORITY TO WEAR THE ARVN ARMOR BADGE

If you were awarded the Vietnamese Armor Badge for combat service with Armor units of the Army of the Republic of Vietnam, you may request authority to wear this foreign award under the provisions of Chapter 4, AR 672-5-1, with change 17 dated 23 November 1967. Your request should be forwarded through channels to the Adjutant General, ATTN: AGPB-AC, Headquarters Department of the Army, Washington, D.C. 20315. Include a brief description of your association with the ARVN Armor unit, your duties at the time, and the date of the award. Also enclose a copy of your certificate announcing the award along with a translation if not already incorporated into the form itself. When your request is received, the Adjutant General will issue and distribute Department of the Army letter Orders authorizing acceptance. The distribution will include your Official Military Personnel File, and return copies for your Field and Personal 201 files. The Letter Orders include appropriate instructions and references pertaining to the proper wearing of the award. When the Letter Orders are received in the field, a check should be made with your Unit Personnel Officer to insure that the award is properly posted to your qualification records.

From The Armor Branch Chief...

Getting That Important First Degree

The educational objective for all commissioned officers is the attainment of at least a baccalaureate degree. The Army provides many opportunities, both on and off-duty, to assist them to reach this goal. The purpose of this article is to present a brief outline of the undergraduate programs. Later articles will discuss all educational programs, including the advanced degree program, in more detail.

TUITION ASSISTANCE PROGRAM

Military personnel may be permitted to attend classes at accredited high schools, junior colleges, colleges or universities. Normally, such permission will be granted only for attendance during the individual's off-duty hours. The Army will pay 75 percent of tuition, thus making this a very attractive program. (See paragraph 14b, AR 621-5)

UNITED STATES ARMED FORCES INSTITUTE (USAFI) PROGRAM

USAFI is located at Madison, Wisconsin. It is a field activity of the Office of the Assistant Secretary of Defense (Manpower) and operates under the policy control of the Deputy Assistant Secretary of Defense (Education). College level USAFI correspondence and self-teaching courses are available to military personnel, as are extension courses provided by cooperating civilian colleges. Through USAFI, many colleges and universities offer a wide variety of accredited courses to military personnel. The cost is borne by the Army and the participant is required to pay only the entrance fee and cost of textbooks. A one time payment of $5.00 authorizes the service member to take an unlimited number of USAFI correspondence courses. This program offers a wide variety of educational opportunities at minimum cost to the individual. (See DOD Pamphlet 7-4)

DEGREE COMPLETION PROGRAM ("BOOTSTRAP")

The Degree Completion Program is a part of the overall General Educational Development Program of the Army. It enables commissioned officers, warrant officers and enlisted men to satisfy degree requirements by full-time attendance at an accredited civilian educational institution. Participants must be able to obtain a baccalaureate degree in a maximum of 12 months. To qualify, applicants must be serving on active duty, have a minimum of three years active federal service as a commissioned or warrant officer, and possess high scholastic aptitude and career potential. Armor Branch selects only those officers who have completed a tour in Vietnam, company command, and the advanced course. Participants attend school on a permissive temporary duty (TDY) basis at no expense to the government. Individuals receive full pay and allowances while attending training but are required to pay all educational and travel costs incident to their schooling. (See paragraph 11c, AR 621-5)

OFFICER UNDERGRADUATE DEGREE PROGRAM (UNFUNDED)

The Department of the Army recently approved a new program to give career-oriented officers the opportunity to complete requirements for a baccalaureate degree while serving on active duty. Up to two years attendance at an accredited college or university is authorized while drawing full pay and allowances to include UCS allowances. Costs of tuition, textbooks and suplies must be paid by the individual. Basic eligibility criteria for the new Officer Undergraduate Degree Program are:

- Must be in Voluntary Indefinite or RA category prior to being accepted in the program.
- Must have completed not less than two years and not more than seven years of active commissioned service at time of entry to school.
- Degree to be pursued by the selectee must be attainable within a period of two years or less and must be generally related to the duties he will perform in his particular branch.
- Participants must agree to accept an active duty service obligation, upon completion of schooling, of two years for each year of schooling or fraction thereof but, in any event, not less than three years.
- Participants must volunteer to attend civil school and agree to bear all expenses, including tuition fees, textbooks and supplies.

Selections for the Officer Undergraduate Degree Program are made by Armor Branch. Military performance and service potential are the primary factors for selection. Although the program is being administered on an invitational basis, officers may volunteer for consideration by writing or otherwise contacting Armor Branch. The point of contact is LTC Joseph C. Lutz, Senior Education Officer, or Mr. Luther Avery, the program's civilian coordinator (Oxford 7-1210 or Oxford 6-8509.) Those officers that require a year or less to complete requirements for a baccalaureate degree will continue to receive consideration for the Degree Completion Program (Bootstrap) under the provisions of AR 621-5. Additional information and guidance concerning these programs can be obtained from the nearest Army education center, your personnel officer or by contacting the Armor Branch Senior Education Officer.

NEWS NOTES

▲ A special tribute was accorded the late Dwight D. Eisenhower, former president and general of the Army, on Armed Forces Day at the Home of Armor. First Avenue was renamed Eisenhower Avenue and dedicated to the memory of the 34th president, who was a pioneer tanker during World War I (ARMOR May-June 1969).

◀ Brigadier General Charles H. Hollis, Commanding General of the US Army Training Center, Armor, retired recently at ceremonies given in his honor at the Armor Center. Marking the occasion, General Hollis acted as tank commander of a restored M4AE8 tank during the parade in his honor. The tank bore the markings of the 191st Tank Battalion with which General Hollis served in World War II.

ARMORED CAVALRY CAPTAIN POSTHUMOUSLY AWARDED DSC

The Distinguished Service Cross, awarded posthumously to Captain John H. Hays, was presented to his widow by BG F. C. Allen during recent ceremonies at U. S. STRIKE COMMAND Headquarters.

Captain Hays, a graduate of the United States Military Academy, was killed in combat in Vietnam in November 1968 while commanding Troop B, 11th Armored Cavalry Regiment.

Captain Hays was cited for extraordinary heroism and exceptionally valorous actions near An Loc, Vietnam. As Captain Hays was leading two platoons of his unit and a light tank section on a sweep through an area of dense rubber trees, a North Vietnamese Army force unleased an intense barrage of small arms, automatic weapons and anti-tank rocket fire.

"He immediately led a charge toward the attackers, pushing them into another section of the rubber trees. The remaining enemy then joined with a still larger North Vietnamese Army element and began a determined defense. During the course of the fierce engagement, Captain Hays manned a machinegun and directed suppressive fires, while also coordinating his force through the use of hand and arm signals which left him dangerously exposed.

"Suddenly his vehicle received a direct hit . . . knocking him to the ground. Although dazed, he ignored his injuries and, remounting the armored personnel carrier, continued to fire the machinegun. When a group of North Vietnames soldiers made a direct assault on his position, he killed two of them and scattered the rest. A few moments later his vehicle received another direct hit from an antitank rocket mortally wounding him."

General Abrams congratulates Colonel Patton after presenting him the Distinguisehd Service Cross (1 OLC).

DISTINGUISHED SERVICE CROSS FOR ARMOR CAPTAIN

Captain Joseph Cizmadia of the Military Science Department of Saint Peters College (New Jersey) recently was presented the Distinguished Service Cross by The Very Reverend Victor R. Yanitelli, S.J., president of the college at an ROTC Brigade ceremony.

Captain Cizmadia distinguished himself by exceptionally valorous actions on 22 August 1968 as commander of Troop F, 11th Armored Cavalry Regiment during the defense of the Special Forces camp and district headquarters at Loc Ninh. Captain Cizmadia's number of combat vehicles had been reduced from sixteen to nine in the previous three days by heavy fighting against a numerically superior North Vietnamese Army force. As he led his remaining men to reconnoiter the area northeast of the village, they came under small arms and rocket-propelled grenade fire from entrenched positions in the tree line and jungle, resulting in several casualties. Unable to call for artillery or air strikes because the enemy was so close, he realized that he must assault to prevent further losses. Directing his track through the line of halted vehicles, he advanced on the enemy. Inspired by his fearless example, his troops rallied and overran the North Vietnamese, killing eighteen and causing the others to retreat. As Captain Cizmadia directed evacuation of casualties, his rear guard was again taken under fire and a platoon leader was wounded. Braving enemy fire, he moved his truck in front of the platoon leader's vehicle to prevent it taking further hits and launched a successful assault which permitted the man to be evacuated. By the end of the day the communists were soundly defeated and left behind sixty of their dead.

NEW UNIFORM TESTED

A new type uniform is being tested by troops of Old Ironsides' 4th Battalion, 46th Infantry.

The uniform comes in two fabrics, sateen and a poplin which is the same as the tear resistant cloth of the combat fatigues in Vietnam. The design is similar except that a belt is used for garrison duties. The experiment will last nine weeks with timed inspections of wear. The soldier himself rates the uniform for comfort, appearance, ease of daily dressing, movement acceptability, climatic suitability and combat fitness.

The test is to determine whether or not this uniform represents an improvement over present designs for a wide range of military activities.

NEW PATTON MUSEUM CLOSER

Chrysler Corporation donated $50,000 worth of air-conditioning and heating equipment to the Patton Museum Development Fund. This gift was the largest industrial contribution to the new museum thus far. The fund is seeking $3 million by June, 1971 to make the modern armor and cavalry museum a reality.

In presenting the Chrysler donation Thomas F. Morrow, Group Vice President, Defense-Space & Diversified Products commented, "It is fitting that Chrysler, a leading manufacturer of medium and heavy tanks since World War II, should support the new Patton Museum.

XM139 TESTED

A new 20mm automatic gun designed to replace the 50 caliber machinegun atop armored assault vehicles Army-wide, has been tested by the 2d Armored Cavalry Regiment in Germany. Second Dragoon troopers were enthusiastic about the new weapon which is designated the XM139. It is 101 inches long and weighs 161 pounds. Muzzle velocity of the weapon is about 3500 feet per second; maximum range is 7200 meters and cyclic rate of fire is 800 to 1000 rounds per minute. Troop I, 2d Armored Cavalry completed the first USAREUR test of the weapons system. Afterwards, 1SG Lee Franks stated, "It is the finest automatic weapon I've seen, at 1700 meters you can hardly miss. Malfunctions during the testing were almost nil." Test results appeared to bear out this appraisal.

NEW VEHICLE TESTED IN 2D ARMORED DIVISION

Three units of the 2d Armored Division—The 1st Battalion, 78th Artillery; 1st Battalion, 66th Armor; and the 2d Battalion, 41st Infantry; are testing 65 of the new M656 cargo trucks. The Ford-built 5-ton trucks have a 478 cu. in. multi-fuel six cylinder engine, a six speed automatic transmission, power steering and air brakes. The vehicles have optional four or eight wheel drive; are amphibious and air droppable; and can traverse slopes of up to 60 per cent. Payload is 10,000 pounds cargo and top speed, 50 miles per hour. The three-month test will see each truck driven 4,000 miles on roads and cross country.

The Tarpaulin

Covers a bit of everything gleaned from the service press, information releases, etc. Contributions are earnestly sought.

TAKE COMMAND

MG Walter M. Higgins, Jr., Ft. Hamilton, N. Y. . . . **BG Lawrence V. Greene,** USATCA . . . **COL Richard G. Beckner,** Spt Comd, 1st Air Cav Div . . . **COL Erwin R. Brigham,** 2d Bde, 1st Armd Div . . . **COL John C. Burney, Jr.,** 1st Bde, 4th Armd Div . . . **COL Jay D. Carpenter,** 1st Bde, 3d Armd Div . . . **COL Owsley C. Costlow,** 4th Bde (CST), 100th Div (Tng), USAR . . . **COL Dale J. Crittenberger,** 3d Bde, 9th Inf Div . . . **COL Mark J. Hanna,** 2d Bde, 4th Armd Div . . . **COL Charles K. Heiden,** 3d Bde, 1st Armd Div . . . **COL Rolland V. Heiser,** 14th Armd Cav Regt . . . **COL Paul S. Williams, Jr.,** 2d Bde, 2d Armd Div . . . **LTC James H. Aarestad,** 2d Sqdn, 11th Armd Cav . . . **LTC Denzel L. Clark,** Student Aviation Bn, USA Aviation School . . . **LTC William D. Davis,** 2d Bn, 51st Inf, 4th Armd Div . . . **LTC William E. Hattaway,** 1st Bn, 13th Armor, 1st Armd Div . . . **LTC David A. Hicks,** Committee Group, USATCA . . . **LTC W. L. McIlroy,** Inf, 2d Bn, 41st Inf, 2d Armd Div . . . **LTC James D. Papile,** Inf, Spt Comd, 3d Armd Div . . . **LTC Nicholas H. Sebastian,** 5th Bde, USATCA . . . **LTC John E. Shillingburg,** 2d

Bn, 66th Armor, 2d Armd Div . . . **LTC Rayburn L. Williamson,** CE, 16th Engr Bn, 1st Armd Div . . . **MAJ John C. Bahnsen, Jr.,** 1st Sqdn, 11th Armd Cav . . . **CSM Clyde Collins,** 2d Bde, 2d Armd Div . . . **CSM Donald F. Ernest,** USA Armor Center . . . **CSM Elmer R. Gibson,** 3d Bn, 3d Arty, 194th Armored Brigade . . . **CSM Arthur W. Hawthorne,** 2d Armd Div . . . **CSM Donald Horn,** 11th Armd Cav Regt . . . **CSM Walter Lafferty,** 1st Bn, 64th Armor . . . **CSM James Morris,** USATCA . . . **CSM Ray S. Parrett,** 7th Bn, 6th Inf, 2d Armd Div . . . **CSM Oscar Payne,** 3d Bn, 35th Armor, 4th Armd Div . . . **CSM George W. Ratliff,** 2d Bn, 50th Inf, 2d Armd Div . . . **CSM Alfredo Rios,** 1st Bde, 2d Armd Div . . . **CSM Sebastian Ruiz,** 3d Bde, 3d Armd Div . . . **CSM William H. Strickland,** 4th Inf Div, Vietnam . . . **CSM Efrain Vega,** 1st Bn, 73d Armor, 7th Inf Div.

ASSIGNED

LTG Michael S. Davison, Deputy CINC and CofS, USARPAC . . . **MG Frederic W. Boye, Jr.,** Chief, OPO, DA . . . **BG Dewitt C. Armstrong, III,** ACSI, DA . . . **BG Albin F. Irzyk,** USA Tng Cen, Ft. Dix . . . **COL Donald P. Boyer, Jr.,** CofS, U. S. Army, Hawaii . . . **COL Clay T. Buckingham,** CofS, 2d Armd Div . . . **COL Lester J. Knepp,** Director, Weapons Department, USA Armor School . . . **COL Kenneth R. Lamison,** Deputy CofS, Hq USAREUR . . . **COL Adrian St. John,** Exec Off to C-in-C, USAREUR . . . **LTC George B. Bartel,** G3, 4th Armd Div . . . **LTC Herbert A. Guderian,** Inf, Aviation Officer, 2d Armd Div . . . **LTC Harvey B. Johns, Jr.,** G3, 2d Armd Div . . . **MAJ John B. Halley,** G2, USATCA . . . **MAJ Ross S. Williams,** G4, USATCA.

VICTORIOUS

2LT Robert E. Yohe was Distinguished Honor Graduate of Armor School NCO Candidate Course 7 in August 1968. Then in March 1968 he earned the same status of Distinguished Honor Graduate in the Infantry OCS. The graduation of Armor Officer Basic Course 15-69 saw him capture first honors again and assignment as Aide-de-Camp to **BG William W. Cobb,** Assistant Commandant of the Armor School. **Tank 36, Co A, 3d Bn, 32d Armor, 3d Armd Div,** commanded by **1LT Ralph Cerino** won V Corps Commander's Award for scoring 2355 out of 2400 on the Grafenwoehr qualification course. This was highest score yet achieved on famed Range 42. **3/32 Armor** is commanded by **LTC Dennis Forbes. 3d Sqdn, 12th Cav, 3d Armd Div (LTC Lloyd J. Brown)** took 1969 USAREUR tank gunnery trophy for cavalry squadrons. **SFC William Baum, Co E, 122d Maint Bn, 3d Armd Div** has been named 1969 USAREUR Army Aviation Soldier of the Year. In Fifth Army 1969 Championship Matches, **CPT G. S. Moakley,** won Individual Center Fire Pistol Championship, Individual Timed Fire Service Pistol Match and the Army Commander's Individual Match. Distinguished Honor Graduates of the 1969 Armor Officer Basic Courses are: **#8, 2LT John B. Rudolph; #9 2LT Dennis R. Riemann; #10, 2LT Michael G. Qualls; #11, 2LT Theodore A. Breckel; #12, 2LT Darrel W. Smith; #13, 2LT Terrence G. Coughlin; #14 2LT Nelson Abanto, USMC; #15, 2LT Robert E. Yohe; RA#2, 2LT William L. Nash** and **RA#3, 2LT John W. Gerwig, USMC.** 3d Inf Div tankers set USAREUR record in 1969 Tank Crew Qualification Course at Grafenwoehr, Germany. Record of 90.9 percent crews qualified was highest ever according to the Seventh Army Combined Arms School. **1st Bn, 64th Armor (LTC William A. Adams)** was high battalion with 49 of 51 (96.1 percent) of tanks qualified. **Co B, 1/64,** was high company. High division crew was **A18 of 3d Sqdn, 4th Cav.** Led by **SFC Sherrill E. Allen,** A18 took 2280 of possible 2400 points to win the Commanding General's Trophy. Troop A also captured high cavalry troop and platoon awards. Winning tank platoon was the **2d of Co B, 3/64 Armor.**

AND SO FORTH

2LT Gerald F. Follmar who was USATCA's one millionth trainee last August (ARMOR Nov-Dec 68) realized his ambition to become an Armor officer when he was graduated from the Infantry OCS. A graduate of Armor Officer Basic Course 14-69, Lieutenant Follmar is now assigned to **USATCA** . . . the **1st Battalion, 63d Armor** and **4th Battalion, 68th Armor** designations have been exchanged. The people and equipment of the 1st Battalion, 63d Armor, formerly at Fort Riley, have been moved to Fort Bragg. Now redesignated the 4th Battalion, 68th Armor **(LTC L. C. Wagner, Jr.),** the unit is assigned to the 82d Airborne Division. The 1st Battalion, 63d Armor **(LTC William F. Coad)** remains assigned to the 1st Infantry Division but is now attached to the 194th Armored Brigade at Fort Knox, having taken over the assets of the former 4/68 Armor. **2d Sqdn, 4th Cav, 4th Armd Div (LTC Frank E. Varljen)** was first Army unit to complete the formal tank gunnery course for the M551 Sheridan. Setting a record for others to match, the squadron qualified 96.3 percent of its crews. A curious coincidence—**2LT Phill Sheridan,** an ROTC Distinguished Military Graduate of Providence College, R.I., is a platoon leader in Troop B of the unit which once served under the famed general of the same name.

FROM THE BOOKSHELF

AMBUSH **$5.95**

by BG S. L. A. Marshall. Cowles. 242 pp. 1969.

No one aspiring to lead troops in combat can afford to overlook SLA Marshall's latest study of men under fire. The renowned battle critic pointedly observes that, "men are interested mainly in their own pain." It goes without saying that it is for leadership to diminish their physical and mental anguish. A close reading of *Ambush* should go a long way toward preparing one's psyche for that heavy responsibility. Nor should anyone who has ever travelled a Vietnamese jungle trail neglect this gripping account of Operation Attleboro and other recent actions. It recaptures every harrowing moment.

Suspense is the author's attention device, and confusion his theme. War in the jungle is charged with both. The game of "blind man's bluff" played in the scrub forest west of Dau Tieng deserves full study as drama, as well as history. The difficulty of obtaining accurate information during a fight, the risk of employing artillery and air fires in close quarters combat, and the near impossibility of locating positions from the ground contribute to the stress accompanying every decision. In a training exercise, these problems might be dismissed as annoyance; the author properly escalates them to crisis proportions. After all, uncertainty is what makes real life dangerous. The ingredient that is dried out of most histories is central to General Marshall's.

There are some flaws in the book, most notably in the realm of interpretation. The assertion that small unit actions in Vietnam resemble combat in Korea, World War II and World War I seems to ignore the whole difference between the nature of this war and previous ones. The 196th Brigade fell into the traps in ambush land not because it had violated conventional principles distilled from past wars, but because it was playing by new rules with which it was as yet unaccustomed. The author takes for granted the mobility of the helicopter which deposited the 1/27 Infantry abruptly in unfamiliar country. But this sort of displacement is only possible in a battle that has no lines, over terrain that is no longer the objective.

Another shortcoming is omission of comment on the enemy. While the author may plead inability to interview the other side, there is a considerable file of captured documents, prisoner interrogation reports, and documented statistics to allow more than an informed guess on the strengths and movements of the Viet Cong and NVA forces encountered. The fact that over a thousand enemy bodies were counted and nearly a hundred American soldiers lost their lives suggests that the number of Viet Cong actively engaged was not small, as General Marshall unaccountably argues. The evidence shows that all of four regiments were encountered.

Why the author has chosen to devote the last 100 pages to patrol actions unrelated to the major battle is unclear. Perhaps this adds to the main point in his powerful recital. No matter the setting, in emergency the American fighting man rises to the occasion. This is the testament of SP4 Hall, Sergeant Hunt, Lieutenant Mills, and Major Meloy. MAJ ALBERT S. BRITT, USMA

SLIM AS A MILITARY COMMANDER **$8.95**

by LTG Sir Geoffrey Evans. Van Nostrand. 239 pp. Illustrated. 1969.

The most descriptive word for this book is: disappointing. Field-Marshal Viscount Slim, K. G.—"Uncle Bill" to his 14th Army staff in Burma—was one of the top quality combat generals who fought the Second World War at the highest purely military level: men like Bradley, Montgomery, Rokossovski, Rommel, and Yamashita. From 1942 through 1945, General Slim passed through two of the toughest tests of generalship. He led his army through defeat to decisive victory, and he fought with serious shortages of men and material. General Slim is thoroughly worthy of close study by military officers.

The author, Lieutenant General Sir Geoffrey Evans, is a retired professional soldier who commanded a brigade and two different divisions under Slim in Burmese jungles. He has written three other books on the Second World War, one concerned in part and two in entirety with the Burma campaign. He is certainly qualified to analyze Slim's generalship.

The book itself is a quality printing job with

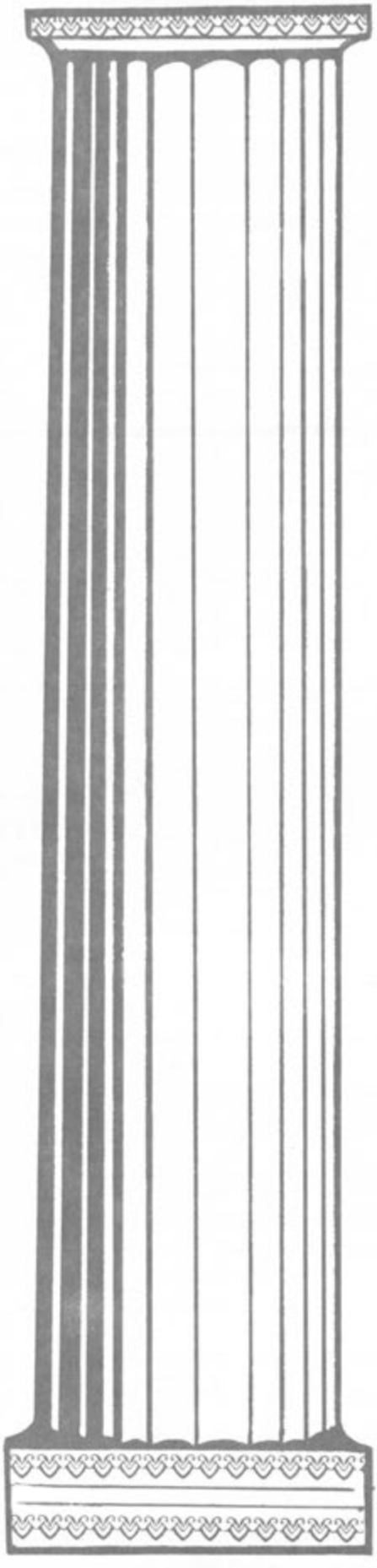
many excellent maps, good photographs, helpful appendices, an index, and a short bibliography.

The disappointment is that the book does not say anything. Neither as a narrative of the campaign nor as an analysis of Slim does it add to what has already been published. The material covered is largely a rehash of events described in Slim's own books, *Unofficial History* (New York: McKay, 1962) and *Defeat into Victory* (New York: McKay, 1961). Rather than using his extensive knowledge to analyze the character and generalship of his subject, General Evans has been content merely to praise him. "Those who served with him are in no doubt," he says, "as to the standard of General Slim's qualities of generalship." That is a very loyal tribute, but not much of a basis for a critical inquiry.

The final disappointment is predictable. Slim is the best writer of the World War II commanders now in print. He is clear, perceptive, and often very funny. Evans is outclassed as a writer by the subject of his book.

For an excellent account of a professional soldier's rise, testing, and victory read Slim, not Evans. TWC

FOR YOUR LIBRARY



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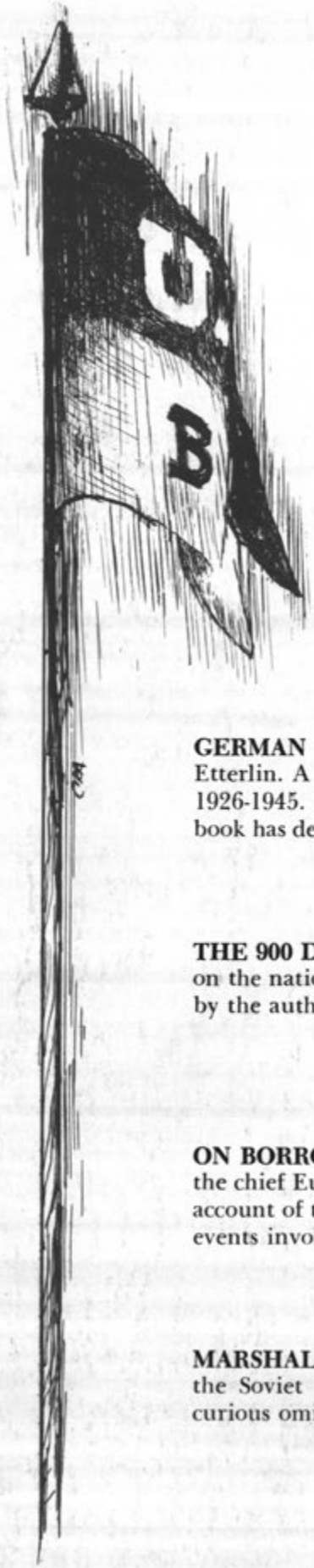

New Titles

ARMY LINEAGE SERIES—ARMOR-CAVALRY. Part 1. by Mary Lee Stubbs and Stanley Russell Connor. The definitive work on Armor-Cavalry lineage. Includes an excellent introductory chapter on Armor-Cavalry history; detailed explanations of the lineages and heraldic data of the Regular Army and Reserve Armor and Cavalry units; and 12 color plates of the coats of arms, historic badges and distinctive insignia of the 34 regiments organized under the Combat Arms Regimental System. (CARS). 477 pp. Hardbound. Illustrated. Detailed Bibliographies. **$6.75**

TO LOSE A BATTLE: France 1940 by Alistair Horne. An outstanding, detailed account of the 10 days in May 1940 when the German Army swept through France. An authoritative and extremely interesting work. Illustrated with campaign maps and 40 photographs. **$12.50**

GERMAN TANKS OF WORLD WAR II by Dr. F. M. von Senger und Etterlin. A complete illustrated history of German armoured vehicles from 1926-1945. In addition to line drawings and pictures of the vehicles, the book has detailed tables of technical specifications and pertinent data. **$11.95**

THE 900 DAYS: The Siege of Leningrad by Harrison Salisbury. Currently on the national best seller list. An in-depth analysis of the siege, spotlighted by the author's denunciation of Stalin and praise of the citizens of the city. **$10.00**

ON BORROWED TIME: How World War II Began by Leonard Mosley, the chief European correspondent of the LONDON TIMES. A well written account of the advent of the War—stressing the personalities and important events involved. **$8.95**

MARSHAL ZHUKOV'S GREATEST BATTLES by the famous Marshal of the Soviet Union himself. This work is as interesting for its sometimes curious omissions as it is for some fine battle accounts. **$6.95**

ARMOR

November-December 1969

THE UNITED STATES ARMOR ASSOCIATION

1885

THE UNITED STATES ARMOR ASSOCIATION COAT OF ARMS

Privately designed by WILLIAM B. PARNELL
An Heraldic Artist of the U.S. Army Institute of Heraldry
Officially adopted by the Executive Council, 24 January 1969

The eight pointed star represents the Second Regiment of Continental Dragoons (Sheldon's) constituted by act of the Continental Congress on 12 December 1776, as well as the First Regiment of Dragoons constituted on 2 March 1833. The former is the first regular mounted combat unit of the United States Army and the latter is the oldest yet existing on the Army's rolls.

The Dragoon star is positioned atop a green mound and divides the shield into three parts representing land, sky and water—the three elements in which Armor operates. The sea and sky divisions are both yellow, blending together as the sky does in the open flat area of the American West, long the home of the Cavalry. The star appears to have mounted a rise as in having overtaken an objective.

The war mace radiating flames symbolizes firepower with the handle thereof symbolizing the barrel of a weapon and the spiked ball or grenade symbolizing explosive missiles. The crossed sabers are the traditional insignia of Cavalry and Armor. The white tread imprints symbolize the mobility of armored vehicles and the crushing effect of Armor.

The supporters are pegasi, winged horses of classic mythology, whom tradition endows with great speed and mobility without regard to obstacles. Their winged nature alludes to the role of air cavalry. To accent the Association's objective to disseminate knowledge the pegasi and shield stand upon an open book symbolizing the Association's publications—*The Cavalry Journal, The Armored Cavalry Journal* and now *ARMOR*.

The color orange is that of the two Dragoon Regiments; the color green that of the Regiment of Mounted Riflemen and the World War II Armored Force and tank units; and, the color yellow the official color of the Cavalry since 1855, which remains the prescribed color of Armor today.

ARMOR

The Magazine of Mobile Warfare

Volume LXXVIII November-December 1969 No. 6

ARTICLES

FEATURES

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LETTERS TO THE EDITOR

Combat Armorman Badge

Dear Sir:

Your article "Why Not A Combat Badge for Armor" by Cpt Ronald M. Cross (May-June 1969) was most appropriate now, that more than ever before, Armor people are leading the way in providing in-depth firepower to the battlefield. Armor has long been recognized as a combined arms team adding tremendous shock action to tactical engagements. No one who has witnessed the overwhelming awe of an Armor unit in the attack or watched a tank column pass by with all its noise and dust can deny this fact. Is there anyone who, after watching a mounted armor review, did not find himself standing just a little taller?

Armor has continually been the front-runner in tactical doctrine which allows a commander to mix his forces to best suit the situation. Yet, with all our firepower, mobility, and shock action, we meekly spend twenty-odd years attempting to establish the need for a Combat Armor Badge.

Is there any doubt in anyone's mind about the tanker as a combat soldier? He has closed with and destroyed the enemy since Cavalry days. He has sweat and shed blood in tank battles all over the world. His place in modern warfare is established in doctrine and in blood but not in tangible evidence on his tunic. It appears that Armor has begun to lose its luster and shock action on the home front. Long gone are the tanker jackets; tanker boots are fast becoming a rarity.

At the time, other branches are wearing green berets, blue cords, parachute badges and ranger tabs. The list is increased every day as other badges are being approved for wear. The ARVN Armor soldier is awarded a badge which distinguishes him as an armored man. The U. S. combat armorman deserves equal recognition to set aside his qualifications as an armor fighting man. He now wears only his branch insignia. How many times have we heard soldiers from another branch say proudly, "I was once in Armor" or "My combat arms assignment was in Armor"?

A Combat Armor Badge would take nothing away from our sister branches. I challenge the Association to champion this cause. All combat Armormen—past, present, and future—deserve this recognition!

GEORGE R. ALBERT
LTC, Armor
USA CDC Supply Agency
Fort Lee, Virginia

When we elected to publish Captain Cross' persuasive article we foresaw many pro and con letters to the editor. There have been two. The question now arises, "Is there a cause to champion?" THE EDITOR

A Good Start

Dear Sir:

I recently received my commission and reported to the Armor Officer Basic Course. As part of the in-processing, I was presented with a copy of the July-August 1969 *ARMOR* magazine, I have read it from cover to cover with a great deal of interest. As a junior officer, I believe that the material in *ARMOR* will assist greatly in my much needed professional development.

I would like to belong to The United States Armor Association and receive this fine professional journal. Enclosed is a check for $18.00 to cover a three year membership and subscription.

2d LIEUTENANT
Armor
AOB 3-69
Fort Knox, Kentucky

We believe ARMOR to be helpful to Armor leaders of all ranks. If we are wrong we can only hope that our readers will bring us up short and get us back on the track. ARMOR belongs to all Armor people and needs the support of all. THE EDITOR

ST. VITH 25TH ANNIVERSARY

A 25th Anniversary of the Battle of the Bulge dinner will be held at 1900 hours, Saturday, 19 December 1969, at the Cameron Station Officers Mess. Further information: LTC William A. Hadley, Office of the Chief of Staff, Room 3E669, Pentagon, Washington, D.C. 20310 (OXford 7-3058).

Scotland The Brave

Dear Sir:

I have just returned to Scotland from service in Libya. I find that two issues of Armor have failed to catch up to me. I would not like to leave a gap in my collection so would be grateful if you could scrape up a couple of back numbers.

I would like to compliment The United States Armor Association for turning out a first class periodical. The production is of the highest standard and most of the articles extremely interesting and informative. I particularly appreciate the attention paid to the employment of armor in Vietnam and to AFV development.

CHARLES J. DICK
Late Lieutenant, The Royal Scots
Edinburgh, Scotland

The cockles of our heart are warmed. Having lived, quite properly be assured, with a Duncanson lass for many a year, we know that Scots are neither loose with words nor coin. We were glad to send the missing issues. THE EDITOR

Off We Go

Dear Sirs:

Congratulations on the tremendous job of compiling your July-August issue of *ARMOR*. It made me feel that I had attended the annual meeting at Fort Knox in person.

Would it be possible and convenient for you to send me an unfolded copy of the cover that appeared on your July-August issue. I desperately need propaganda to hang on my blue walls here at the USAF Academy. Keep up the good work.

DONALD W. WILLIAMS
Major, Armor

Stout Lads These

Dear Sir:

Due to the demand for your magazine, which has recently been made by many of my men, please enter a subscription for our unit fund immediately.

1st LIEUTENANT
Infantry
Commanding
Co A, 1st Bn, 51st Inf
4th Armored Division
APO New York

As a sometime armored infantryman, the Editor was pleased to note the continued wisdom of the American riflemen who play such a key role in our armored divisions. Hopefully, their next step will be to send ARMOR some articles on their important specialty. THE EDITOR

DO WE REALLY WANT AN ALL VOLUNTEER ARMY

by General Bruce C. Clarke, USA-Retired

Today there is much discussion about whether our country would be better served by an all-volunteer Army than by one which includes volunteers and inductees. Many of the viewpoints advanced are solidly based, while others give the appearance of being catchy slogans backed by little more than good intentions.

At first glance, the all-volunteer Army concept appears to be an attractive alternative. By permitting the elimination of Selective Service, it would do away with a target of criticism by some Americans. It is asserted that an all-volunteer Army would retain its members for longer careers thus becoming more "professional" and proficient while at the same time reducing high training costs occasioned by rapid turnover.

There are, of course, other favorable arguments for an all-volunteer military force.

My purpose here is not to attempt to destroy these arguments nor to intimate that the entire proposition does not deserve consideration. On the contrary, it seems appropriate now to introduce some further points for consideration by thoughtful military men and by American citizens generally.

At the risk of sounding less than becomingly modest, I believe that some 40 years of military service including three wars and command at nearly all levels might persuade some that what follows has a basis on fact and hard-earned experience.

If the United States adopts a policy of an all-volunteer Army in the face of present world conditions, we may well be in for some real problems.

First off, we want a democratic Army of, and close to, our people. We want an Army that is representative of the best of all those diverse nationalities, races, creeds and conditions which make good our motto "E Pluribus Unum" (out of many—one).

A purely professional force tends to isolate itself, and to be isolated, from the mainstream of national life. It has very little positive impact on our American society and tends to be neglected by the people and their elected representatives. When this happens, adverse effects on morale rapidly reduce the effectiveness of the Nation's defense.

We want and need an Army of men meeting the required high moral, mental and physical standards. When undue enlistment and reenlistment pressures are brought about, standards tend to be lowered in order to fill quotas. For example, during one year while I was in command in Europe, 91% of the soldiers we eliminated from the Army as unsuitable

were Regular Army, and most of these were on their first enlistment.

Furthermore, there is no place today in these times of rapidly evolving military technology for an army having any aging professional privates.

Today, the draft encourages many to voluntarily enlist, enroll in the ROTC, join the National Guard and the Reserve and to consider attending one of the service academies. This results from focusing national attention on service needs for quality manpower as well as from the threat of the draft.

And now comes the very practical matter of maintaining the combat elements of the Army and the Marine Corps without Selective Service. Simply stated, the problem essentially is to get officers and men whose job it is to close with the enemy and defeat him on the ground.

The hardships and hazards of duty are not equal among the Armed Services, nor are they equal among the various branches of the Army. The Infantry of the Army and the Marines incur, by far, the greatest risk. Overall casualties of the Korean War are illustrative. For the Army these were 27,604 (of which 84% were Infantry), for the Marines 4267, for the Air Force 1200 and for the Navy 458. During World War II, 89% of the Army people killed were Infantrymen and during the Korean War 92%. While these figures are not in the minds of Americans in general, their overall import is commonly understood.

Between World War II and Korea, we tried to maintain the Army without Selective Service. And, we made an all-out effort to do this. This resulted in so much stress on enlistments in the administrative and technical elements of the Army in order to learn a trade that enlistments in the combat arms were inadequate to maintain them at authorized strength.

While an important incentive, pay alone is not the answer. In this respect, one has only to look at the recruiting picture in some of those countries which pay well considering their economies and go begging for military manpower. Or, closer to home, consider the police recruiting problems of some of our leading, modern police forces where salaries and other benefits appear to be most attractive.

Now, even assuming that we could somehow build and maintain a large all-volunteer force (an assumption which I consider to be of the type that might properly earn a "U" on a staff study at one of our service schools), what happens if a crisis demands expansion? One can but imagine that the Selective Service system would have deteriorated so far that rapid response to vital national need would be impossible. This must not be permitted to happen. This system must be maintained fully and effectively even on a stand-by basis.

Having said all of this, it is important not to forget that we very much need to maintain a sizable and high quality volunteer career group in our Army.

And this seems a good place to point out that there are a number of things designed to increase career attractiveness which can and should be looked into:

- Pay inequities.
- Increase of war risk insurance (the present $10,000 figure was evolved in World War I).
- More benefits to surviving wives and minor children.
- More realistic educational benefits for veterans.
- Retirement benefits for those completing 10 years service.
- Recomputation of retired pay, on a current pay basis, to insure that inflation does not reduce to penury those retired for long honorable service.
- A discharge bonus of about $1000 per year paid after completion of three years enlisted service. This might well be paid in U.S. Savings Bonds.

Other service benefits should be examined in the light of present-day economics as well as the current practices of business and industry. Those things which might be increased or improved include:

- On-post housing
- Medical and dental care
- Post exchange goods and services
- Commissary services
- Rental and ration allowances

And, we would be well advised to put more thought and effort into how we handle our officers and soldiers so that when they leave the services, they will be "alumni boosters." The veteran with a favorable impression is our best recruiter.

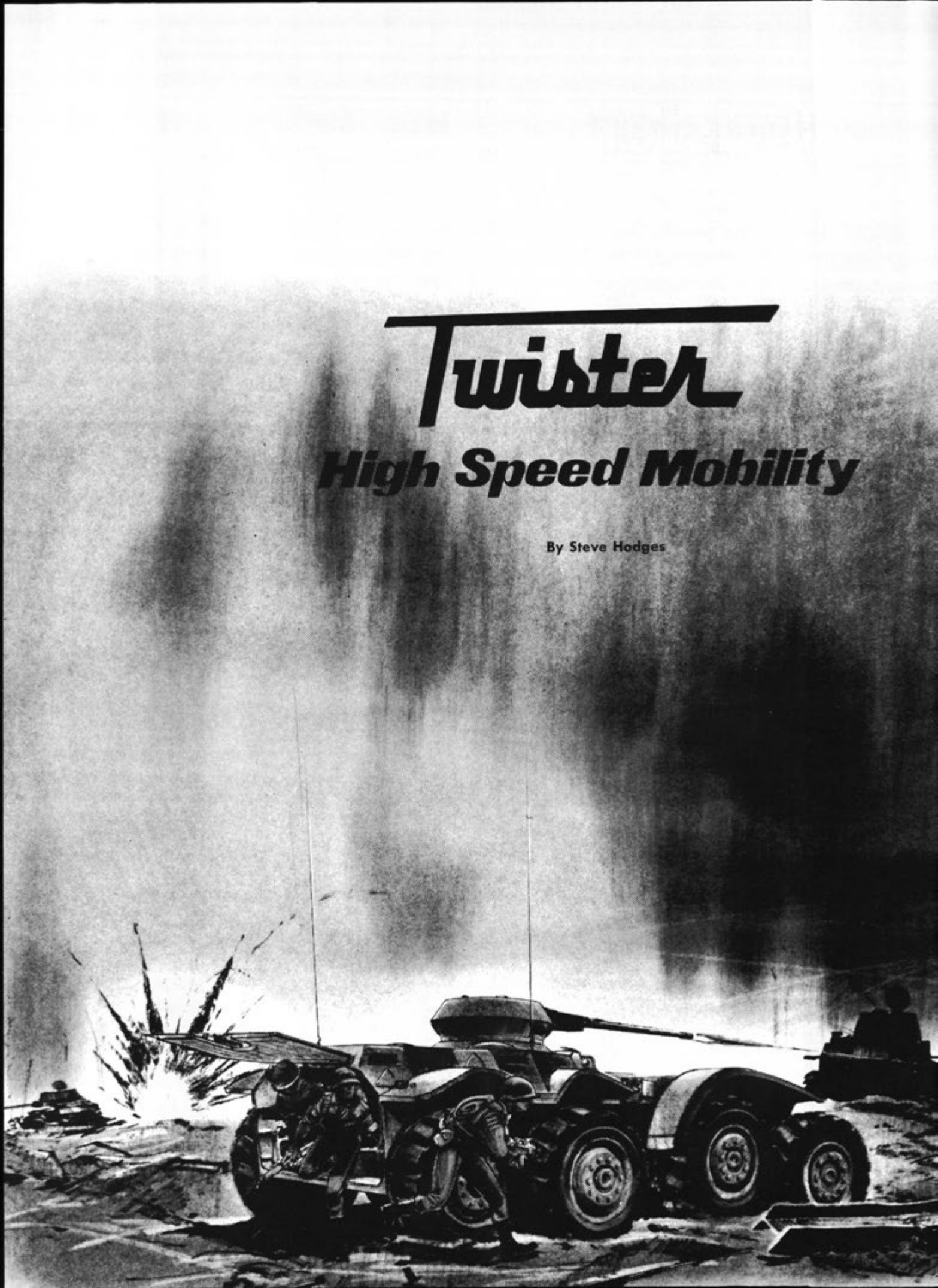
Morale is that great intangible which separates effective armies from the poor ones. The officer-enlisted man relationship in the Army is most important. Over the past years, when we have had a proper balance of professional and citizen officers, non-commissioned officers and men, we have had a fine Army. Both volunteers and selectees have made this true.

It hardly seems the time to break up a winning combination. Rather, it seems wise to reinforce success.

Twister

High Speed Mobility

By Steve Hodges



Twister

Evolution of land combat has been characterized by the rapid creation of counterforces to meet each new battlefield capability. Machineguns and trench warfare were matched with the tank. Armor protection for tanks has been offset by increased firepower.

During the past few years in particular, the significant advances in weapons effectiveness have reshaped much of the doctrine for the employment of land combat forces.

As a part of this change in doctrine, it seems clear that superiority in land combat demands a significant increase in movement rates, both on and off the road, as an effective means of countering these large improvements in firepower.

Lockheed Missiles & Space Company, recognizing this need, has developed a unique eight-wheeled *Twister* vehicle, which shows promise of providing substantial improvement in speed and mobility for next-generation fighting vehicles.

To give substance to a long standing conviction that increasing the speed and mobility of fighting vehicles will increase their combat effectiveness, Lockheed's systems analysts have been conducting a continuing series of computer-assisted war game type combat simulations. Results to date, using scenarios involving armored cavalry squadron missions in three different types of combat environments (Europe, Korea and the Middle East) have produced trends which clearly indicate that increased speed and mobility provide a substantial payoff in vehicle combat effectiveness. Preliminary analysis has also shown a significant improvement in vehicle survivability due to higher speed and agility.

Four fundamental reasons for this payoff have emerged from the studies. First, the increased movement rates of armored cavalry units between engagements, both on-road and off-road, are reflected in a significant increase in numerical force ratio against a fixed enemy threat; second, more timely occupation of key terrain features made possible by the increased movement rates results in clear-cut advantages over the enemy; third, the "combat utilization" of armored cavalry units is improved, often by as much as 3 to 1, in terms of time actually spent engaging the enemy compared with time spent moving to the engagement; and fourth, there is a payoff in the greater survivability of individual fighting vehicles on the battlefield when their ability to utilize natural cover is increased so that exposure time to direct fire is reduced.

Over and above the computer war games which have been completed to date, the following considerations are well recognized. High intensity warfare, involving the threat of nuclear weapons, necessitates the wide dispersal of forces to deny the enemy a worthwhile target area. To achieve acceptable protection, distances between small units must be so great that only units with high movement rates can concentrate rapidly at any critical point—for attack, counter-attack or to block an enemy advance. This

LMSC/Twister—Medium

need to concentrate forces from widely dispersed locations at points of engagement places renewed emphasis on the importance of getting there "fustest with the mostest."

Mid-intensity warfare likewise requires that ground forces have high movement rates. The Six Day War in the Middle East in June of 1967 is a classic example of bold, swift movement. Both tracked and wheeled vehicles were used in the most imaginative ways to gain the advantages of surprise, penetration and disruption.

Low-intensity warfare, characterized by the guerrilla-type action in Vietnam, places a high premium on the ability to move rapidly over difficult terrain and through dense undergrowth and rice paddies. To counter an elusive, hit-and-run enemy, rapid response is invaluable. Where roads are few and likely to be mined or set for ambush, sustained off-road speed and mobility are necessary for successful anti-guerrilla operations.

In each of these battlefield environments, the development of antitank missiles of light weight and high kill probability has made reliance on heavy armor increasingly unattractive for the protection of combat vehicles. In addition to the more sophisticated anti-armor missile and gun systems which today are mounted on the fighting vehicles of our potential enemies, our combat vehicles can be engaged by individual soldiers armed with weapons capable of destroying our heaviest armor. The brutal fact is that weapons technology has advanced faster than armor development and methods other than thicker plate must be exploited to increase survivability—methods like speed and agility.

Traditionally reserved for tracked vehicles, the role of fighting machines has reached the point where wheels should again be examined for their military combat potential. Except for their past inability to deal with soft soils, wheels have always had some important advantages over tracks. There is no question that wheels are faster. They are also quieter and easier to maintain.

Because early wheeled combat vehicles were incapable of operating effectively in soft soils, the U. S. Army abandoned them in favor of tracked vehicles. In contrast, many European countries felt that soft soil was only one of many obstacles encountered in any combat situation, and they were well aware of the advantages wheels offered in durability, ease of maintenance, lower operating costs, quiet operation and superior speed.

Probably one of the better known European wheeled fighting vehicles of WW II was the German *Puma* Scout Car used so well by Rommel in the North African campaign. This vehicle proved quite successful in desert fighting, and because of the advantages of wheels, it was an effective scout car. Historian and engineer R. M. Ogorkiewicz reports that the *Puma's* performance matched the light tanks of that time.

The French Panhard *EBR,* discontinued in 1960, is another interesting vehicle that sought to adapt the advantages of wheels to the combat role. The two inner wheels on each side of this 8 × 8 configuration had solid tires with heavy lugs which gave the vehicle some help in soft soils. These wheels could be lifted clear of the ground for running on hard ground.

British contributions to wheeled combat vehicles have been the highly successful *Saladin* and *Ferret* vehicles, both of which are in current inventory. The Russians, too, have been active in the field, and in recent years have produced an increasingly larger proportion of wheeled vehicles for their combat forces. The *BTR 60,* an eight-wheeled infantry fighting vehicle, was quite prominent in the Soviet invasion of Czechoslovakia. The *BTR* can run on the road at speeds of 50 mph and, propelled by water jets, swims at 6 mph.

These vehicles, which were developed specifically for combat and not adapted from commercial chassis, were effective—but no more so in off-road environments than tracked combat vehicles. Their speed is limited not only by their power loading but also by the same problem tracked vehicles encounter: a rigid frame vehicle can move only so fast in rugged terrain before it exceeds the crew's tolerance to withstand the punishing ride.

Overcoming the jolting shocks of high speed operation in rough terrain and upgrading the soft soil performance to that of tracked vehicles have been two of the principal challenges in the development of *Twister.* Lockheed also believed there were four "musts" for sustained high speed off-road operation. The crew must be protected by a good ride, the vehicle must have a high power loading, the vehicle must maintain a continuously high tractive force on

Twister

Lockheed Twister Testbed

Army 06 Testbed

Army XM808

the ground, and the driver must have good control at all times. The *Twister* meets these four "musts" with its two-bodied articulated configuration.

The two bodies are joined by a pivotal yoke which allows the vehicle three degrees of freedom in pitch, roll and yaw axes. The four wheels on the front body have independent "A" frame suspension with double acting shock absorbers, while the four wheels on the rear body work in pairs on sprung walking beams. The suspension system allows each wheel 12 inches of excursion, plus an additional 6 inches springing for each walking beam. This, coupled with the articulation of the two bodies, enables *Twister* to cross rugged terrain and large obstacles at high speed with little shock felt by the driver or crew. This also enables all eight wheels to remain in contact with the ground despite severe terrain irregularities. The four wheels on each body are driven by an engine in that body. Because of their availability and easy placement in the overall envelope, two 110 hp air-cooled Corvair engines, modified to operate on 70 percent grades, are used in the Lockheed testbed. The resulting power-to-weight ratio is 38 hp per ton, substantially higher than the average of 20 for today's military combat vehicles.

Despite the abundance of power, eight wheels and two bodies, the driver easily controls *Twister* with a coordinated combination of conventional Ackerman steering for the two front wheels plus yaw steering of the front body. The turning radius of the 17-foot vehicle is under 20 feet.

VEHICLE COMPARISON

	Lockheed Twister	Army Twisters	
	Testbed	06 Testbed	XM 808
Gross Vehicle Weight	12,070 lbs.	16,570 lbs.	20,450 lbs.
Overall Length	200 in.	220 in.	220 in.
Width	103 in.	105 in.	105 in.
Height	77 in.	82 in.	97 in.
Ground Clearance	16 in.	18 in.	18 in.
Power Loading	38 hp/ton	69 hp/ton	56 hp/ton
Turn Radius	19.5 ft.	19 ft.	19 ft.
Maximum Rim Pull	15,469 lbs.	36,595 lbs.	36,595 lbs.
Acceleration 0-30 mph	10 sec.	5.4 sec.	6.5 sec.
Cruise Speed	50 mph	65 mph	65 mph
Top Speed	55 mph	65 mph	65 mph
Speed on 60% Grade	4 mph	12 mph	11.5 mph
Ground Pressure	4.5 psi	5 psi	6 psi
Weight Distribution			
% Front/% Rear	42/58	42/58	40/60
Maximum Side Slope	60%	55%	50%
Articulation Freedom			
Pitch	+35° −27°	+35° −27°	+35° −27°
Roll	±30°	±30°	±30°
Yaw	±23°	±31.5°	±31.5°

In over three years of punishing trials, the testbed has proven the *Twister* concept is sound for high speed off-road mobility. It has operated in the Sunnyvale baylands, the Santa Cruz mountains, rice paddies of the Sacramento Valley, and the deserts, mountains and snowfields of the Nevada Automotive Test Center. In each operation it displayed an ability to move at speeds much greater than conventional vehicles and operate effectively in soft soils previously considered only the domain of track vehicles.

Part of *Twister's* ability to operate in shifting sand dunes and snowfields results from the specially developed 16-20 radial ply tires which proved to be the optimum tire for all conditions. In Nevada winter

Twister

trials, the vehicle climbed soft snow slopes with grades up to 27 percent. Side slopes of 42 percent in the same snowfields were traversed with similar ease. The area of the tests was one in which only special snow vehicles had been able to operate until the *Twister* trials.

Tests have also been run to determine the vehicle's "get-home" capability if inflation is lost in one or more tires. During these tests the vehicle has been operated for extended distances of up to 60 miles at speeds of 30 mph with one flat tire and over shorter distances at reduced speeds with all four tires flat on one side of the vehicle.

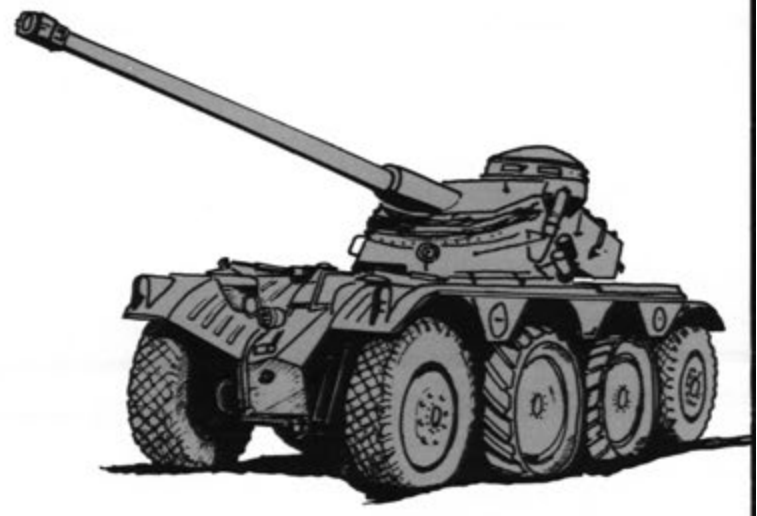
The abilities displayed by the testbed during this comprehensive three-year trial period have important applications to the variations of tomorrow's combat environment. The requirement for rapid dispersion-concentration-redispersion in the high intensity warfare environment has been demonstrated by the vehicle's successful operation at high speed in a wide variety of terrain conditions.

In such a combat situation *Twister* could be adapted as a reconnaissance, armored assault or infantry fighting vehicle. The basic elements of speed, agility and positive driver control make the concept attractive for any of these missions which face a tactical nuclear threat.

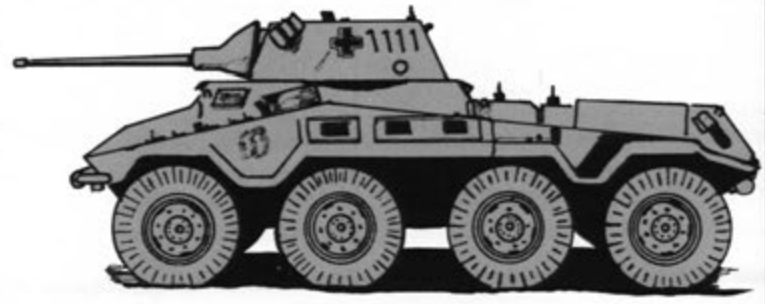
A *Twister*-type vehicle is also suitable for these same missions in the mid-intensity and guerrilla-type conflicts, and to the first three missions may be added the role of convoy escort and rear area security. The acceleration and side slope capability (*Twister* has operated on hard side slopes in excess of 60 percent) would enable an escort vehicle to provide a wide-ranging umbrella of protection to vital supply lines. Besides the ability to respond quickly to emergencies, *Twister* has the added advantages of quiet running and a minimal terrain signature—qualities that cannot be matched by today's tracked vehicles.

Inherent in any *Twister*-type vehicle, no matter what the special configuration or mission, is its stability as a weapons platform. The same articulation and suspension which protect the crew and insure a continued tractive force on the ground also provide a relatively stable base from which weapons may be fired while the vehicle is on the move.

Lockheed has plans for a family of *Twisters* in two general weight classes. A lightweight series of



Panhard EBR



Puma

Ferret Mark 2 Scout Car

armored vehicles would range from 17,000 to 18,000 pounds and would include the reconnaissance, escort and area security roles. In order to meet these varied requirements most economically and effectively, a common vehicle chassis is provided to accept a variety of weapons mixes, including guns, missiles, and automatic weapons. All vehicles are the same except for their superstructure and fighting compartments, with complete commonality and interchangeability of automotive parts.

The same holds true for a medium class of combat vehicles, ranging from 30,000 to 32,000 pounds. Requirements at this weight would include infantry fighting vehicles, antitank assault and forward area air defense vehicles.

Lockheed currently has a development contract with the U. S. Army Tank-Automotive Command, Warren, Michigan, to supply three second generation prototypes for military potential test and evaluation. The first two have rolled out on schedule and are presently completing shakedown trials on the Lockheed test courses in Sunnyvale, California and the Santa Cruz Mountains, 50 miles south of the main plant.

These vehicles resemble the original *Twister,* though they are larger and heavier, weighing from

Twister

16,000 to 21,000 pounds. One of these which has just begun its trials, is armored, complete with cupola and 20mm cannon. It carries a crew of three and has a gross weight of 20,400 pounds.

The knowledge gained from three years of operating the Lockheed testbed has been applied into the design of these Army vehicles. Although somewhat larger and sturdier than the original, they are also much faster. The small Corvair engines suited the minimal envelope of the testbed, but the heavier more durable Army machines are powered by two militarized *Chrysler 440* V8's. The heaviest new vehicle, the *XM 808,* has a power loading of 56 hp per ton, somewhat higher than the original testbed. Few performance measurements have been made in the early shake-down runs, but it is already apparent that the performance of these new *Twisters* is far superior to the original testbed.

The drive train in the front body of the new vehicles is very similar to that of the original testbed. Power from the engines is delivered to an *Allison Tx-200* transmission through a Lockheed designed transfer case. A propeller shaft from the transmission powers two limited slip differentials. Each wheel is powered by a separate half shaft driven from each differential.

An important design change on the rear body of the new vehicle has been the use of powered walking beams instead of the individual half shafts to each wheel. A single differential is used in the rear body to deliver the power to the walking beams. This new walking beam configuration gives the Army *Twisters* an improved vertical obstacle climbing capability, and it also allows a completely free underbody. The higher ground clearance of 18 inches also increases the vehicles' overall terrain tolerance.

The new vehicles, unlike the original testbed, have been fully militarized in all subsystems. The Army vehicles will also be capable of water fording to depths of 42 inches. When the second and third vehicles have been delivered to TACOM for military potential test and evaluation, Lockheed will adopt the first vehicle to a swimming configuration. Propulsion will be provided by two water jets located in the rear body. Water speed is expected to be in the range of 6 mph.

Another important design improvement in these second generation *Twisters* is the location of the braking system inside each hull on the output shaft of each differential. This arrangement keeps the brakes out of the operating environment and insures longer life and continued operation at peak performance.

Operating controls for the new machines are generally the same as those for the testbed, except that the shift selection levers have been moved to the instrument panel for ease of handling. Both engines are still controlled by one accelerator pedal; and, as was true with the testbed, no problem has been encountered in the synchronization of the two engines.

The present schedule for the three Army *Twisters* calls for the second and third vehicles to be delivered to TACOM in January 1970, for extensive performance testing. After adaption to a swimming configuration, Lockheed will deliver the first vehicle in June 1970.

The importance of speed and mobility in future combat situations cannot be overemphasized. They are essential to the maintenance of a proper measure of battlefield effectiveness for next generation ground combat vehicles. In the face of this growing need, the traditional advantage of wheels becomes increasingly attractive. Only time and many hours of gruelling tests will establish the full military potential of the Army's *Twisters,* but in an era where survival depends on adaptability and rapid, innovative change, the concept of *Twister* appears to meet the challenge.

STEVE HODGES is Manager of Ground Vehicle Systems, Lockheed Missiles and Space Co., Sunnyvale, Calif. He has been associated with the development and operation of high performance off-road vehicles since his WW II assignment as Section Chief, Transport Vehicle Branch, U. S. Tank Automotive Center, Detroit, Mich.

TELLING IT LIKE IT REALLY IS?

Beset by passed deadlines, an editor firmly entrenched in the "experienced" years should avoid eating onions and sauerkraut before retiring. This even if it was at a gathering graced by fond and beery memories of soldierly comradeship in Germany and a number of other places.

In the words of Shakespeare "to sleep, perchance to dream . . ."

Enter harassed editor (HE) and Armor leader (AL)

AL: I read *ARMOR* from cover to cover each month.

HE: [*So? It's only published bi-monthly. Is someone putting out an underground edition?*] Yea fine! I guess you've been a member of the Armor Association for some years. If it hadn't been for loyal support like yours, the Association never would have survived five wars or so and a number of so-called low intensity conflicts.

AL: Well not exactly. You see *ARMOR* has always been available in the dayroom or library or a friend had one. You know, why pay for what you can get for nothing! Sound financial management is darned important for Army people. Besides, the subsidies should cover most of the expenses.

HE: What subsidies! *ARMOR* pays its own way—printing, supplies, equipment and furniture, rent —the works. Sit down friend, we've got to review the bidding here. It costs just about as much to print one copy of a magazine as it does 5-10,000 copies. After that the economics of the business are that each copy gets pretty reasonable. At around 20,000 paid circulation, the fixed costs would be spread around enough that we could put out a really good magazine at a decent price.

AL: Sure, right. That reminds me. Most of us can hardly afford $6.50 a year for *ARMOR* with things like they are.

HE: Brrrp! [*Damn those onions!*]. You mean to say that your whole blasted budget sinks or swims on spending each year about one percent or less of one month's pay for professional improvement and branch loyalty. You better take one of those financial management course things. I've got a catalog here somewhere . . .

AL: Now you're getting nasty. Besides, you obviously don't understand the problem.

HE: The hell I don't! You and some of your fellow conspirators ganged up on me, one top-notch young lieutenant and three fine soldiers and gave us the mission of keeping *your* branch Association and journal alive and well. You and the some 70 percent of the Active Army Armor officers, some 90 percent of the Active Army senior NCOs, about half of the Army National Guard officers and senior NCOs and most of the Army Reserve Armor leaders, who do not pay their dues, are asking us to do the impossible! That guy Rowan and my namesake ought to give you that fickle finger award.

AL: Now you're getting excited.

HE: Who's excited? I'm scared! Only if Armor leaders as a group, and as individuals, show more of that "fidelity" proclaimed on their commissions and warrants, will the Army's oldest professional Association be around for another 84 years. If a demise comes to pass you, and your fellow Armor professionals, can have a bang-up wake for the $6.50 each you could have spent on one year's membership. At least, with careful shopping, even these days $6.50 should fetch up a passable container of Class VI. Then the next morning you can have a great time figuring out where your best thoughts will be published, where you can turn to read about the latest developments in your military specialty, where your achievement will be recorded for history.

AL: Come now, it isn't that bad. Besides some of the stuff that shows up on the pages of *ARMOR* would be better off hidden in a footlocker.

HE: Perhaps so. But have you ever tried improving the product by writing a good . . . Have you ever . . . Have you ever considered . . . Have you ever considered being the next, and 30th, Editor of *The Cavalry Journal, The Armored Cavalry Journal* and *ARMOR?*

AL: Here's my check for $6.50!!!

The notes of reveille fade. Next in view is a Spartan office

ARMOR Staffer: Good morning, Sir! We have to get that "Reconnoitering" to the printer. The whole magazine is waiting on *your* page 13, Sir!

HE: Out! Out! After last night I threw away all my pens and that 1910 portable that was on the stand over there too.

Outside a few moments later

ARMOR Staffer: Wow! What's eating the old man this morning?

We wonder.

the Editor

LINK UP

Heliborne Infantry and Armor

Captain James G. Lucas

A pure force of heliborne infantry can bite off more than they can chew. For example, while their infantry reserve force was "cut off" by a blown bridge, 95 Vietnamese soldiers from the 3rd Battalion, 31st Infantry Regiment, stationed at Vi Thanh, South Vietnam, were helilifted into a landing zone in the midst of 1000 Viet Cong.

No sooner had the 95 infantrymen landed than the shooting started. The small infantry force, surrounded by Viet Cong, could do nothing but shoot back while hiding behind rice paddy dikes waiting for help.

This article relates some of the events which led to this desperate situation together with some of the problems encountered by a Vietnamese armored cavalry unit which was ordered to "link up" with the heliborne force. Finally, there is a summary of lessons learned which may be of some value to others confronted by similar situations.

The armored cavalry troop I was advising (2/9 Troop) consisted of 165 Vietnamese armor crewmen mounted on *M113* armored personnel carriers and had an attached company of infantrymen who also rode on top of the carriers.

On 1 September 1966, the senior advisor of the 31st ARVN Infantry Regiment was assisting in planning an operation nine kilometers northwest of Vi Thanh near the U Minh forest. He wanted to know if we could move cross-country into that area.

After having made a map reconnaissance of the area, I told the senior advisor that I was not sure. Then he told me to make sure.

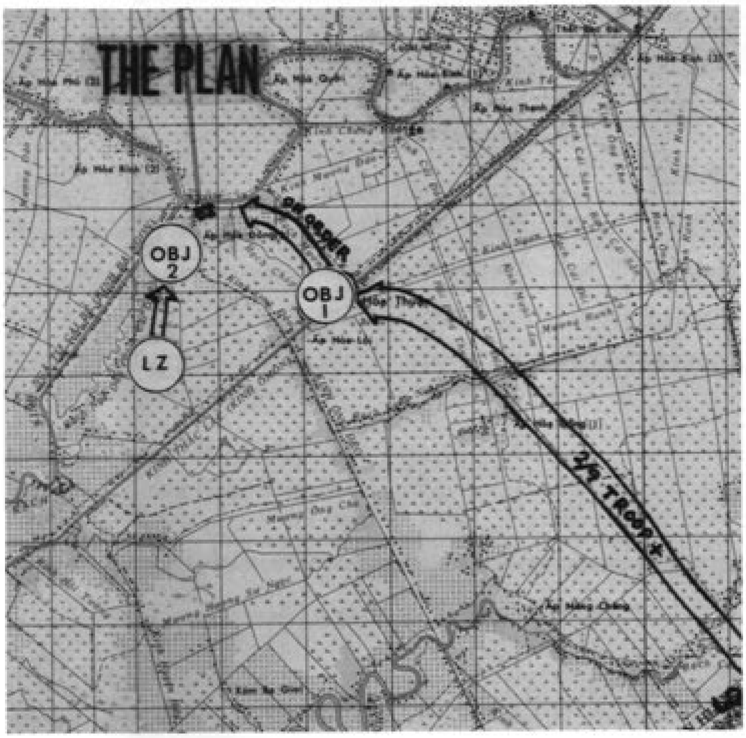
The province senior advisor kindly let me use a light fixed-wing aircraft to make a visual reconnaissance of the terrain. After climbing in behind the pilot, I told him to head north. During the flight I noted on my map the areas with yellow reeds as "no-go" and the green rice fields, where I saw water buffalo standing, as "go" areas. After having checked for possible crossing sites over the numerous canals which criss-crossed the rice paddies below, we headed back to the airfield.

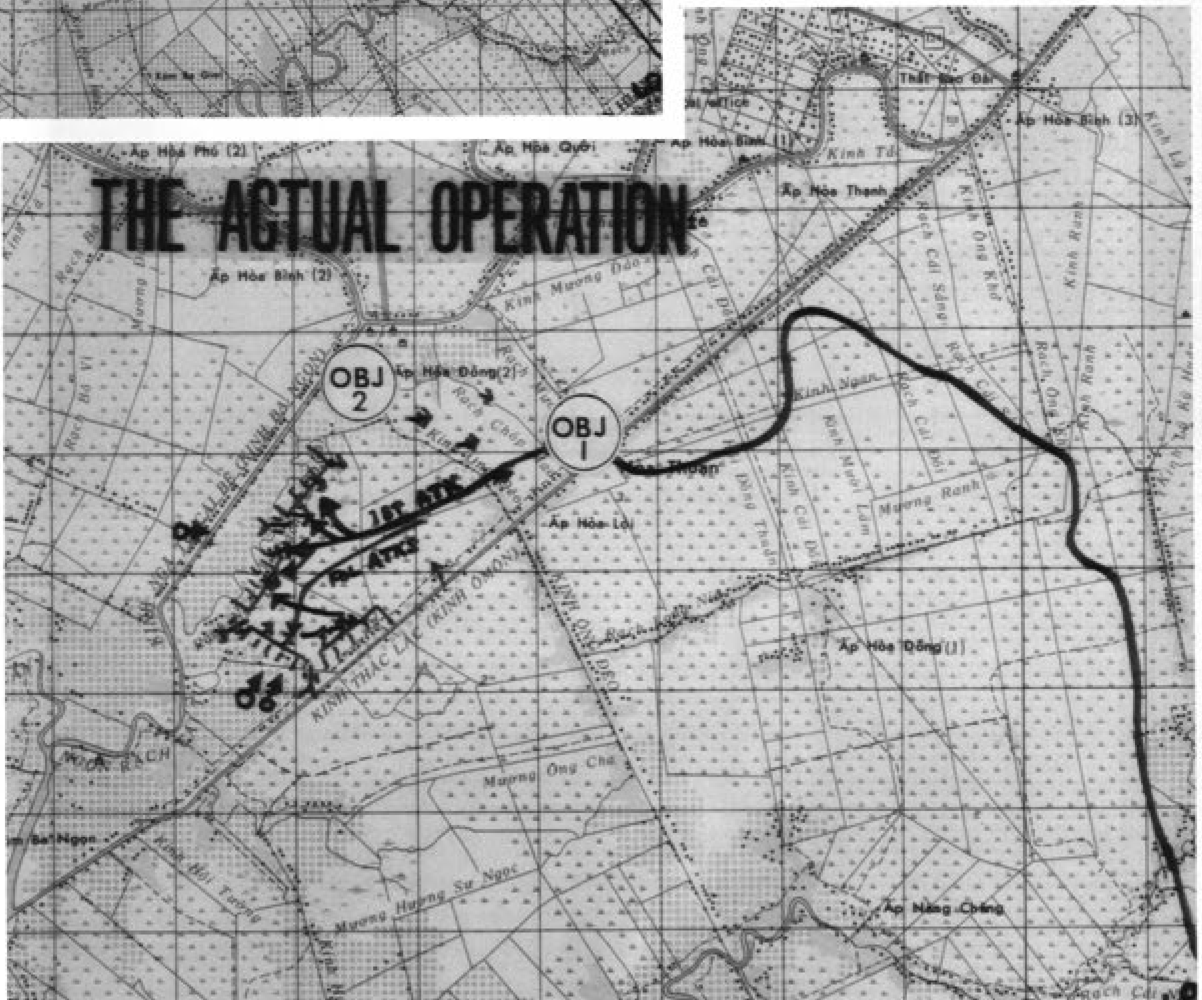
Although satisfied that the *M113*s could move cross-country in this area, I was still concerned about the high mud banks on the first major canal crossing. Therefore, after landing at the airfield, I arranged to get a small motorboat to reconnoiter the canal in order to find a crossing site. After completing the reconnaissance, I informed the 31st Regiment Senior Advisor that the *M113s* could move cross-country into and within the area north of Vi Thanh.

During the next two days the official mission of the armored cavalry troop was to secure the airstrip and the town. However, except for a few patrols, most of the troop's time was devoted to maintenance and rest.

At 2300 on 3 September the troop received an order for a search and destroy mission near AP Hoa Quoi, nine kilometers northwest of Vi Thanh. Intelligence, rated as being from a fairly reliable source, and possibly true information, indicated the presence of a weapons cache and an arms factory guarded by two VC security platoons in the objective area. Our mission was to destroy the arms factory and confiscate the weapons cache.

The concept of operations (see sketch) called for the second troop 9th Armored Cavalry, with an infantry company attached, to move cross-country to Objective 1. Then the 3/31 Infantry was to be helilifted to a landing zone (LZ) south of Objective 2. The 2/31 Infantry was to move about 80 kilometers by road convoy from Soc Trang to Vi Thanh, arrive before the time to cross the line of departure (LD) and constitute the reserve force for the operation. Four 105mm artillery pieces located in Vi Thanh


THE PLAN
OBJ 2
OBJ 1
LZ


THE ACTUAL OPERATION
OBJ 2
OBJ 1
1ST ATK
Ấp Hòa Bình (2)
Ấp Hòa Lợi
Ấp Hòa Thạnh
Ấp Hòa Đông (1)
Ấp Nàng Chăng
Xóm Ba Giồi
Mương Ông Chà
Mương Hương Sư Ngọc
QUẬN KIẾN HƯNG

were to provide fire support if we made contact with the VC. Essentially, that was the plan. However, the best laid plans of mice and men will oft go awry!

At 0430 on 4 September, while eating a breakfast of Chinese soup, LT Chau Quang Chuong, the troop commander, and I worked out the last minute details on coordination and control of 2/9 Troop during the movement to contact. At 0550 the troop kicked off from the assembly area and arrived at the LD at 0600.

The LD was located on the first major canal crossing which I had reconned three days earlier. I had estimated that the troop would take about 45 minutes to cross that canal. However, 40 miles west of that crossing site the tide was moving out to the Gulf of Thailand and drawing with it the water from most of the canals in the southwestern section of the Delta. The outgoing tide had caused the expected five mile per hour flow of water in our canal to increase to 20 miles per hour. This increased speed of the water made it difficult for the drivers to get their *M113s* out of the canal. The end result was that my estimate of 45 minutes crossing time was stretched out to one hour and 18 minutes.

After having crossed the first major canal, 2/9 Troop rapidly moved seven kilometers across rice paddies, bypassed a yellow swampy area, crossed several small canals, and arrived at Objective 1 at 0915. Now that the helicopter flight route was secured by 2/9 Troop, the first lift of 95 soldiers from the 3/31 Infantry was helilifted to the preplanned LZ south of Objective 2.

They had no sooner hit the ground than they were pinned down by heavy fire from the tree line west of the LZ. While the main body of VC were firing at the heliborne force, the VC security elements were sniping at 2/9 Troop as it crossed the canal which intersected Objective 1. The remainder of the 3/31 Infantry was helilifted to an LZ behind their lead company. Then they tried to attack, but they suffered heavy casualties as the entire force was pinned down by enemy mortar, recoilless rifle, and machine gun fire. The reserve force (2/31 Inf) could not help at this time because their convoy route (Highway 4) to Vi Thanh was cut where the VC had destroyed a bridge early that morning.

Because the planned reserve force was not available, 2/9 Troop was ordered to "link up" with the 3/31 Infantry on the LZ. Two major canals and 1000 meters of deep mud, coconut trees, and thick ground vegetation separated 2/9 Troop from the designated link-up point.

Since the immediate problem was to get the *M113s* across the jungle-like area, LT Chuong and I dismounted from our M113 and ran through the wooded area looking for a suitable route. In my haste, I did not take time to dismount my radio from the *M113*. After having found a route through the wooded area, we brought the *M113s* forward to cross the canals. One half of the troop fired at the VC while the other half worked at getting the armored vehicles through the mud and across the canals.

I thought all the incoming fire was from the Viet Cong. However, LT Vinh (Platoon leader, 1st Platoon, 2/9 Troop) grabbed me by the arm, and visibly shaken by the incident, reported that American helicopters were firing at his platoon. Because I did not have my radio with me, I ran back through the woods to the command vehicle to call the aviation commander and give him our dispositions and situation. It was probably because the vegetation was so thick that the helicopter gunners could not see the identification panels on top of our *M113s*.

While we were working our way through the mud toward the link-up point, IV Corps Headquarters in Can Tho released two C-7A Caribous and additional helicopters to transport the 2/31 Infantry and the 44th Ranger Battalion from Soc Trang to Vi Thanh. At 1225 we managed to get the first four *M113s* across the canals and link up with the first lift of reserve forces from 2/31 Infantry.

Seeing the desperate situation that the 3/31 Infantry was in, we decided to attack immediately with four *M113s* in order to break a hole in the VC defense. The infantry followed our armored vehicles into the first tree line and engaged the VC with bayonets and grenades. As the VC withdrew to their second line of defense, the cavalrymen and attached infantry killed 31 VC while suffering only two dead and one seriously wounded. Because we only had four *M113s* committed to the battle thus far, the VC were strong enough to counterattack. As the VC closed in on our flanks we backed away from the wood line to regroup.

At 1250 all the armor elements were across the canals and the 2/31 Infantry was in position to attack. The 2/9 Troop, using *M113s* which had been modified into assault vehicles, attacked several strong points, one after another, knocking out the heaviest enemy resistance. The infantry attacked deep into the woods to destroy the enemy in detail. At 1300 hours, with the aid of suppressing fires from armed helicopters, 2/9 Troop overran the VC

command post and captured the battalion colors of the 207th Main Force Battalion.

While the remainder of the VC force was trying to escape, the 44th Ranger Bn was helilifted to an LZ in the center of the battle area to assist in mopping up small pockets of resistance. About 700 VC escaped into the jungle, leaving 221 of their dead comrades on the battlefield and 11 in captivity.

Due to the overwhelming combat power and constant pressure exerted against them in this frontal attack, the VC were unable to retrieve many of their weapons and much of their equipment. Among the dead VC, the government forces found 61 weapons including mortars, machine guns, and a wide variety of small arms. Furthermore, the VC left on the battlefield such difficult items to replace as a long range CW radio set, numerous telephones, FM radio sets, binoculars, compasses, and electric blasting machine, and most of their combat and administrative plans and records. (Incidently, if you lost a multimeter with serial number 4161, you can stop looking for it. It was found in the VC 207th Bn commo repair bunker). The VC also left their aid station, stocked with medical supplies made in North Vietnam, intact near their battalion CP.

After we lost contact with the VC, we called for helicopters to evacuate our dead and wounded soldiers. Casualties in the Cav troop, the 2/31 Infantry, and 44th Rangers were light. However, the 3/31 Infantry suffered 21 killed in action and 73 wounded.

While the helicopters were evacuating casualties and delivering ammunition, 2/9 Troop hunted for the snipers who were firing at the aircraft. Upon completion of the resupply action, 2/9 Troop set up outposts to provide security while the infantry and rangers dug in for the night. After the infantry and rangers had occupied their night positions, 2/9 Troop moved to the center of the field in a laager formation and set up security for a night defense. During the night we fired our 81mm mortars on suspected VC routes while our forward observer adjusted fire on suspected VC positions.

On 5 September, from 0700 to 0930, we searched the woodline from C-1 to B-8. At 0940 we departed from B-8 and arrived in Vi Thanh at 1345 (See sketch).

What lessons can be learned from this operation? First of all, we should always expect and be ready for a trap. Prior to this operation, the VC deliberately led the government intelligence agents to believe that they had found an easy target. The VC effectively concealed their true strength and intentions in hopes that they could achieve a victory against a small government force.

In a riverine environment we should hold a large airmobile force in reserve, with aircraft immediately available. This reserve force should have a reaction time of less than 30 minutes.

Tide tables should be calculated and maintained in contingency files for all riverine areas where US and Allied forces anticipate operating. When an operation involving armored vehicles is being planned in a riverine environment, tide tables should be issued to reconnaissance personnel, commanders, and planners. Even people who are experienced in moving armored vehicles in the Delta can more effectively plan and execute canal crossings when they know how much the ocean tides will be affecting the water in the canals at the time of crossing.

During the attack, leaders and advisors do not have enough time when they dismount from their vehicles to change the AN/VRC 125 from its vehicular mounted configuration to a portable mode of operation. Those key command and control personnel who need the extended range of a vehicular mounted radio during movement-to-contact and need a portable radio during the attack should be given both types.

Finally it was clearly shown by this operation that a reinforced armored cavalry troop can generate ample shock action, firepower and mobility to shift the balance of power from a possible disaster to a victory for our side.

CAPTAIN JAMES G. LUCAS, Armor, was commissioned upon graduation from the Infantry OCS in 1964. He has commanded a tank company of the 1st Battalion, 77th Armor then at Fort Carson and a training company in USATCA. He served as an advisor in Vietnam. A graduate of Armor Officer Advanced Course 3-68, he was assigned as an instructor at the Armor School when he was selected to be aide-de-camp to Major General James W. Sutherland, Commanding General of the Armor Center.

AWARD WINNER

ARMOR OFFICER ADVANCED COURSE 3-69

It Works, All We Must Do Is Sell It!

By Captain David E. Roesler

On the morning of 27 February 1968, Lieutenant Colonel W. C. Cousland, then commanding the 1st Squadron, 1st Cavalry with the Americal Division, reacted to special intelligence. Several Viet Cong and NVA officers, wounded as a result of the Tet attack against the Quang Tin provincial capital of Tam Ky, were reportedly being hidden by local villagers approximately 15 kilometers southwest of that capital city. Following the squadron commander's instructions the 1st Platoon of Troop A was sent to Tam Ky to pick up an ARVN squad to assist in searching the village.

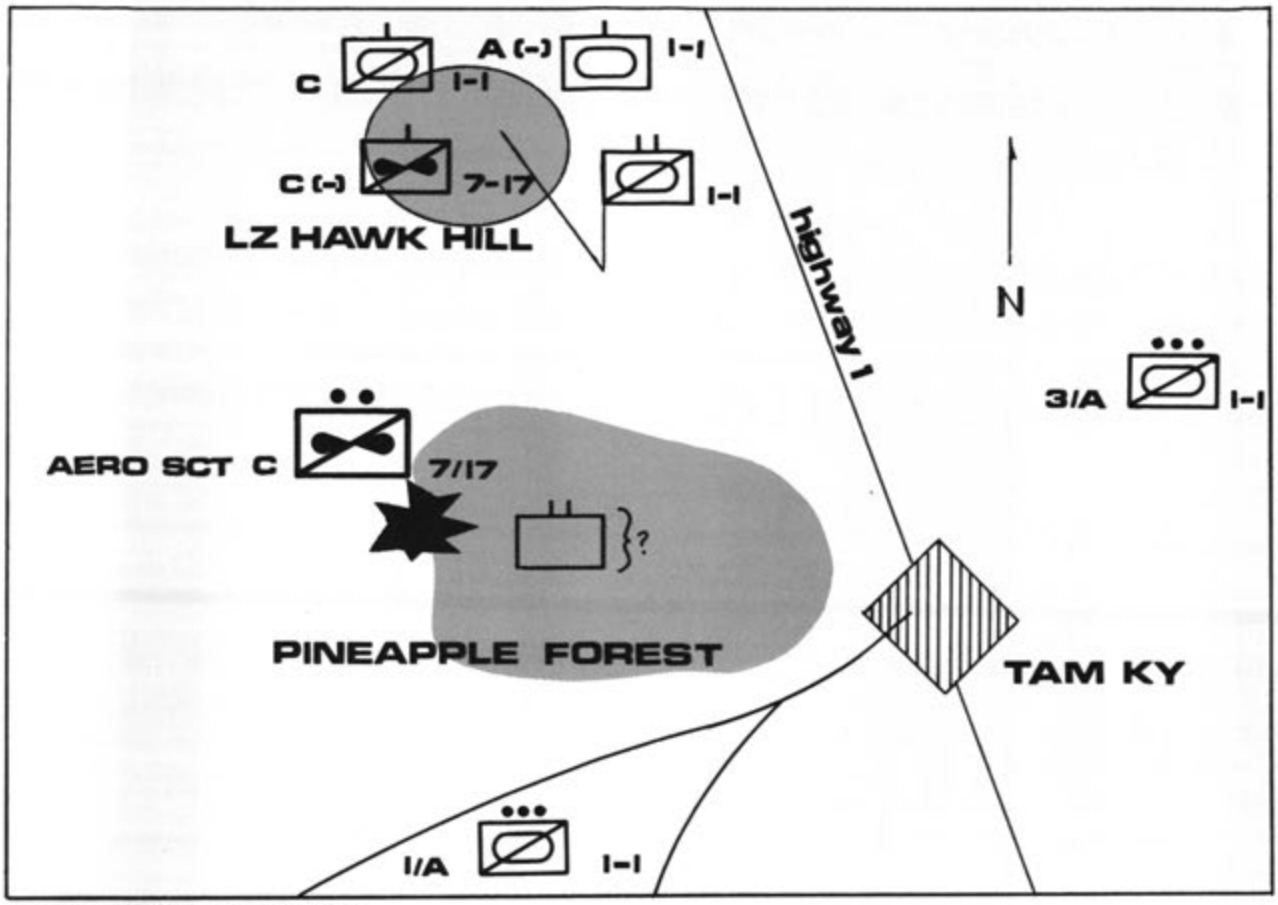
After having searched for two or three hours, the platoon found nothing. Meanwhile, an aero scout section from the squadron's air cavalry troop, "Blueghost," on a screening mission in the Pineapple Forest, made contact with an unknown enemy force 10 kilometers north of the 1st Platoon's position. Monitoring the initial contact, the aero scout platoon leader, Captain Billy J. McKenzie, on another mission, alerted his troop commander, Major James D. Maret, and proceeded to the area to further develop the situation.

Upon arriving in the area, Captain McKenzie's quick assessment was that the enemy was in strength and that the aero scouts would need support. The 1st Platoon, Troop A was given an immediate change of mission and sent to the area of contact. After making initial contact with the enemy, the platoon leader realized that he was facing at least an enemy battalion and reported this to his troop commander. Captain McKenzie was making a similar updated report direct to the squadron tactical operations center (TOC). Monitoring these reports, the Troop A commander alerted his 2d Platoon, then in the base camp area, and warned his 3d Platoon, on a seperate mission 10 kilometers east of Tam Ky, of a possible change of mission. Moments later, the squadron commander, just airborne in his command and control helicopter, reinforced the Troop A commander's anticipated decision and directed him to move to link up with his platoon in contact. At the same time, he alerted the Troop C commander, Captain Ralph P. Brown, to prepare his troop for a possible reinforcing mission.

All of the available "Blueghost" assets were now in the contact area except for one aero scout section assisting Troop A(—) which had reached Tam Ky and was moving cross-country to reach its heavily engaged platoon. Upon joining his platoon, within 40 minutes after being ordered to move, the Troop A commander received a short radio briefing from his platoon leader in contact. He then deployed his forces along a north-south line facing westward and pressed forward the assault against the enemy positions.

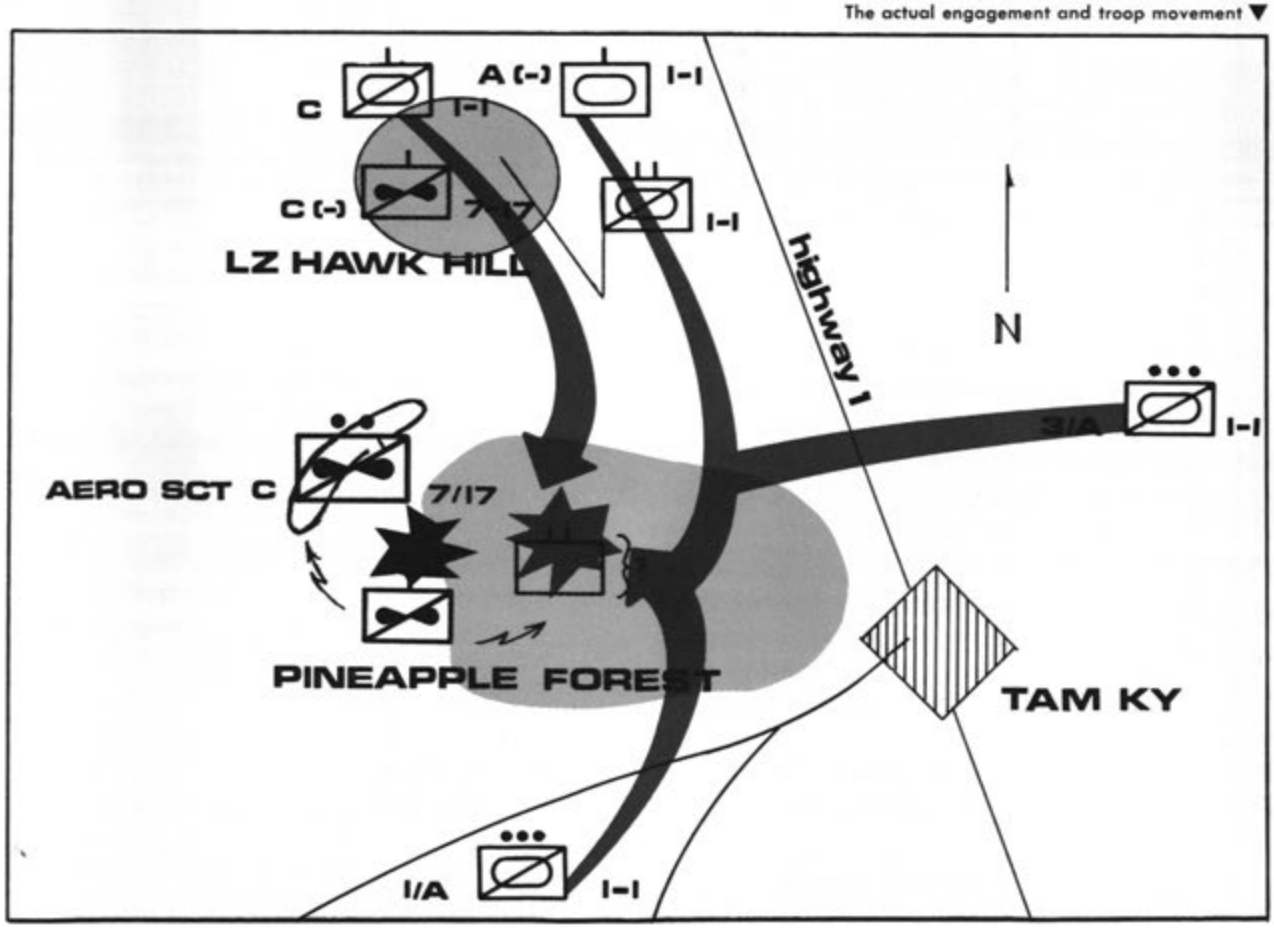
Although the initial troop assault produced intense fighting, the added fire power of the full troop caused the enemy forces behind those in direct contact with Troop A to begin to withdraw to the west. This fact was not noticed by the troop which was now engaged in fierce close-in fighting in the trench lines and hedgerows.

From their vantage point, the aero scouts readily noticed the movement and recommended extension of the air cavalry screen to better contain all the enemy force. The squadron commander concurred and at the same time ordered Troop C to move cross-country to take up blocking positions north and west of the apparent enemy withdrawal routes. Troop C arrived within 30 minutes and immediately delivered effective direct fire into the fleeing enemy. These blocking positions, along with the extended air cavalry screen, had now contained the enemy's withdrawal. Unit dispositions at this time were as shown on the accompanying sketch.



▲ Initial dispositions—27 February 1968

The actual engagement and troop movement ▼



Troop A had now managed to overrun the enemy's first line of resistance and was fighting to the front and rear. To assist in eliminating this threat, the troop commander had the supporting aero weapons section make machinegun and rocket runs along his line of buttoned up ACAV's. He then realigned his forces and continued forward until enemy resistance had ended. Mop-up operations were continued until dark at which time all units returned to the fire base.

From the time of initial contact, five hours had elapsed. The enemy lost 186 killed in action and 25 captured. Friendly losses were only five slightly wounded, none of whom had to be evacuated.

It is well known in Vietnam, that for various reasons, many air and ground cavalry units are divided up and employed in small groups. This regrettable situation is often unavoidable. However, there are certainly times when realignment of forces and areas of operation in a major command can allow assigned or attached cavalry units to perform for a major commander one of the more valuable roles of cavalry in a Vietnam environment—economy of force. For example, a divisional cavalry squadron *with* its organic air cavalry troop can readily assume control of a large area of operations and still be able to maintain a reaction/reinforcing capability to assist other units. Infantry units would then be rid of responsibility for many relatively flat, tank and ACAV accessible areas. Thus infantry would be freed to work the high ground or dense jungle where only it can operate.

In early 1968, Major General Samuel W. Koster, then Commanding General of the Americal Division, realizing the importance of giving an economy of force role to his cavalry squadron, assigned the 1st Squadron, 1st Cavalry such a mission. The squadron was left intact with its air cavalry troop and controlled some 290 square miles of coastal lowlands. The great majority of major and minor enemy action in this large area was initiated by aero scouts and reacted to by ground cavalry forces, supported mainly by the rest of the air cavalry troop and tactical air. In all these actions, as in the introductory example, speed reaction was the key and could only be achieved by keeping the squadron together, *controlled by those who know how to do it best.* Employed as a maneuver battalion, the squadron in this economy of force mission released an infantry brigade to function in a more valuable role in those areas inaccessible to tracks.

To use an overworked indicator of success, during the first half of 1969, the squadron killed in excess of 2500 enemy, NVA and VC, with an enemy/friendly kill ratio averaging about 35 to 1. In doing so, the squadron still managed to undertake nearly all the ground reinforcing or air reconnaissance missions desired by the division. It even managed to assume control of additional area from time to time and to pick up and move, in its entirety, 40 to 50 kilometers to meet an enemy threat.

Much has been written about all the facets, both pro and con, of air and ground cavalry units and their tactics and abilities in combat. The air-ground cavalry concept is not new. However, the state of the art has developed more rapidly in the past few years with the emergence of the fighting helicopter in Vietnam. With increased mobility, the complexities of controlling and employing such an air-ground force indeed can be great at times. However, if the capabilities of cavalry forces are not fully recognized by those of other branches, the full potential of this type unit will never be realized and its assets will be wasted.

On the other hand, the most important point is that we in Armor know, believe in and advertise the impressive capabilities of the cavalry team working on the ground and in the air. We should never forget that one of our implied missions in life is to sell to others the tested, progressive products of our branch.

CAPTAIN DAVID E. ROESLER, Armor, was commissioned in 1964, from the United States Military Academy. Following the ranger and airborne courses he was assigned to the 1st Squadron, 3d Armored Cavalry Regiment in Germany where he served as a platoon leader, troop executive officer and squadron S2. In 1966 he returned to CONUS and was assigned as an instructor with the Ranger Department of the Infantry School. He then joined the 1st Squadron, 1st Cavalry at Fort Hood, Texas and, in August 1967, was deployed with that unit to Vietnam where he served as squadron S4, Troop A commander and assistant squadron S3. Captain Roesler graduated from Armor Officers Advanced Course 3-69 and is now pursuing graduate studies at the Georgia Institute of Technology.

Route Security in the Central Highlands

AWARD WINNER

ARMOR OFFICER ADVANCED COURSE 3-69

by Captain Franklin Y. Hartline

The advent of large-scale counter-guerrilla war has forced the adaptation of battle-tested principles to a new environment. Techniques evolved by the 2d Squadron, 1st Cavalry in accomplishing a route security mission in the Central Highlands of Vietnam during September 1967 to November 1968 vividly illustrate this process.

Although traditionally an armored cavalry mission, route security in this environment has some striking differences. First, during the period mentioned, security of the 4th Infantry Division's main supply route was the constant and primary mission of the squadron. Although other operations were conducted, they were essentially in support of the primary mission and used forces that were either not essential to that mission during a particular period or which would have been able to react to any emergency on the road. Thus route security was a 24 hour job on the same road for more than a year.

Enemy capabilities during the period specified consisted of the ability to mine and to harass the road daily, to conduct ambushes in reinforced battalion size, and to conduct stand-off attacks on bridges and fire support bases with mortars and rockets. The frequency of such actions varied with the season, the segment of the road, and the presence of large enemy forces from other areas. Averaged over 15 months, however, mining occurred three times weekly, small harassing ambushes and stand-off attacks twice monthly, and large ambushes once every three months. The preponderance of enemy encountered were North Vietnamese Army infantry (95B Regt.) and engineer units (408 Sapper Bn.) which had operated in the Central Highlands for years and, in effect, were guerrillas.

During the 15 months covered by this report, the three commanders of the 2d Squadron, 1st Cavalry, (Lieutenant Colonels Joseph M. Gay, Jr., Charles P. Graham and Donald W. Moreau) pursued a program of reshaping the terrain in the cavalry operational area. The rationale was that if the first ally of the guerrilla was the terrain and if the guerrilla must come to the road in order to be effective in interdicting it, then the route security force must reshape the terrain to its own advantage and force the guerrilla to leave his environment and enter that of the security force. In other words, the guerrilla retains his ability to choose the time and place of attack, but the battleground has been altered by the

security force to its advantage.

The first program undertaken was the clearance of vegetation to a distance of 300 meters on both sides of the road. Dominating terrain was cleared to the military crest. The dual objective was to force the guerrilla to expose himself in order to be effective against a convoy and to increase the effectiveness of the armored cavalry's longer range weapons. In addition, track vehicles gained more maneuver room and, as a result, were less susceptible to enemy mining operations.

The land clearance program was undertaken using borrowed dozers and operators from any and all engineer units in the 4th Infantry Division operational area. During the spring of 1968, the squadron received the support of the over-worked and underappreciated 35th Land Clearing Company. This valuable unit used Rome Plows, harrows and demolitions to change dense jungle and forest into completely negotiable ground.

One problem encountered in the land clearing operation was the disposition of the dead vegetation once it was uprooted from the cleared area. To facilitate the job of the land clearing company (which was in great demand elsewhere) the dead vegetation was piled into berms running perpendicular to the road and approximately one hundred meters apart. These berms restricted both the fire and maneuver of tracked vehicles moving parallel to the road. A better solution would have been to push the dead vegetation into circular piles in the center of the cleared area on each side of the road. This would have facilitated tracked vehicle movement and forced the guerrilla to negotiate completely open ground between the woodline and any proposed objective on the road.

A planned program of land clearance not initiated because of lack of time and equipment was the clearance of a 100 meter strip of land running parallel to and 500 meters from the road. This cleared strip would have been used to seal off an ambush area prior to the complete destruction of an enemy force. Many times enemy units would scatter when engaged by armored cavalry vehicles and, as a result, many escaped to fight again. The 100 meter strip would have facilitated sealing off the area by both air and ground elements prior to a detailed tank, ACAV, and infantry search of the battlefield. In addition, the strip would have been useful in coordinating the employment of air, artillery, and ground forces during an ambush.

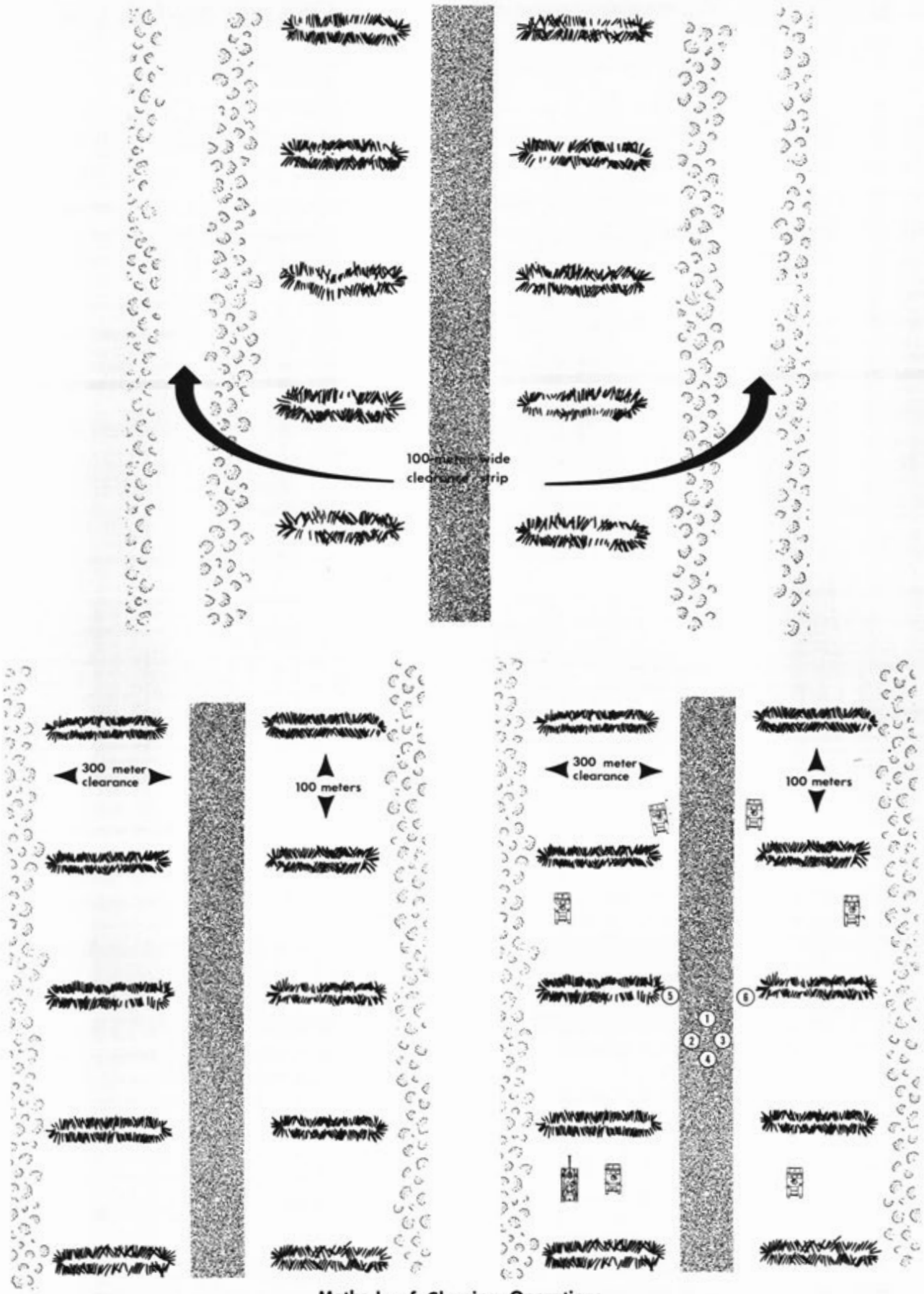
The next phase of reshaping the terrain was the construction of observation posts on dominating terrain along the route. These OP's were manned 24 hours a day in order to take advantage of valuable equipment organic to the squadron—the ground surveillance radar. Radar sets were operated at night from four OP's overlooking the road. This surveillance capability, coupled with the land clearance program, allowed 24-hour surveillance of much of the route. As a result, night operations were made more effective by the concentration of night ambushes in the areas of dead space in the radar coverage.

Normal dispositions on the OP's, in addition to the radar, were one tank, one mortar carrier and one or more ACAV's. The tank provided immediate and accurate direct fire to exploit targets acquired by the radar. This was accomplished by infrared and white searchlight illumination as well as a carefully prepared range card. The mortar augmented the tank fire, made possible indirect fire support for friendly patrols, and contributed illumination and indirect fire for the defense of the OP itself. The ACAV's provided local security and maintained surveillance during the day.

A consideration that should be elaborated upon is that the establishment of a system of 24-hour OP's was a calculated risk. Although they were easily defensible, these were difficult to reinforce in the face of a determined enemy attack. And, a large enemy attack might well have been successful if the elaborate defenses were breached or friendly air support was ineffective. A large attack (i.e. more than a company) never materialized, however, and smaller probes were easily defeated by OP forces, air and artillery support, and the employment of barrier materials, anti-intrusion devices and chain-link fence standoff barriers.

An operation that may seem out of place in a combat zone was the paving of the main route for which 2/1 Cav had responsibility. Hard surfacing this road had many benefits. Effective enemy mining was virtually neutralized on this road since to emplace a mine adequately, enemy troops had to break the asphalt road surface without causing the small amount of noise necessary to be detected by friendly patrols. On top of that they had to replace the broken asphalt and leave the area looking as it had before. Other major benefits of the paving were the lessening of wear on convoy vehicles and drivers, increased all-weather capability of the road, and a very valuable civil affairs triumph.

A construction project undertaken which was not



Methods of Clearing Operations

initiated by 2/1 Cav but which greatly facilitated the security mission was the construction of a pipeline from An Khe to Pleiku. This decreased the traffic needed to support the 4th Infantry Division, especially the number of POL tankers which were the favorite enemy RPG target. Although the pipeline was easily interdicted, reports received by 2/1 Cav indicated that a few hours of pumping more than compensated for the replacement of blown pipes. These proved to be far less expensive to replace than a blown POL tanker.

Although route security operational techniques in a guerrilla environment vary little from those used in a conventional conflict, some techniques used by the 2d Squadron, 1st Cavalry were found to be very successful and seem worthy of mention.

One technique developed for mine clearing operations was very effective. The mine search team consisted of six men disposed as shown in the accompanying sketch. The Number 1 man was the team leader and the trooper most experienced in finding enemy mines. He was responsible for visually detecting signs of enemy tampering (the most effective means of detecting mines, especially when the enemy utilizes Soviet plastic or locally fabricated wooden mines) and controlling the team. The men numbered 2 and 3 had visual responsibility on and near the shoulders of the road. The Number 4 man employed the metallic mine detector under the supervision of the team leader. If sufficient time were available, the complete route was checked by the mine detector. As was usually the case, however, areas were checked by the detector when there was evidence of tampering, or when a high incidence mining area was reached. The Number 5 and 6 men had visual responsibility off the road and looked for footprints, command detonated mine wires, and piles of earth concealed in bushes near the road (an excellent mine indicator). The rest of the armored cavalry platoon was disposed in any formation which protected the team by affording all around security. This system was over 90 percent effective in finding mines concealed on dirt roads. To a great degree, its success was the result of unit unity of effort. Haphazard mine clearing operations are eminently unsuccessful.

Another successful operational technique was counter-ambush drill. Platoon battle drill was practiced until it was second nature to all concerned. The first 10 minutes of an ambush was, in most cases, the decisive period. Counter-ambush drill was developed as a result of experience with the enemy in the Central Highlands. Essentially, the technique consisted of maneuvering between the enemy and convoy vehicles caught in the kill zone, gaining fire superiority over the enemy, and, when sufficient force was present, assaulting the enemy in relatively rapid fashion. In inaccessible areas, the enemy force was sealed off prior to a ground search. In all cases, the battle area was organized to take advantage of the cavalry's superior firepower.

The last operational technique to be discussed concerns the makeup of reaction forces. A decision had to be made between rapid two and three vehicle reaction forces arriving in the ambush area in piecemeal fashion from strong points along the road or platoon-size reaction forces which, as a rule, were slower to react but concentrated. The solution arrived at was a combination of two vehicle strong points and platoon-size sweeps in areas adjacent to the road. This technique maximized reaction time and an enemy force could not be certain from what direction and in what strength the reaction force would arrive.

The techniques utilized by the 2d Squadron, 1st Cavalry and reported here were found to be highly effective in the Central Highlands during the period discussed. Their use in other places and at other times, after careful thought and modification, may be useful to others assigned a traditional mission of armored cavalry—route security.

CAPTAIN FRANKLIN Y. HARTLINE, Armor, was commissioned in 1966 from the United States Military Academy. He was graduated from the ranger and airborne courses in 1966 and assigned to the 2d Squadron, 17th Armored Cavalry (Abn) at Ft. Campbell where he served as troop executive officer. In 1967, after attending the Jungle Operations Course, he was assigned to the 2d Squadron, 1st Cavalry at Ft. Hood. He accompanied the squadron to Vietnam in August 1967 and served as a platoon leader, troop executive officer, and troop commander. He was graduated from Armor Officer Advanced Course 3-69 and is currently pursuing graduate studies.

NCO prepare yourself

by Major David A. Neck

With the rapid changes in techniques, doctrine and equipment being experienced by today's Army, a need exists for mandatory noncommissioned officer military educational levels to be attained prior to consideration for promotion. Is this an impossible or unrealistic requirement?

Major General James W. Sutherland, Jr., US Army Armor School Commandant, stated recently "Armor today faces a more complex task of training than ever before in its history. The introduction of more sophisticated weapons and automotive systems into the arsenal of Armor, along with changes in organization and tactics, presents a challenge to military proficiency that can only be satisfied through individual, diligent, professional study."

With the exception of those who have enrolled in correspondence programs in preparation for annual military occupational specialty tests, it is estimated that fewer than 35 percent of the members of the noncommissioned officer corps have taken courses to prepare for the positions they will hold in the future.

The Armor branch is not alone in its requirements for highly qualified personnel. All branches of the

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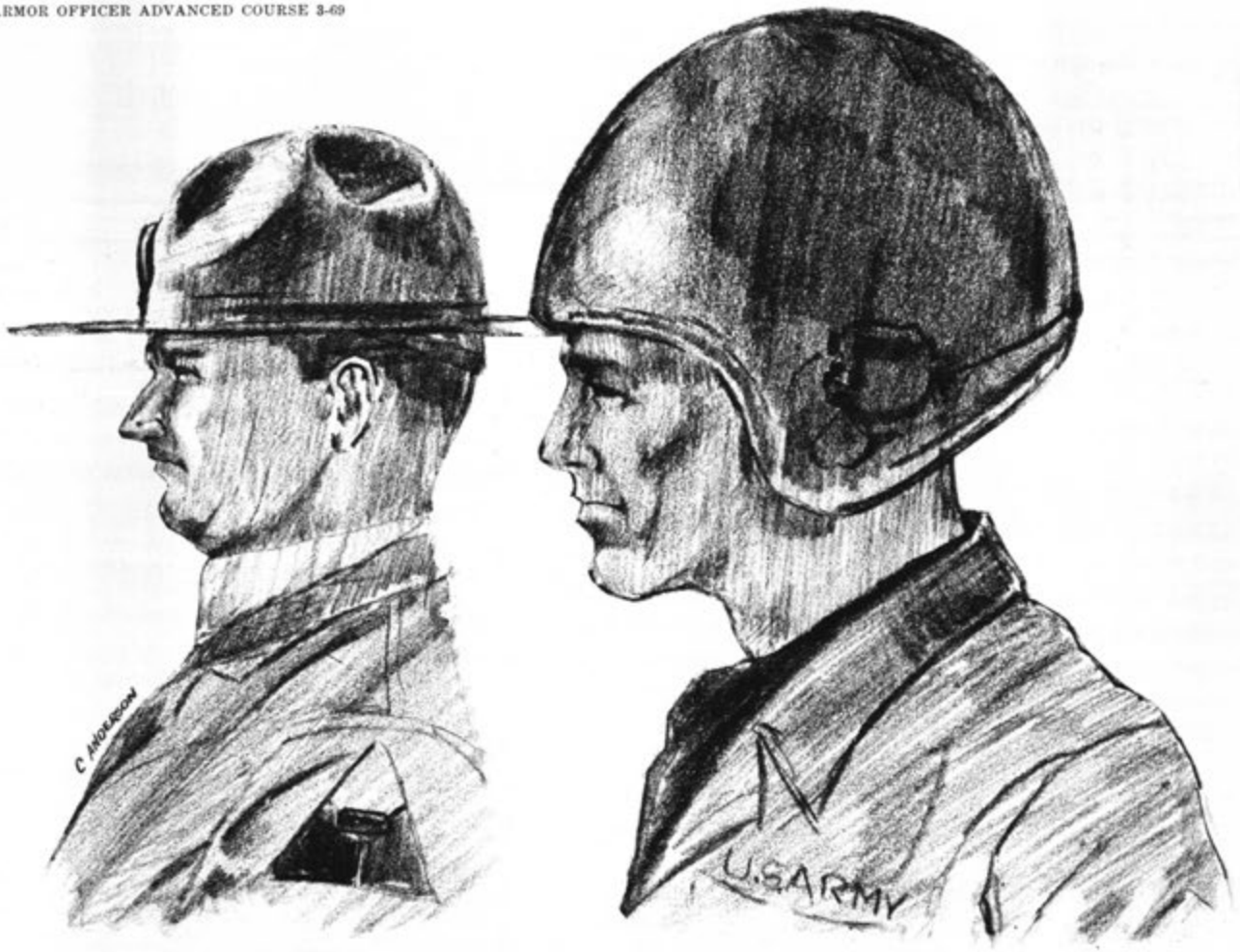


Army are experiencing tremendous changes; trained manpower resources have become a major concern to all levels of command.

One means of attaining and maintaining an adequate level of individual proficiency would be to revamp the noncommissioned officer promotion policies. Major changes should be considered which emphasize mandatory military educational standards for noncommissioned officers and give considerable weight toward promotion for completed courses. This action would encourage greater participation in developmental education, thereby increasing levels of noncommissioned officer job performance. Current promotion criteria places more importance on one's ability to influence a board, time in service and time in current grade than on completion of professional military development courses. This is not to imply that consideration should not be given to an individual for his knowledge of the chain of command or for years of honorable service, but it is to suggest that greater recognition—more than a mere 10 percent of the total allowable points—should be given to military education achievements. Individual efforts to increase military proficiency receive such slight recognition that any desire an individual may have had for self-improvement could well be discouraged.

It is not the purpose of this article to evaluate each area for which points are awarded nor to determine all those that would be a sound basis for promotion. Rather, the goal is to highlight the need for adequate recognition of an individual's attempts to qualify himself for the position for which he is being considered.

The army makes available to enlisted personnel means to further their branch training in the form of both resident and nonresident courses. Correspondence courses have neither rigid enrollment requirements nor quotas limiting the number of enrollees—these are available to any member of the United States Army and cost the individual nothing but his time. A broad choice of courses is offered, ranging from basic MOS subjects to more sophisticated matters. Included is a non-resident senior NCO course administered by the Command and General Staff College.

It is unfortunate that many Army people are not aware of these courses, since the army expends a great deal of money and effort to provide correspondence courses which parallel resident instruction.

This type of self-advancement has been proven to enhance individual military competence, and yet, enrollments in these programs are far below what the nonresidential instructional departments are capable of handling.

Additional branch testing training is also available through participation in resident courses. These range through a variety of other military subjects.

Looking toward the end of hostilities in Vietnam, most Army service schools are planning for possible resident branch advanced NCO courses for staff sergeants, sergeants first class and platoon sergeants. The Command and General Staff College is planning toward a resident course for the most senior noncommissioned officers. The inherent advantages of resident work in the form of full time participation and association with selected peers produces a better qualified graduate than can be usually expected from nonresident studies.

The Army has provided the NCO Corps with some excellent means for self-improvement and others are planned. Why haven't more of these been more fully used? NCOs are human like everyone else. They must be guided, inspired and rewarded. Heretofore, many NCOs with but a little effort, have managed to climb upward in grade. This being the case, it is not surprising that too few travel the route of formal study to improve their military education and thus their qualifications.

What is needed to stimulate interest in educational development? Promotion, proficiency pay and personal satisfaction are primary forms of motivation.

With respect to current promotion policy, it seems important to examine the subject of points awarded for military education. If an individual successfully completes an NCO academy or other formal course of four weeks duration or longer, he will be granted 30 points. If he successfully completes a non-MOS producing course of two weeks duration or longer (i.e., CBR School) he is granted 10 points for each course—not to exceed 40 points. For each nonresident subcourse one point per completed credit hour is awarded—not to exceed 30 points. These three criteria make possible a total of 100 points that can be earned for military education.

If there is to be an increase in individual military educational maturity, then successful completion of an NCO academy or unit course, presumably the first effort an individual has made toward self-improvement, must afford material benefits which inspire him to continue progressive courses of study. To award only 30 points out of a possible 1000 does not give due recognition to an individual for his ef-

forts nor does it appear to provide a positive influence on his future actions.

Moreover, a soldier who completes the Army's ranger course (9 weeks), pathfinder course (3 weeks), or like courses has demonstrated a desire to improve his military skills. This should be given additional weight. Points should be authorized on the basis of type and length of course rather than awarding 10 points for successful attendance at any school.

Successful completion of correspondence courses also provides promotion credit for military education. Under current policy an individual can take two 15-hour subcourses and be awarded the maximum 30 points—one point per credit hour. On the other hand, the soldier who has taken ten 15-hour subcourses has successfully completed 150 hours of work, yet he only receives the same 30 points as his contemporary who completed but two subcourses. Perhaps here lies a partial explanation of why so few of our NCOs participate in the correspondence course program.

Current Promotion Points

(DA Form 3355-R)

Active federal service	100
Time served in current pay grade	100
Enlisted evaluation score	150
Civilian education	75
Physical requirements	25
Enlisted efficiency reports	250
Points allocated to the board	200
Military education	100
Total	1000

Annual requirements for testing of individual proficiency necessitate maintaining a certain level of competence to qualify for certain pay benefits. To prepare for these tests, military personnel enroll in resident or nonresident refresher courses. This effort to insure adequate knowledge about a present duty position provides an excellent review. However, it does not always prepare an individual for higher responsibilities.

There are those noncommissioned officers who do not require outside motivation to put them on a path of self-improvement. Because of their own high professional goals they have attempted to maintain maximum career growth. This group comprises the majority of the supporters of developmental education programs. But there are too few of these self-starters to satisfy the Army's growing needs. Mandatory education requirements would alleviate this shortage. Often a seemingly mediocre individual needs only an outside motivational force to cause him to realize his full potential.

If NCOs are not being trained through resident or nonresident schools, how are they being trained? Probably over half of today's noncommissioned officers learn the duties of squad leader, platoon sergeant and first sergeant through on-the-job training. One cannot deny the advantages of this excellent training method. However, an individual who has the basic knowledge when he accepts the responsibility which can be reinforced by on-the-job training can produce more efficient results in a much shorter time.

An interesting parallel to this proposal for mandatory education requirements for noncommissioned officers can be found in the promotion criteria for commissioned officers. There are few exceptions to the Department of the Army policy requiring that an officer complete the service school commensurate with his rank. A National Guard or Reserve officer is required to maintain the same level of military educational requirements.

If educational standards must be met by officers, why are not formal education standards required for the noncommissioned officers, the backbone of the Army? Are their responsibilities such that they do not need professional growth? Or, do they not need additional military education to increase their knowledge and skill? Certainly with the continuous introduction of more sophisticated weapons, aircraft and automotive systems this can not be true.

Never before in the history of the United States Army has it been so apparent that, to maintain an efficient and competent force, a program of progressive military education for both commissioned and noncommissioned officers is needed.

As announced in AR 621-5, Department of the Army policy is that:

> The basic philosophy underlying the Army's general educational program is that an individual can improve himself through learning; that the process of learning does not stop with the completion of formal schooling at an early age, but on the contrary, is a lifelong process. It is based on the belief that continuing education is essential if military personnel are to achieve maximum career potential and maintain the desired creative, intellectual leadership abilities.

Further to breathe life into the worthy spirit of this policy and, concurrently, to increase the proficiency of our noncommissioned officer corps, the following promotion criteria are proposed:

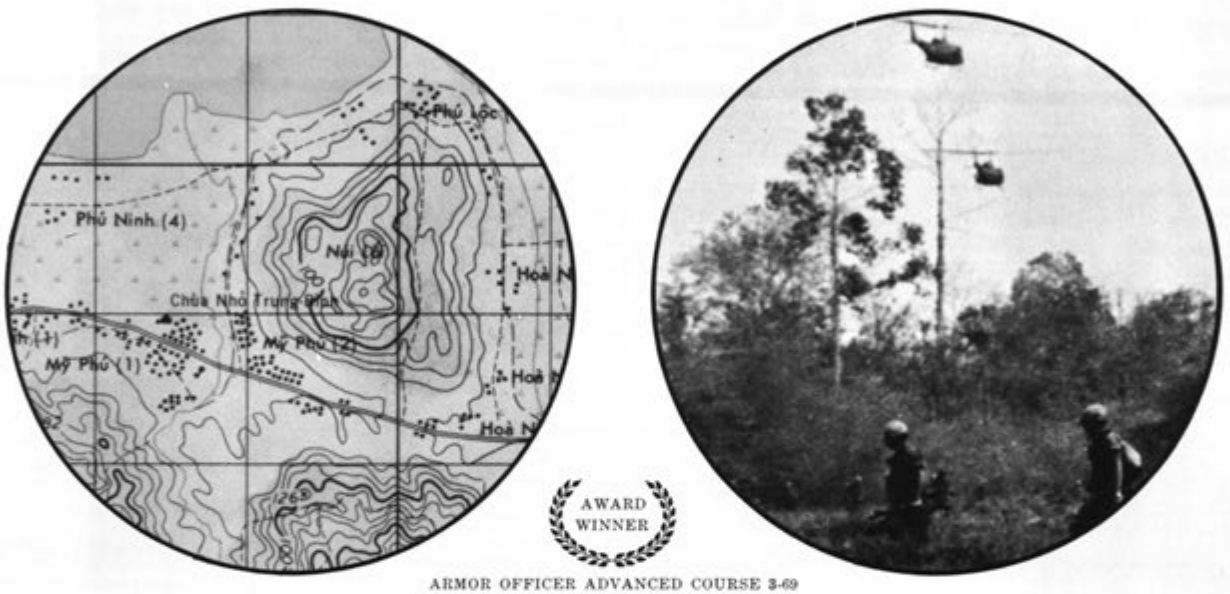
PROMOTION TO:	PREREQUISITE:
SGT	50% of Basic NCO Course
SSG	100% of Basic NCO Course
PSG/SFC	100% of Branch Advanced Course
1SG/MSG	50% of Senior NCO Course
SGM	100% of Senior NCO Course

If adopted, these criteria would demand a standard, continuous military education system for noncommissioned officers. By providing exposure to current doctrine and techniques on a recurring basis, and in a logical developmental sequence, both technical and tactical levels of proficiency would be increased. Finally, the noncommissioned officer military educational requirements would be upgraded to that level required for today's modern Army as it moves forward. The responsibilities of tomorrow's noncommissioned officers will be among the most demanding and challenging within the chain of command. These responsibilities must be prepared for—starting now.

MAJOR DAVID A. NECK, Armor, received a reserve commission in Infantry from The Citadel in 1961. He graduated from the Infantry Basic Course and the airborne and ranger schools in 1962 and was assigned to the 2d Battle Group, 34th Infantry, Korea where he served as rifle platoon leader. In 1963 he returned to Fort Bragg to command a company in the 82d Airborne Division. In 1966 he was assigned as S3 of the 6th Battalion, 9th Infantry in Alaska and received a Regular Army Commission in Armor. He joined the 1st Cavalry Division (Airmobile) in 1967, serving as brigade assistant S3, battalion S3 Air and company commander. In 1968 he returned to CONUS to attend Armor Officer Advanced Course 3-69. He is now a member of the Staff and Faculty of The Armor School.

PINS

You can always tell the English,
You can always tell the Dutch,
You can always tell the Yankees
But you can't tell them much!
—Anon



ARMOR OFFICER ADVANCED COURSE 3-69

by Captain Jeremy H. B. Taylor, Royal Tank Regiment

One of the advantages of an exchange program between one army and another is that one learns more about the army concerned, its equipment and also the methods which it adopts to solve normal everyday problems. Such methods are tremendously useful on return to one's own army where a fresh approach to varying situations can often be applied. As an Allied student at Fort Knox I will take back to my future assignments many American ideas, not the least among which will be instructional methods and use of training aids which are often brilliantly displayed during lectures at the Armor School. However the reason for this article is not to relate what ideas I will take away with me but rather what I can offer in a very small way as an aspect of staff work which we all experience. It is that of map marking.

Whatever level of staff one works on, in whatever NATO army, the marking of maps is an essential part of the life of all four branches of the staff. The NATO Service Committee felt so strongly about ensuring that all member nations understand the various military symbols that they had an agreement on the rules and form they should take, and as a result wrote STANAG 2019 (2nd Edition). This then should be the end of the story. The US Army can understand the British Army who in turn can understand the German Army when reading operation orders, battle maps and overlays. But what a time wasting business it is putting these symbols on a battle map. In a fast moving battle, such as in the

Figure 1 FRIENDLY FORCES

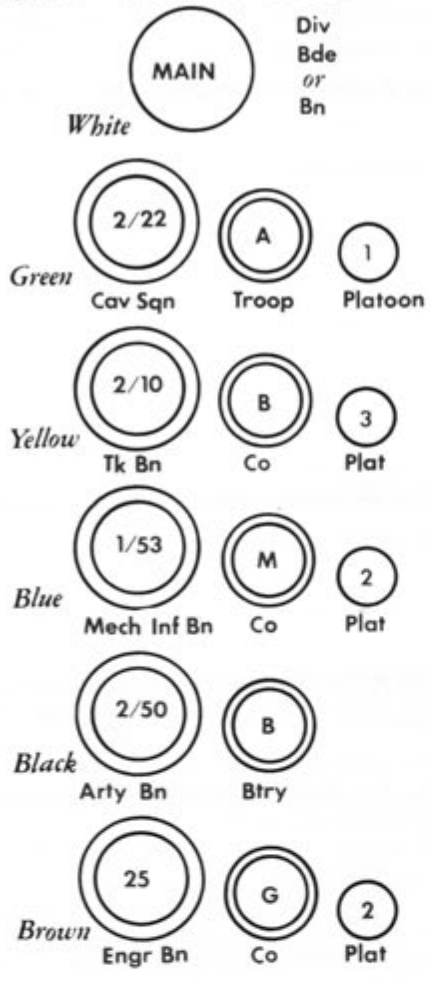


Figure 2 ENEMY FORCES

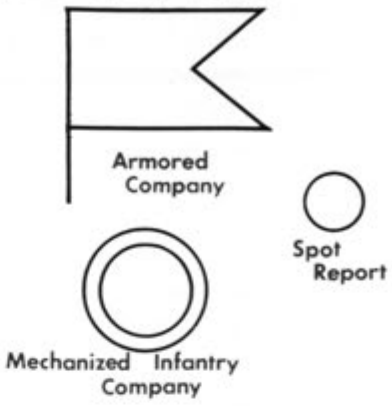
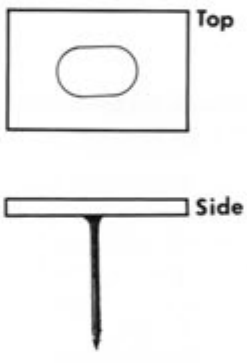


Figure 3 SUGGESTED PIN



advance covering force headquarters in USAREUR when on an FTX against a "powerful aggressor," there is not enough time to neatly move the symbols round a map in such a way that they can be understood by the commander when he comes back from "chow" or even understood by oneself a few minutes later.

I have recently finished working with a cavalry regimental headquarters in Germany where we were continuously "playing" the covering force battle on FTX. Our force normally consisted of two armored cavalry squadrons, several infantry tank company teams and the usual artillery and engineer support. During initial deployment the commander required to know dispositions down to platoon size to ensure every aspect of the plan was covered. When "battle" was joined, the pressure on the headquarters was considerable with continuous spot reports being fed back from the force. Timely, accurate information was essential to both our commander and the corps commander. However despite the pressure of radio traffic to and fro from the command post, we were able to always maintain the battle map with up-to-the-minute information. This was done not by soldiers sitting at the watchkeeper's feet with a grease pencil, but by the watchkeeper himself using map pins.

There is nothing new and nothing very extraordinary about using map pins, but in my limited experience in the British Army and from conversations with American officers, the system is all too seldom used. The pins are stuck into the appropriate grid reference on the map (normally covered with acetate for marking on boundaries, phase lines and objectives) which in turn is pinned on to a soft backing. This backing can be soft board or, as was used in the above example—felt. Felt was found to be best as it lent itself to being formed into a continuous strip which, when fitted to a roller mechanism, was ideal for displaying a large map coverage. There is nothing worse than to have to remove one map and replace it with another in the "heat of battle" because a unit was running out of map! The map could be rolled around to the appropriate area without any

fuss. We found an enormous area could be covered. The felt was some ¾-inch thick which enabled the standard issue map pin to be stuck in without fear of it dropping out.

Now to the pin itself. The pin issued in the British Army is a round pin with variously colored edges around a white center and of varying sizes. This enables one to have a color code for the various units under one's command and a similar arrangement for the various unit sizes. Examples are shown in figure 1. Thus the various units of one's command could be easily identified and moved at will, as the tactical situation dictated.

Of course the enemy must not be forgotten. And as the aggressor is pretty impatient and normally pushing on as hard as he can, the pin technique is also ideally suited to depicting his movements. As one can rarely be certain about his unit identification a color code is not required, the usual enemy color of red is suitable. In this case, though, it has been found that tank and mechanized infantry companies and small unit patrols are normally sufficient to be depicted at brigade level or below. Again, examples are shown in figure 2.

The "purists" may not like this system because a stranger looking at a battle map may not understand immediately the code being used by the particular headquarters. Therefore a standardized system could be used provided the financiers could be persuaded to entertain a small expense. A pin could be manufactured with, instead of the head as described above, a small piece of stiff, transparent acetate. This acetate would be etched or painted with the usual military symbols. A suggested design is shown in figure 3. Again to save some expense, blank acetate pins could be distributed to headquarters and units. These in turn would insert the symbols of their subordinate units at the commencement of an operation.

In my experience there are many advantages of using the pin method of map marking. Speed has already been emphasized. However speed coupled with accuracy in inserting it into the exact unit position on the map is of considerable importance to a watchkeeper, who may be speaking on the radio, briefing the commander, writing the log and keeping up the battle map all at the same time. Pins are far easier to see on a map than grease pencil symbols; unit dispositions stand out which is to everybody's advantage. With pins there is less clutter on the map and, in consequence, a map is clearer to read and to use for such tasks as terrain analysis. The present pins as issued to the British Army are of minimal cost to the taxpayer, and, should the suggested modified pin be manufactured, they would also be very cheap if mass-produced. No inherent military knowledge is required for this system, so a PFC could maintain a battle map without having to look up FM 21-30 every other minute to check on the hieroglyphics for a mobile bath unit of a cargo carrying sledge.

The only disadvantage that has been seriously offered is the suspicion that pins may fall out and then you are sunk! This can be quickly dispelled provided a suitable backing is selected for the map. The headquarters I worked with was continually moving, and whether on roads or cross country our pins never fell out. On the odd occasion when some clumsy second lieutenant climbed into the track CP and knocked out a pin, the log could be checked very quickly to confirm the location and the pin replaced.

All in all I believe that the use of pins in headquarters at battalion and brigade level, if not higher, is of infinite value. Life is too short to start drawing pretty symbols which have got to be accurate, drawn with a grease pencil which is forever breaking and worse, may well have to be rubbed out a couple of minutes later. I recommend the system to anybody about to assume a staff appointment who wants to bring something new and efficient to his headquarters. One might even end up with the tag—oPINionated on the next OER!

CAPTAIN JEREMY H. B. TAYLOR, British Army, was commissioned into The Fifth Royal Tank Regiment in 1960 from the Royal Military Academy at Sandhurst. After five months Young Officers' Training at the Royal Armoured Corps Centre, Rovington, England, he joined his Regiment in Germany. He was a tank troop (platoon) leader for two years during which time he became Regimental Gunnery Instructor. He was then assigned to Berlin as a tank troop leader with the Independent Squadron, Royal Tank Regiment for a further two years. Following this he attended the Long Armour Course at the School of Tank Technology, Bovington, for a year. In 1966, as a temporary captain, he became Adjutant of his regiment from England. This post he held for 20 months. He came to Armor Officer Advanced Course 3-69 at Fort Knox from his regiment, which is presently in the reconnaissance role in Germany.


UPD
NIKON
CBC

MEET THE PRESS

by Captain J. B. Holeman

The news coverage of the Vietnam War is without a doubt the most extensive in history. During this electronic age no longer does the American public have to wait prolonged periods of time to find out how *our boys* are doing. Now the average citizen has only to turn on his television set to hear and to see the latest war news in living color. The war gets unprecedented coverage not only on television, but in all forms of the news media, foreign as well as domestic.

Almost every professional soldier in the Army today has been, is, or will become deeply involved with the making of this news. However, a large percentage of us, while we read, watch, and hear the news every day, know very little about the actual reporting process. Even though most of us have seen civilian correspondents in Vietnam, for the most part we left the handling of the press to *the PIO types back at division.*

When I arrived in Vietnam and was assigned as a cavalry squadron S3 Air, I too felt the same way about the press. However, through a process too lengthy and mysterious to mention here, I became the division interim Public Information Officer. This assignment took place during early November 1967, at a time when Dak To was developing into the scene of one of the largest battles to take place in South Vietnam. As a result, I was instructed to go to Dak To and coordinate the division's public information activities there. As I stepped off the chopper onto the dust covered airfield in Dak To, I saw the still smoldering hulks of two destroyed C130s and the ground covered with shrapnel. I can vividly recall saying to myself, "What the hell am I doing here?"

Undoubtedly, very few readers will ever have the *opportunity* I had. However, as a result of this assignment, it became quite obvious to me that the majority of the members of the professional Army know all too little about dealing with the civilian press. Hopefully, this article may shed some light on this difficult and sometimes controversial subject.

Initially, let us look at the types of newsmen that might visit your unit in the field. As one might suspect, the different personalities of the civilian press representatives are as varied as those found in any walk of life. They range from the highly acclaimed, retired military editor of the New York Times, Hanson Baldwin, through the Pulitzer Prize winning Peter Arnett, to television personalities such as Murray Fromson and Wilson Hall. Included are freelance members of the press who will write or photograph anything to make a dollar, correspondents whose sole purpose is to downgrade the Army and the war. And a voluptuous, thrill-seeking brunette.

It was rumored that the brunette had been in more than 25 firefights, and the first time I met her she had just returned from another. During this engagement, two other male correspondents had gotten frightfully sick to their stomaches, while she calmly assisted the medics as they treated the wounded. Whereas there is some doubt as to how much actual reporting she did, there is no doubt that this member of the press, normally attired in a T-shirt and formfitting blue jeans, improved morale in and around Dak To.

Regardless of the correspondents' personalities, goals or abilities, the majority of them have the following characteristics: aggressiveness, competitiveness, and ambition. For most of them, Vietnam is a choice assignment and they plan to make the most of it. The lengths to which reporters will go to get their stories is lengendary; and, in Vietnam, things are no different. In Dak To the techniques ranged from bribery, to catching one-way flights on medevac helicopters, to the expert use of womanly wiles.

The importance a Vietnam tour can play in a newsman's career is phenomenal. A case in point is

ARMOR OFFICER ADVANCED COURSE 3-69

that of a rather meek-looking, plump, middle-aged correspondent, who worked for a leading news magazine. He arrived in Dak To from the magazine's Hong Kong bureau as a replacement for the regular reporter who was on leave. Through a series of amazing events, almost completely beyond his control, this man ended up being the national correspondent to make the final assault on a hill which had attracted world-wide attention. As a result, he scooped all of the other 40 to 50 newsmen in the area. Quite naturally his story was given tremendous coverage, and within a month after the incident, this man was promoted to chief of the magazine's Paris bureau.

The types of stories the correspondents want vary greatly. But primarily, they want stories which will sell, interest the public, and please their bosses. The majority of the reporters who came to Dak To wanted to go to the scene of the action. However, there were some who wanted hometown interviews, others who were content to listen to briefings and interview the commanders, and still others who were just interested in one small facet of the entire operation.

One example of a correspondent with special interest is that of a reporter from one of the religious publications, who wanted to interview a Dak To chaplain. He chose an elderly Catholic chaplain who had been highly decorated in previous wars. When the correspondent asked this venerable gentleman of Irish extraction what action he would take against the reported build-up of NVA troops across the border, the good Father replied in no uncertain terms, "Sir, I'd nuc the bastards."

While the characteristics and desires of the newsmen vary, so do the problems which they can cause. The major problem in Dak To was occasioned by the large number of people who came to cover the action. During the height of the activity, Dak To averaged about 50 correspondents daily. One day this number exceeded 64. This created many problems, the foremost of which was a lack of ample transportation. Since most of the newsmen wanted to get out in the field, there was a tremendous demand for helicopter support. However, during these same periods there was also an urgent tactical need for these same aircraft. Consequently, the transporting of newsmen had a low priority. As a result, I had numerous members of the press corps just standing by and waiting. Each was eager to persuade anyone who would listen that he had a very special reason why he, rather than the other correspondents, should be flown to a particular area. When our office was given one or two helicopters, they were not enough, and, invariably, someone was left behind to confront me with the charge of favoritism. However, for the most part, the newsmen themselves decided who would go by some type of unwritten seniority code.

Tied in closely with transportation was the communication problem. For a correspondent, it is not enough to have a story, he must get it back to Saigon for it to be of any value. And the sooner it got back the more profitable it was. As often as possible, I tried to send the members of the press back to the Pleiku Press Camp, where there were ample facilities to file their stories. But, there were always newsmen who wanted to stay and file their stories from Dak To. This was almost impossible, as it was difficult just to telephone Pleiku (only 60 miles away), and they wanted to get a civilian number in Saigon (275 miles away).

And just how difficult it was pointed up by the experience of a likable French reporter named Francois. He had been trying to reach Saigon for about four hours. Just as he got the connection, Dak To was hit by a mortar attack. Between incoming rounds, while we were in our well-protected bunkers, we could hear from the PIO tent a heavily accented French voice screaming, "Saigon? Saigon? Saigon are you still there? Damn**??***??*!!!"

Compared with transportation and communication, the problem of room and board was relatively minor. There was always plenty of food and a fixed number of cots. The cots were given out on a first come, first serve basis. Any remainder who chose to spend the night were invited to use the floor. The only real cause for concern in this area was the lack of latrine and washroom facilities for the female correspondents. The general in the area helped alleviate this problem by allowing the ladies to use his more private facilities. This worked quite well until a female journalist used all the general's hot water just as he was preparing to take a shower. Needless to

say, as PIO, I was given some high ranking counseling on scheduling and priorities.

Until now only physical problems have been discussed. However, the final problem area—the soldier's lack of understanding of the civilian press—is just as important and much more difficult to take care of. For the most part, the average officer or enlisted man lacks basic knowledge about what he can or cannot say to the press, and about what the press can or cannot do in military controlled areas. While regulations have been published by Headquarters Department of the Army down to and including most divisions, the majority of the soldiers have never read these or even been briefed on them. Repeatedly, in Dak To, many small and several large problems were caused by this lack of knowledge. Even though the regulations are somewhat nebulous, they do provide a framework within which the average man can react favorably to the press.

Further pointing up this lack of understanding was the military's frequently negative attitude toward the press. Initially in Dak To, none of the officers below the rank of general wanted to talk to, help, or be connected in any way with the civilian newsman. This attitude could hardly be expected to induce the press to write highly favorable articles about the battle. As time went by, knowledge and attitudes concerning the press improved.

But sometimes, regardless of how well the soldier tries, something can go awry. An example of this was that of a brigade commander who gave a very extensive, and in my opinion, excellent, briefing to a group of 20 to 35 correspondents. Prior to that time he had been reluctant to talk to the press, however, upon my request he had agreed to do so. The following day, this briefing was the subject of a front page article in the *Stars and Stripes*. The article, while not unfavorable, did misquote the commander and twist the facts slightly to represent a situation in Dak To that was not really so. As a result, this commander refused to give any more briefings, and I found it increasingly difficult to gain public information assistance from his brigade.

My Dak To experience, limited though it was, taught me several valuable lessons about how to work more harmoniously with the civilian press. First off, we military people should have an adequate knowledge of the rules and regulations governing press activities. Furthermore, we must understand that the reporter works in a highly competitive business and a few use tactics which are not always honorable. We must also understand that there is no way we can govern what the civilian correspondent will write.

Therefore, we must insure that when facts are presented to the press, they are as accurate as we can make them. There are few things worse than the vengeance of a reporter who has been purposefully misled. This one aspect in the relationship of the military to the civilian press, I believe, has done more than anything else to create either a favorable or unfavorable impression of the United States Army.

I have tried to present some helpful thoughts on a facet of the military with which many of us combat leaders have very little personal contact. For the most part, quite properly we are concerned with more conventional military matters. However, the situation takes on a new perspective when, while consolidating the objective, Joe Reporter walks up to you with his TV color camera crew and asks, "How many casualties did you suffer? Do you believe this hill was really worth it?"

In this, and other similar situations, it would pay us all to know everything we can about presenting our Army honestly, accurately and, hopefully, favorably to the American people. It is only through the various information media that such presentations can be made. And these media are represented on the scene by very real human beings just like you and I.

CAPTAIN J. B. HOLEMAN, Armor, was commissioned in 1964 from the United States Military Academy. After graduation from the airborne and ranger courses he was assigned to the 1st Squadron, 3d Armored Cavalry Regiment, Germany where he served as a platoon leader, S3 air and troop commander. In 1966 he returned to CONUS and served as an instructor at the Infantry School. In 1967 he was assigned to the 1st Squadron, 10th Cavalry, in Vietnam, where he served as S3 air. During November 1967 he was assigned as the 4th Infantry Division interim Public Information Officer. In February 1968 he was assigned as Commanding Officer, Company C, 1st Battalion, 69th Armor. In September 1968 he returned to CONUS to attend Armor Officer Advanced Course 3-69. Currently he is pursuing graduate studies at the Georgia Institute of Technology.

SOME CRITICAL NOTES by COL Hugh J. Bartley

For some time, I think, we Armor officers have been so grateful at being invited to what we were once told was an infantryman's war that we have suffered in silence certain misuses of armor in Vietnam. That definition of the Vietnam War and the time for that attitude are both clearly past. Therefore, I find surprising—and rather disturbing—the unanimity of opinion and the over-all sense of satisfaction most authors in *ARMOR* display. The purpose of this article is to coax into the written page some of the discontent I hear over beer, bourbon, or coffee. The comments are totally my own, but the experiences, I feel, reflect those of several squadron commanders.

There have been instances of poor tactical employment of armor in Vietnam which deserve publicity and refutation if we are to avoid their perpetuation there or elsewhere. Perhaps *ARMOR* could serve as repository for some of these. My first nomination is personal: it would tell of the battalion commander who defended his retaining operational control of a grossly underused tank platoon with these words, "I've got to have them. How would we tow the trucks up the hill after it rains?" (Yes, he did succeed in retaining the platoon.)

JUNGLE-BUSTING

This truck-towing example is ridiculous—but true. Yet I submit that it is no more ridiculous than "jungle-busting." The problem is that the latter has somehow acquired respectability. For example, the recent House Armed Services Committee report on the Army tank program comments gravely that the ability of the *Sheridan* as a jungle-buster is not adequate and that the *M48A3* tank is better for this purpose. I saw personally only one example of jungle-busting: four kilometers progress in 16 hours by a troop and attached rifle company. The costs in maintenance (then and later) certainly outweighed the knowledge that a serpentine jungle path a few feet wide might have been temporarily freed of VC. More at fault than the needless maintenance load, however, was the fact that we had supplied prime RPG targets to an enemy on his type of terrain without the likelihood of commensurate profit to our side.

I do not degrade the role of armor in the support of infantry. But neither do I think we should turn a blind eye to the limitations of our equipment. There is nothing wrong in being known as the arm that can keep the enemy in the jungle—and this is something we can do well. Jungle-busting by armor should be considered the aberration that it is.

UNIT INTEGRITY

There is the story—I hope it's apocryphal—of the squadron commander in Vietnam who was charged by his division G3 with ten simultaneous missions for his nine platoons. This staff officer had been matching up nine platoons with nine maneuver battalions for so long he became careless this particular day. He was one of the subdividers who have, I feel, detracted from armor operations.

I can vouch for the troubles of one particular troop commander who spent a long night simultaneously fighting VC and fending off efforts (by the US advisor to the ARVN unit he was assisting) to split his platoons into two, three, or more parts. The command situation, not the tactical, became so critical that I interceded to sustain this troop commander's refusal to shred his unit. His troop won a Distinguished Unit Citation for that night and the following night's fighting—if he had consented quietly to sending out his force in penny packets, it could not have done the job. In another instance, a platoon was OPCON more than 50 nontraversable kilometers away from its parent troop for more than a month. It took almost that long to put the platoon back together after its return. Here again, it was the near rebellion of the troop commander that finally secured its return.

My aim here is not to encourage dissidence among troop commanders. Neither is it to insist that a war should be fought to satisfy the orthodoxy of its squadron commanders. My goal is rather to encourage better education as a means of avoiding the problem. LTC Scott Riggs in his article in the May-June 1969 *ARMOR* gives some excellent advice on

how a tank company can cope with some aspects of this problem—I feel we can avoid a good part of it.

All these subdividers are good officers and successful graduates of the appropriate service schools. They would never think of requesting infantrymen by number rather than by tactical unit. Neither would they split a battery (before Vietnam, they would not even have split an artillery battalion!). But Armor seemingly has not sold well, in the service schools, its case for unit integrity.

It should start now at Benning, Sill, and Leavenworth. Armor instructors at these schools need to get across the points that the armored cavalry platoon is practically indivisible, that armored cavalry platoons should not be detached for longer than three days (or a week at the most), and that armored cavalry troops should not be detached for more than a fortnight (or a month at the most). If they can convince their students that the costs of violating these precepts will outweigh the benefits, they will have done future squadron commanders a service.

MINES

Armor officers have been too complacent about countermine activities—and I include myself among the guilty. We have accepted stoically no progress, or little discernable progress, in counter-vehicular-mine activity for years. I feel sure that somewhere in the Army there is a dedicated group of men bringing the latest scientific techniques to bear on this problem. There always has been. But while awaiting these new devices, armor employers stand mute. I cannot find that we have even pushed for the return of the primitive anti-mine tools (the roller, the spiked roller, and the flail) of World War II. Instead, we operate at the speed of a dismounted sweeper—or lead with a tank and stock up on road wheels and track blocks.

There must be a better way and, as dissatisfied customers, it is time we began clamoring for it. My Corps of Engineers friends (whose number will probably shrink with the appearance of this article) seem far more interested in roads and bridges than in counter-vehicular-mine activities. And since we have been so docile, there is really no reason why they should move out on our problem.

The aim of this article is to prime the writing pump. I do not expect—or want—to banish success stories from the pages of *ARMOR*, only to encourage the appearance of some bitter lessons with the sweet. There are some, and they are at least as educational as the "that's us in the white hats" stories.

COLONEL HUGH J. BARTLEY, Armor, graduated from USMA in 1947. Since then, he has commanded a reconnaissance troop, two tank companies, an amphibious tank company, and two divisional cavalry squadrons in Germany, Korea, Japan, CONUS, and Vietnam. He is a 1967 graduate of the Naval War College and is presently assigned to Headquarters, Department of the Army.

French AFV Design Stays Out Front

by Richard M. Ogorkiewicz

From the very beginning France has been in the forefront of the development of armored vehicles. As a result she has occupied a leading position in the field of armor. This position is being maintained by the continuous development of new armored vehicles. Several of these have been revealed recently.

A short time ago the writer had an opportunity to study these developments during a visit to the Atelier de Construction d'Issy-les-Moulineaux (AMX), the French Army's equivalent of the U. S. Army Tank and Automotive Command (ATAC), located at Satory near Versailles. It is opportune, therefore, to take another look at the evolution of armor in France and to report on the vehicles developed there since an earlier visit to Satory and the French Armored Cavalry School at Saumur, which prompted the article "French Armor" in the September-October 1966 issue of *ARMOR*.

AMX30 BATTLE TANK

The most important of the current generation of French armored vehicles is undoubtedly the *AMX30* battle tank. This is now in service with French Armor and its production is continuing.

The general characteristics of the *AMX30* are already fairly widely known but it is worth recalling that it is one of the world's lightest battle tanks. In fact, the current production version weighs only 36 metric tons, or 79,000 pounds. Its light weight combined with the 720 bhp maximum output of the Hispano-Suiza *HS110* diesel gives it a very high power-to-weight ratio. The light weight also accounts for its ground pressure of just under 11 psi. All this makes the *AMX30* highly mobile on and off the road. Operational mobility is further increased by its being designed for submerged fording with a minimum of preparation.

The main armament of the *AMX30* is unusual in that it consists of a 105mm gun which fires the *OCC105F1* shaped-charge shell as its one and only antitank round. In this shell the shaped charge is mounted in ball bearings to minimize rotation and thereby to prevent degradation of its performance by the spin of the shell body. In addition, the gun fires more conventional high explosive shells. The fire control system incorporates a coincidence-type rangefinder and the gun tube is fitted with a well engineered thermal shield which reduces tube bend

and thus maintains the accuracy of the gun.

The mounting of a coaxial caliber .50 machine-gun or 20mm automatic cannon is also unusual in that these can be elevated independently of the main armament, if required, to as much as +40 degrees. This feature makes it possible to use the coaxial gun against helicopters or low flying aircraft. For close-in defense there is a 7.62mm machine gun on top of the commander's cupola. The cupola fitted to the tanks produced for the French Army is higher than that of the basic model but offers exceptionally good all-round vision, better than that of almost any other tank.

AMX30 DERIVATIVES

The successful development of the *AMX30* battle tank has now been followed by that of supporting and other vehicles based on the same chassis.

One of these vehicles is the *AMX30* recovery bulldozer tank—a type of vehicle which is also being developed in other European countries based on their battle tanks. The recovery tank has no gun turret but, instead, it has a box-like superstructure and is fitted with a powerful, hydraulically operated winch capable of exerting a pull of 80,000 pounds. Additionally, there is a second auxiliary winch with a maximum pull of 3400 pounds.

The recovery tank also has a crane capable of lifting a 22,000 pound load and of being rotated simultaneously. Or it can lift a 34,000 pound load when jacked up. One of the main functions of the crane is to remove or replace a complete power-pack of the *AMX30* tank family. Interestingly, the recovery tank has been designed to carry one replacement powerpack.

In addition to the winches and the crane, the recovery tank is fitted with a bulldozer blade hydraulically operated from within the vehicle. Like the basic battle tank model, the recovery tank is manned by a crew of four and has the same excellent commander's cupola with a 7.62mm machinegun. Its weight of 36 metric tons is also the same as its battle tank counterpart. However, when fully laden with replacement units its weight rises to 40 metric tons, or 88,000 pounds.

Another derivative of the *AMX30* battle tank is the *AMX30* bridgelayer. This too has a box-like superstructure in place of the gun turret of the basic battle tank and it carries a hydraulically operated scissors type bridge. The bridge has a total length of 72 feet when fully extended. When folded, the length of the bridge, which is also the overall length

(Top) The basic AMX30 bears an unusual 105mm gun. (Middle) The AMX30 Recovery-Dozer. (Botton) An AMX30 bridgelayer unfolds.

AMX10A amphibious infantry combat vehicle.

of the bridgelayer, is 37.5 feet. The bridge has a nominal load-carrying capacity of 110,000 pounds and itself weighs 17,800 pounds. The bridgelayer tank without bridge weighs 72,000 pounds. The great advantage of this type of equipment is, of course, that it can bridge a gap quickly and without anyone leaving the protection of the vehicle. Similarly the bridge can be picked up and folded onto the bridgelayer without its crew exposing themselves.

Like the *AMX30* recovery bulldozer tank, the *AMX30* bridgelayer is at present undergoing trials in prototype form. Other vehicles based on the *AMX30* chassis are also being developed. They include a mobile launcher for the Pluton tactical nuclear missile system which is currently under development for the French Army.

AMX10A INFANTRY VEHICLE

One of the most interesting of the recently revealed French armored vehicles is the *AMX10A* amphibious infantry combat vehicle. Its general configuration and characteristics are similar to those of the U. S. M113 armored personnel carrier. However, the *AMX10A* is not only amphibious but it has also been provided with two water jet propulsion units. As a result it does not have to rely on its tracks for propulsion in water and is much more maneuverable, as well as faster, afloat. On the road its 250 bhp water-cooled Hispano-Suiza diesel gives it a maximum speed of 40 mph.

Another important advantage of the *AMX10A* is that it has a turret designed to mount a 20mm automatic cannon. This cannon is mounted externally but is fired from within the turret so that the gunner does not have to expose himself. The most important consequence of the 20mm gun installation is that the *AMX10A* can fight other light armored vehicles.

Including the turret gunner and the driver, the *AMX10A* can carry a total of 11 men. Fully laden it weighs 28,000 pounds. At present its development is at the stage of prototype tests which are being conducted by the French Army. In due course its appearance will be followed by that of other light armored vehicles related to it.

PANHARD ARMORED CARS

Panhard *AML* light armored cars which were described in detail by the writer in an article in the November-December 1967 issue of *ARMOR* continue to be produced. The number of countries which have procured them has now risen to 15, including France. This is as many as the number of countries which have earlier procured the highly successful *AMX13* light tank, although most of the countries in the two cases are different.

The success of the *AML* and the continued interest throughout the world in wheeled armored vehicles have now prompted the development of new vehicles based on the *AML*. One of them is the *AML-VTT* four wheeled armored personnel carrier.

Because its functions are different, the *AML-VTT* has a different configuration from that of the basic *AML* armored car. In particular, it has an entirely different hull which is designed to accommodate up to 12 men, including the driver. The engine location

Panhard AML-VTT armored personnel carrier.

is also different, being behind the driver, instead of at the rear of the hull. The wheelbase is also somewhat longer and the wheel track wider. Yet, in spite of all this, the *AML-VTT* has been so cleverly designed that 95 per cent of its components are the same as those of the *AML* armored car. This very high percentage of common components offers obvious logistical and operational advantages to those forces which have already procured the *AML* armored car. The *AML-VTT* is, in fact, a natural complement to the *AML* armored cars whether they are used for reconnaissance or security roles.

The *AML-VTT* also has at least one important advantage over the basic *AML* armored car, namely a hull which is sufficiently large in relation to its total weight of 12,600 pounds to make it float in water. Another important feature of the *AML-VTT* hull is its four large doors which ensure rapid exit or entry for its crew. Two of the doors are at the rear, as in a number of other armored carriers, but in addition there is also a large door in each side of the hull.

Another new development of the *AML* series consists of an antiaircraft armored car, the *AML S-530*. This vehicle illustrates the world-wide revival of interest in mobile antiaircraft automatic weapon systems. In this case the weapon system amounts to two 20mm automatic cannon in a new *Panhard/SAMM* turret which is mounted on the hull of the *AML* armored car.

Panhard AML S530 twin 20mm antiaircraft armored car.

Berliet BL12 amphibious armored carrier.

BERLIET AMPHIBIOUS CAR

A different type of wheeled armored vehicle has been brought out in prototype form by Automobiles M. Berliet, the leading French heavy truck manufacturers. This is the berliet *BL12*, a relatively light, amphibious armoured vehicle capable of carrying up to 12 men, including the driver, but adaptable also to roles other than that of an armored personnel carrier.

The designers of the *BL12* have aimed at simplicity and have, therefore, contented themselves with such conventional design features as rigid beam axles. However, to ensure a high level of performance in water, the *BL12* is fitted with two water jet propulsion units. These greatly enhance its performance in water and make it better able to act as a reconnaissance vehicle. It also has the advantage of not requiring any preparation for crossing water obstacles since its hull is sufficiently large in relation to its total weight of 22,000 pounds for it to be inherently floatable.

At present, prototypes of the *BL12* are being tested by the French Army which has promoted its development.

As can be seen from this overview, the French Army maintains an active interest in the development of advanced armored equipment. And, most significantly, it continues to encourage this development activity.

RICHARD M. OGORKIEWICZ, British engineer, is a member of the Department of Mechanical Engineering, City and Guilds College, London. His latest book ***Design and Development of Fighting Vehicles*** (1968) has established itself as a definitive treatise on the state of the art. This is Mr. Ogorkiewicz's 49th article for ARMOR, his first appearance therein having been made in the first issue under that title.

ARMOR NOMINATIONS FOR LIEUTENANT COLONEL AUS

#Adams, Eural E Jr	3314	Cisco, Robert N	1455	#*Finch, Arthur L Jr	1959
Ainsworth, Robert L	1337	#Clark, Gary L	2409	Fisk, Stanleigh K	0276
*Altier, Robert E	3814	Clarke, Ronald G	2775	#Fleming, Jerry	2538
Andreachio, Nicholas	2466	Coffman, Richard L	1248	Focer, Samuel W Jr	2948
#Andree, Robert G	0905	Conneely, Martin F X	0583	Fortini, Michael R	2046
Armstrong, Hart R	2426	Conrad, Hawkins M	2922	Frederick, William	0791
Arney, Robert D	0949	Cook, Richard A	0978	Friend, William N	2908
Atkins, Marshall F	2303	#Cooper, Frederick E	1585	Gale, Edward W	2914
Banister, Charles M	1759	#Cooper, Gordon D	2691	Gates, Joseph E	2223
Barrett, Reid A	0859	Cooper, Jack B	2916	Gaw, Stephen T	3093
*Bartlett, William E	3636	Cooper, James A	1647	Geer, Raymond E	1288
Beasley, Benjamin	2904	Cortez, James J	2927	George, Ellsworth P	0716
#Bedsole, William K	3212	Counihan, Jeremiah	0581	#Gilmer, Charles T	1712
Bell, Raymond E Jr	2898	Cox, Milburn D Sr	0490	*Graf, William S	3684
Betters, Richard B	3313	Cox, Sammy T	1950	*Graves, Gary P	3677
Biberstein, Billy J	2299	#Crants, Doctor R	1473	Greenway, John R	1957
Binkley, Clarence A	2489	*Craven, Ronald E	3795	Grimes, Charles W	2151
Birt, Charles J	0502	*Crawford, Cecil M	3634	Hagan, Jerome D	2810
#Bisping, Jack F	3166	Crisp, Robert R Jr	2634	Hammer, Theodore W	2490
Boehme, James A	1976	Crocker, Barbara A	2077	Hancock, James H	2861
Bolduc, Robert A	2072	*Crow, John S	3807	Hanks, James W	1829
Borgman, John D	0570	Cullen, James F	0633	Harkins, Thomas P	1962
Borgstrom, Richard	3186	#Cummings, Willie E	1830	Harrer, Lee J	1434
Borst, Arson W	3302	Cutler, Francis E	1402	Harring, Anthony U	3127
Branch, John H Jr	0661	De Frese, Thomas G	2304	#Harris, Bryan	3281
Brice, Charles S	0238	Dean, Kenneth L	0999	Harris, Compton T	1780
Britt, Albert S	2939			Harris, James A	1808

*Secondary Zone #Army Aviator

ARMOR BOX SCORE

OVERALL

	CONSIDERED	SELECTED	% SELECTED	SECONDARY ZONE SELECTED
Armor	367	296	81	27
Army	4361	3082	71	193

FIRST TIME CONSIDERED

	TOTAL	SELECTED	% SELECTED
Armor	328	286	87
Army	3689	2960	80

ARMOR AVIATORS

	CONSIDERED	SELECTED	% SELECTED	SECONDARY ZONE SELECTED
Overall	59	51	86	—
First Time	55	50	91	7

Broadway, Joe D	2275	Deitz, John H	3251	Hatcher, Robert T	1958
#Brock, Jeffrey D	2833	*Distefano, Herbert	3658	Hawks, Robert C	1443
Brown, Richard A	0627	Dixon, Willard A Jr	2780	Hayes, John M	2359
Brudvig, Dale K	3073	Dodds, Jerold R	1720	Hefford, Robert A	3390
Buck, Champlin F	2887	Dollarhide, Thomas	1531	Hendricks, Thomas E	0318
Budd, Alexander S J	2216	Dozier, James L	0805	#Hereford, David E	0642
#Burbank, Robert A	0335	Dunegan, Walter L	0383	Hoagland, Merton B	3216
#Burroughs, Leonard	3571	#Eady, Connie D	3563	Honore, Charles E	2291
#*Burrow, George D	3645	Ellefson, Ronald J	1532	Hopkins, Richard K	3292
Bushee, Jesse R	0173	#Emrick, Charles W	1084	Hoyt, Richard E	2414
Bussiere, Richard T	3242	Evans, Walter C	2210	Huff, Jerry H	0845
Butler, Frank C Jr	0337	Farlow, Walter C	0166	Huggins, Charles B	1632
Butterworth, Frederick	3247	Feeney, Richard L	1184	#Hughes, Jimmie T	3204
Campbell, Donald M	3393	Filbert, Frederic J	0700	#Humphries, Charles	1045

Hutter, James L	0404	Messer, Hollis D	0461	Shimek, E Joe II	2890
*Hutton, Cuthbert P	3772	Miller, Leonard L	1718	Short, William L	0417
#*Ivey, Herman V	3786	#*Moore, Charles L	3821	#*Shrader, Cecil L	3826
Jarrett, George H	0389	Moser, William R	2851	Sinclair, Allen B	0751
Johns, Robert N	2968	Mosley, Sammy K	1103	*Smart, Donald L	3784
#Johnson, Edward H	3324	Muenter, William T	2281	Smith, Carl G	0664
Johnson, Harry T Jr	2743	Munro, Robert D	1828	Smith, James A	0339
#Johnson, James C	2360	Myers, Samuel L Jr	1361	Snow, Don F	0734
Johnson, William V	0405	Nader, Walter E	2846	Solseth, Harold L	2424
Johnston, James W	2569	#Napier, Wallace R	2310	Sova, Frederick W	2317
*Jones, James H	3675	Neighbors, James D	0744	Sowers, William R	2932
#Judy, Jerry E	2247	Nelson, Charles H	1478	Springstead, Bertin	0650
Junker, Richard D	2531	Newell, Edward W	3517	Stedron, Charles J	0370
Kaiser, James B	2923	Nicholson, Robert K	0838	#Stewart, Frank S Jr	1765
Kalan, Matthew P	1706	#Nielsen, Kenneth G	3525	#Stewart, Robert J	0137
*Kanarowski, Stanley	3771	Norris, James H Jr	3609	#Stipe, John W M Jr	1838
#Kearney, John J	0641	#Oberg, Robert E	0573	Stokes, William M	0984
Kelley, Charles R	2673	Orr, Norman E	2115	#Stone, Gordon L	1967
Kemper, Donald B Jr	0945	Pace, Donald L	0988	Storms, Robert N Jr	1271
Kidd, Stewart R	2293	Palmer, Arthur J	3605	Summers, Richard A	1745
Kirkwood, John H	2306	Palmer, Arthur N	3128	#Swan, Valentine A	1494
Knight, Roger P	1753	#Palmertree, Tommy R	2246	#Swindell, Brennon R	1710
#Kotulan, Adolph F	1495	Parker, Charles R	0797	Talbot, George T Jr	2421
Kresse, Milton Jr	1395	#Parker, James R Jr	1714	Tamminen, David L	2353
La Fosse, Hallet L	0508	Parker, John C	1424	Taylor, Emmett K Jr	0612
*Laabs, Robert G	3696	Parker, Richard G	1080	Taylor, Jerry W	1480
Laakso, Charles L	0729	Parks, Donald	2123	Taylor, Robert J	2643
Lamonte, Robert S	2498	#Pierce, Fred W Jr	1625	Tedesco, John J	3595
Lane, Ralph B	3066	Pierce, Stanley L	3246	Thomas, Peter C	2349
Latturner, George J	2365	*Pihl, Donald S	3799	Thompson, Chadwick	3171
#Laughinghouse, John	1711	Plant, Robert A	0309	Thompson, William E	2769
Le Roy, Paul S	1549	Poole, Charles E Jr	0815	Thornhill, Ted O	0367
Lee, Walter T	2529	Price, Roger J	1198	#Thornton, Olen D	1265
Lehner, Scott J	1944	#Price, Roy C Sr	3156	Tilly, Clyde C Jr	2226
#Leins, David V Jr	3276	Prinz, Merle E	0655	#Toolson, John M Jr	2271
Lemons, Robert L	3560	Prokopowich, Lucien	1462	Turain, George A	0279
#L'Hommedieu, Richard	3456	Prossor, John E	2418	Undercoffer, John T	1966
Liles, Michael S	2524	Quirk, Edward T	1740	Vierra, Victor S	2688
Lindholm, Tom L	0029	Rainey, Ellis C Jr	2363	Vining, Calvin D	1414
Loffert, George U	0817	Redman, Philemon A	1450	Vockery, William L	3162
Lorix, Richard E	0485	Reichelt, Eric F	2468	Wade, Merle L	2674
Lyerly, Virgil T	2842	Rhein, John H	0425	Wages, Jerry S	0310
#Lyman, Scott T	0514	*Richardson, Charles	3819	#*Walton, Warren J	3733
Mac Lean, Bruce D	3590	Riedl, William H	3087	Ward, Philip R	1431
Madole, James E	0497	Robers, Alfred	2292	Waring, Mowton L Jr	2657
Maloney, James R	0195	*Roche, William H	3730	*Weber, William J	3735
Markanton, John E	0223	#Rodriguez, Albert F	1398	#Weeks, Jimmy D	2741
#Marshall, Richard H	0620	Rogers, Gordon B Jr	2897	Weiskirch, Thomas N	0261
Martin, George J	1812	Roller, Robin J	2876	Weiss, Donald	1642
Martin, Robert D	1451	Rowlands, David L	2390	Werner, Gary L	0311
Mastropasqua, Domen	0350	Rushton, Richard T	1263	Westcott, William C	2104
Mc Bride, Eugene R	3094	Rutherford, Frank E	3332	Wilder, Allen S Jr	2214
Mc Callum, Gene R	2294	Rybat, Edward S	1663	Willard, Ralph F	0231
Mc Clain, James D	3325	Sain, David B	1964	Willette, William P	1821
Mc Connell, Bruce D	2798	Sammons, John R	2645	Wilson, Donald L	0073
Mc Coy, Guy D Jr	2060	#Sanders, Burnett R	0331	Wilson, Gordon E	3174
Mc Donald, Francis	3347	Sanders, William C	0686	Wiser, Robert M	1255
Mc Dowell, Grady E	2295	Schaffner, Alfred C	1751	Wolfe, Robert A	1095
#*Mc Gee, William H	3646	Schoonmaker, Marshal	0798	Wood, Billy B	2686
Mc Gowan, Richard M	2366	Schutzmeitster, William	2413	#Wood, Douglas J	1493
Mc Kinley, Martin E	1952	*Schwartz, Paul R	3769	Woodroof, Robert R	0058
Mc Kitrick, Thomas	3418	Schwoppe, Edwin G	2364	Worthy, Thomas C	1596
Mc Laughlin, James	1088	Sedgwick, Clyde N	3175	Wright, Billy J	0636
#*Mc Manus, James T	3613	Sedillo, Carl D	0159	*Yeosock, John J	3808
#Mc Pherson, Robert	1479	Setser, Frederick	0766	Young, Ray A	0718
Meadows, James S	3599	Shelton, Samuel W	0263	#Young, Richard B	2397
Messer, Duane A	3607	Shepard, James C	3306	*Zeltman, Ronald W	3713

DLP

THE ARMOR SCHOOL'S LINK WITH THE FUTURE

by Colonel Albert F. Ahrenholtz

In the 1962 reorganization of the Army, responsibility for combat developments and doctrinal literature was transferred from the Continental Army Command to the newly formed Combat Developments Command (CDC).

The loss of service school participation in the research and development efforts of the Army had a profound effect on the ability of the schools and CONARC to influence new developments. In addition, the wealth of knowledge, experience, and general expertise of the instructors and staffs of the service schools and CONARC was lost to the Army's R&D programs. To restore the loss a Directorate of Doctrine Development, Literature, and Plans (DLP) has been organized at most of the service schools.

The Army Materiel Command is responsible for the research, development, testing, and procurement of equipment for the Army, while the Combat Developments Command is responsible for the development and testing of tactical doctrine. CONARC's responsibilities rest mainly in the training and training device area as well as in the development of tactics and techniques of employment. In the case of armor, the Armor School teaches tactical doctrine developed by CDC and is the primary agency for teaching the operation, use, and maintenance of the hardware employed by Armor units; however, the mission of the School is considerably broader than the conduct of training and instruction. The full mission assigned to the Armor School is:

- Prepare selected officers and enlisted men to perform capably in peace or war, with emphasis on the art of leadership and the responsibility of command; the tactics and techniques of armor; and the equipment and weapons of armor.
- Participate in the development of armor doctrine, organizations, personnel MOS requirements, and materiel to support mounted combat.
- Develop tactics, techniques, and procedures for the application of armor, armored cavalry, air cavalry, and other mounted combat organizations.
- Prepare armor Army-wide training literature and documents to support the instructional mission and needs of the Army in the field.

The instructional departments of the Armor School are the primary agencies for the accomplishment of the first part of the School's mission, while the Office of DLP, working closely with the instructional departments and the Army's R&D structure, is responsible for coordinating the remaining parts of the mission. In this way, the practical expertise of the instructors and staff of the Armor School and the technological knowledge of the research and development agencies are blended into a more efficient and effective whole. The Office works with many developmental agencies in pursuit of the common goal of ensuring that the United States Army remains the best equipped, trained, and supplied ground combat force in the world.

To illustrate DLP's part in this common goal, we will follow a hypothetical example of an historical development in military history—the use of the long bow by the English against the French Knights at the battle of Crecy in 1356. The dialogue takes place among the officers of DLP late in 1356.

Plans introduction of new equipment into the training base.

COL A: Well, I can see that our work has paid off—I have just received the "Operational Report of Lessons Learned" from the engagement at Crecy earlier this year. King Edward is pleased with the outcome.

LTC B: Well, I'm glad to hear that after all the work we did getting our training package worked up and implemented.

In order to best perform its part of the mission of the Armor School, the Office of DLP is organized into an administrative division, and three functional divisions: Doctrine, Materiel, and Literature. In brief, DLP's functions are:

- Coordinate and review armor doctrine and materiel development.
- Monitor formulation of new training programs, devices, and literature.
- Supervise preparation of proponent training literature.
- Maintain liaison with outside agencies.
- Supervise development of armor MOS tests.
- Advise on integration of new equipment into training.
- Conduct studies.

Comments on basis of issue and developing the training base basis of issue.

COL A: Yes, when we first got word that the Bowmaker's guild in Wales had a proposal that was being considered by Materiel Command and Combat Developments for possible use, we set up the briefing for the Commandant so that a Center Team position could be coordinated and established. The academic departments' comments on our analysis of the doctrinal and training aspects of this bow were especially valuable, except that the Arms Department kept insisting that everyone *be armed with it. I'm glad that was changed—the cost and logistical implications would have been fantastic!*

The Office of DLP provides the Secretary of Armor who is recorder for the Armor Panel. The Panel fulfills the role of implementing the Center Team Concept.

The title of "Studies Division" might more appropriately describe the work of the Doctrine Division. The division is usually the first to obtain knowledge of a new concept, as these concepts normally appear in the form of a study.

Coordinates with agencies outside the School. Review combat development studies from training viewpoint.

MAJ C: Yes, I remember when we first got the guild briefing on the bow—they made it sound like the greatest thing since canned beer —and that hasn't been invented yet. The Combat Developments studies on the thing were fantastic, too, though I must admit that they proved to be remarkably accurate. The Concept and Producibility studies weren't too bad, but the Phase I and II Derivative studies were out of this world! Phase III was the winner, however, and took the sting out of the tradeoffs we had to make. I still wish we hadn't lost all those pikemen, though.

This division also reviews interservice and international agreements, determining their impact on the instruction conducted at the School, as well as their overall impact on armor.

Conducts studies as directed.

MAJ D: Well, MAJ C, at least you got to

take all those trips to Cardiff, Swansea, and Calais—the trip to Bournemouth must have been great, but I'm just as glad I didn't have to accompany you on that trip to the Scottish border—that theatre is inactive now, but it's cold, and they do still have some raids every now and then.

MAJ C: Well, I did enjoy the trips, but they sure took a lot of time away from the Armor, Weapons, Mount, and Forage for Knights in the Field Requirements Study, Phase III (AWMAFFKITFRS III).

The conduct of studies is, at present, the source of the greatest workload. An example of this task is the accomplishment of the CONARC portion of the Department of the Army directed Tank, Antitank, and Assault Weapons Requirements Study (TATAWS III). To date, four man-years of effort have been spent on the study by Doctrine Division alone. The results of the School effort will assist the training base in the integration of new tank, antitank, and assault weapons into the Army.

The officers of the Doctrine Division often attend conferences including some with international agencies. The information exchange at these conferences keeps the School abreast of current and future developments. Additionally, the division often provides representation and membership in Department of the Army work on study groups.

Attends international conferences as directed. Participates as directed in New Materiel Introductory Briefing Teams.

COL A: Well, I understand some of our allies are also interested in the longbow.

MAJ C: Yes, sir, and there will probably be changes in our standardization agreements. At our bipartite conference with the Hapsburgs, they indicated an interest. I may have to go over there or to the outpost in Naples with the New Materiel Briefing Team to give them an orientation.

Another of the functional divisions of DLP is the Materiel Division. This division serves as the principal advisor to the Director on all matters pertaining to equipment development; monitors, primarily from the standpoint of training, the development of new hardware of interest to Armor; and plans for the smooth introduction of new equipment into the Armor School.

Reviews new equipment from training aspect, both user and mechanic.

MAJ D: You know, when we reviewed the initial planning for this bow, we really had to go some to make sure we could train people to operate and maintain the thing. The Project Manager wanted to use a bow string of bear sinew that required daily applications of goose grease. The goose grease wasn't too bad, but bear sinew is a difficult thing to get in some areas. The hempen twine and beeswax have provided a significant improvement in maintainability, and we haven't had any problems with the troops using the wax as a ration supplement as our test unit did with the goose grease.

Reviews QMR's and SDR's.

CPT E: You know, sir—that small development requirement for a bow cover we commented on saved the day—when the French crossbowmen finally got in range, they were ineffective due to their slow rate of fire and wet bowstrings.

Prepares SDR's for training devices.

MAJ D: Yes, and the conduct of fire trainer we recommended also helped our accuracy. You have to admire those French Knights though—they made fifteen consecutive charges into a wall of arrows and each of the arrows was capable of penetrating the heaviest known armor breastplate, at ranges unheard of up to now.

Reviews technical manuals and ancillary equipment.

CPT E: Yes, sir, and that maintenance package we commented on really helped, too—I notice that our suggestion for a bowstring tension tester was adopted and significantly improved the accuracies possible. The simplified quiver helped, too, by increasing the sustained rate of fire.

In summary, the Materiel Division provides the Armor School with a greatly expanded capability to monitor and influence the development of new equipment. Perhaps the most important job of the division is keeping the developers and producers of new equipment aware of the individual soldier—the man

who will have to operate and maintain any new equipment that comes into the Army inventory—and insuring continuing awareness that the best piece of equipment is useless if we cannot train individuals to use and care for it.

The Literature Division is responsible for the School's portion of the Department of the Army training publication program and coordinates the review of training publications prepared by other agencies for their impact on armor training.

Coordinates preparation of DA training publications for which Armor School is responsible.

MAJ F: You know, I'm pleased at the way our MOS Subject Schedule worked out—we wrestled with the trade-off between archery practice and foraging time. We couldn't cut out any of the hours of pillaging and burning instruction at all.

Monitors Armor School publications.
Answers correspondence pertaining to training literature.

CPT G: Well, the training circular we had didn't do so well, though—it was OK within the School with qualified instructors, but when the first units equipped tried to use it until the Field Manual was published, we got a flood of correspondence in asking questions.

Mr. H: Well, the questions we got on that portion of the Archer's Proficiency Tests were pretty hot, too—I'm still analyzing the responses to the questions for validity and discrimination.

Currently, there are 83 DA training publications for which the Armor School is responsible. These include applicatory field manuals, nonequipment technical manuals, DA training circulars and pamphlets, army subject schedules, army training programs, army training tests, graphic training aids, and reserve officers training corps training literature. All of the publications are concerned with the tactics and techniques of employment of armor, armored cavalry, and air cavalry units.

Plans publication of changes to current manuals.

CPT G: In reviewing lessons learned from the battle, the Arms Department has developed some techniques we should try to get into the next Field Manual revision, too.

"The training circular we had didn't do so well . . ."

Supports Armor Magazine.

Mr. H: Also, I think we need to write a "How Would You Do It?" article on the wax substitute we used when we ran out of funds last year.

In acting as the local representative of *ARMOR* Magazine, the Literature Division provides assistance to individuals at Fort Knox desiring to submit items for publication in *ARMOR*. This function includes the preparation of short newsnotes for "Armor Center Innovations" and monitoring the preparation of "How Would You Do It?" articles.

The three functional divisions of DLP are supported by an Administrative Division which provides clerical and other administrative assistance and is responsible for the maintenance and security of the classified files.

LT I: By the way, Colonel—I have a letter here that just arrived from a Mr. Standing Buffalo, who says he is a "Medicine Man," whatever that is—he's in some place called "The Dakota Territory." He states an interest

in our bow, because one of his future descendants, named "Sitting Bull," will have need of it at "The Little Big Horn" if they don't get enough repeating rifles. Who should get this action? What's a "repeating rifle," anyway?

COL A: Since it's from a civilian, you had better refer it to the School Information Officer —he'll know what to do with it.

Coordination is the keynote within the Office of Doctrine Development, Literature, and Plans. Constant coordination internally with the Army's research and development community and with other service schools and agencies ensures that the Armor School is operating on and teaching the most up-to-date and valid information and is continually preparing for the inclusion of new doctrine and equipment.

Keeps abreast of development in Armor and Armor-related fields.

LTC B: By the way, sir—ever since that Venetian, Marco Polo, came back from Cathay, we've been getting reports of this powder he found they had—the one that burns. Now it appears that some German or Italian is burning it in some kind of tube, which pushes the tube, or whatever is in it, through the air a goodly distance. Maybe we should check into this—I think the device is called a kan-non. Not very practical right now, but it may develop into something.

COL A: Yes, we'd better check on that and see if it needs following. I understand that the darned thing is difficult to train people to use and maintain, to logistically support, and may pose unique safety hazards, though.

It is essential that any new doctrine or equipment be properly supported by, and integrated into, the Army's training base. DLP helps to ensure that this is the case and that the needs of the training base and the individual soldier are considered in every aspect of the combat development cycle, from concept to combat. It is in this way that DLP constitutes the Armor School's "Link with the Future."

COLONEL ALBERT F. AHRENHOLZ, Armor, Director of Doctrine Development, Literature and Plans, U.S. Army Armor School since 1967, began his Army career as an enlisted man in the 170th Field Artillery Battalion, New York National Guard. In 1942, he was commissioned in the field artillery after graduation from OCS at Fort Sill. During World War II he served overseas with the 609th Tank Destroyer Battalion and Combat Command A, 10th Armored Division as a tank destroyer and a tank company commander. In 1948, Colonel Ahrenholz transferred to Armor. Subsequently, he commanded a tank company in the 7th Division in Korea. In 1957, he took command of the 1st Battalion, 35th Armor, 4th Armored Division at Fort Hood and gyroscoped with that unit to Europe. In 1959, he became division G3. After his return to the United States and graduation from the Armed Forces Staff College in 1961, he served in the Operations and Training Division of DCSOPS, DA, and later with the Joint Chiefs of Staff as an operations officer in J3. Following graduation from the National War College in 1966, he commanded a brigade of the 2d Infantry Division in Korea.

Unsung Heroine of Defense Morale

A Service Wife is mostly girl but there are times, such as when her husband is away and she is mowing the lawn or fixing a flat tire on a youngster's bike, that she begins to suspect she is also a boy.

She usually comes in three sizes: petite, plump and pregnant. During the early years of her marriage it is often hard to determine which size is her normal one.

She has babies all over the world and measures time in terms of places as other women do in years. This causes her to suspect a secret pact between her husband and the service providing for a man to be overseas or on a temporary duty at times such as these.

A service wife is international. She may be an Iowa farm girl, a French mademoiselle, Japanese, or an ex-nurse. When discussing service problems, they all speak the same language.

She can be a great actress. To heartbroken children at transfer time, she gives an Academy Award performance; Arizona is going to be such fun! I hear they have Indian Reservations . . . and tarantulas . . . and rattlesnakes. But her heart is breaking with theirs. She wonders if it is worth the sacrifice.

An ideal service wife has the patience of an angel, the flexibility of putty, the widsom of a scholar and the stamina of a horse. If she dislikes money, it helps. She is sentimental, carrying her memories with her in an old footlocker.

One might say she is a bigamist, sharing her husband with a demanding entity called "duty." When duty calls she becomes Number 2 Wife. Until she accepts this fact, her life can be miserable. She is, above all, a woman who married a serviceman who offered her the permanency of a gypsy, the miseries of loneliness, the frustration of conformity, and security of love.

Sitting among her packing boxes with noisy children nearby, she is sometimes willing to chuck it all . . . until she hears the first step and cheerful voice of that lug who gave her all this. Then she is happy to be . . . his service wife.

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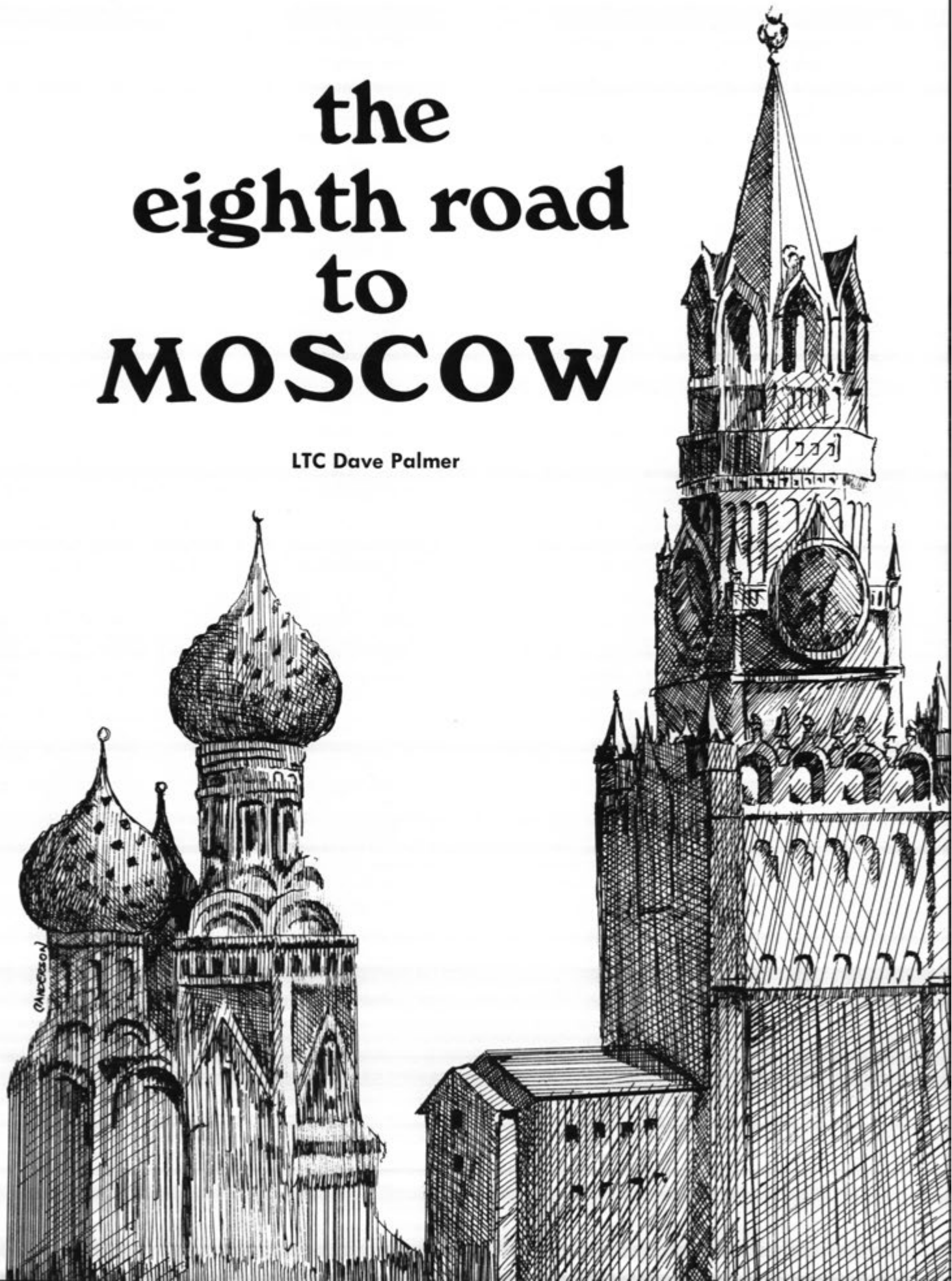
the eighth road to MOSCOW

LTC Dave Palmer



Russia has been invaded seven times. In his classic study, *Seven Roads to Moscow,* W. G. F. Jackson tells the stories of those past efforts to conquer that immense land sitting astride both Europe and Asia. First, in the 9th Century A.D., came fierce Vikings under a warrior king named Rurik. Ghengis Khan's Golden Horde, some 400 years later, swept ruthlessly out of Asia, carving across the Steppes a terrible swath of death and destruction. A century afterward appeared Tamerlane the Great, an irresistible and totally merciless Mongolian. In the early 1600's an expanding Poland very nearly annexed her eastern neighbor; for a moment Polish troops actually occupied Moscow. Then Charles XII, a brilliant but half-mad Swede, humbled one Czarist army after another until his own foolhardiness and the vast reaches of Russia defeated him at Poltava in 1709. Napoleon took his disastrous turn in 1812, reaching Moscow, but discovering himself too weak to remain. Germany, under Hitler, tried unsuccessfully in this century.

Nothing has happened since then to reduce the probability of another attempt, while much has occurred to indicate that Russia will embroil herself again in war. It is at least even money that there will someday be an eighth road to Moscow. And it is not at all far-fetched to visualize American soldiers tramping it.

Now when you make a statement like that, watch out. Right away all sorts of people will start raising all sorts of objections. It's saber rattling, some will say; what do you want to do, aggravate Russia? Others will promptly chime in with some comment about a war between two super powers being essentially unthinkable to begin with. And yet another group will firmly avow that we could never invade Russia because the prior thermonuclear exchange would leave neither an objective to attack nor anyone alive to attack it. Maybe a few would even stand with Field Marshal Viscount Montgomery of Alamein in quoting his recently coined principle of war: *Never march on Moscow.*

As soldiers, we must conscientiously consider all those arguments, must admit that they are not at all specious, but we must resist being stifled by them. Even Monty, were he an American general ordered by the President to invade Russia, would seek a way to accomplish the mission. Survival itself demands that we think about the unthinkable. Much as we may dread it and pray it will never come to pass, only the naive will refuse to acknowledge that war between the United States and Russia is at least a possibility. You may be sure there are Red planners, hunched over desks somewhere in the Kremlin, intensely wrestling with the knotty problem of how to attack the United States. There very well might be no one remaining after a thermonuclear exchange—in which case this is all academic anyway. But what if there *are* hordes of survivors still spoiling for a fight? What's more, how can we even be sure nucs will be used?

We simply must peer beyond the imponderables of the atom and plan for other alternatives. Hiding our heads ostrich-like in conjured up visions of the total devastation succeeding a nuclear holocaust helps neither in surviving an atomic exchange nor in persevering afterwards.

Wishing war away never works. Facing the prospect squarely may not avert it either, but the dialectic process of admitting and discussing it can lessen chances of backing into hostilities and can certainly assist in preparing for the grim eventuality should it come. It was in this vein that George Washington admonished, "To be prepared for war is one of the most effectual ways of preserving the peace." Prudence dictates our pondering the imponderable. Like it or not, we must admit that one day American soldiers may be called upon to march on Moscow. And to start planning today is already a little late.

The first thing to do in seeking the eighth road is to consider Russia's geographical realities. Stretching roughly 5000 miles from east to west and 2000 from north to south, the Soviet Union contains a superabundance of space for maneuver. But nature has done much to protect that huge area. The entire northern flank, buttressed by Arctic ice, is virtually unassailable, while militarily impassable mountains gird most of the southern borders. Only from the two extremes of Western Europe and China is Russia generally open to attack. All previous invasions have come from either east or west—and, significantly, it is toward Germany on one hand and Red China on the other that Kremlin leaders today openly exhibit the most nervousness.

Most recently, invasions of Russia have come from the West. Highways and railroads and ports and industrial facilities in Europe made logistical support feasible while at the same time enhancing mobility. Meanwhile, desert wastes and undeveloped lands have precluded the movement of a modern army from China. As a result of those recent experiences, our thinking is quite likely to be prejudiced in favor of the western route. But, in war, mental mobility is every bit as important as the other kind. The past

The Eighth Road To Moscow

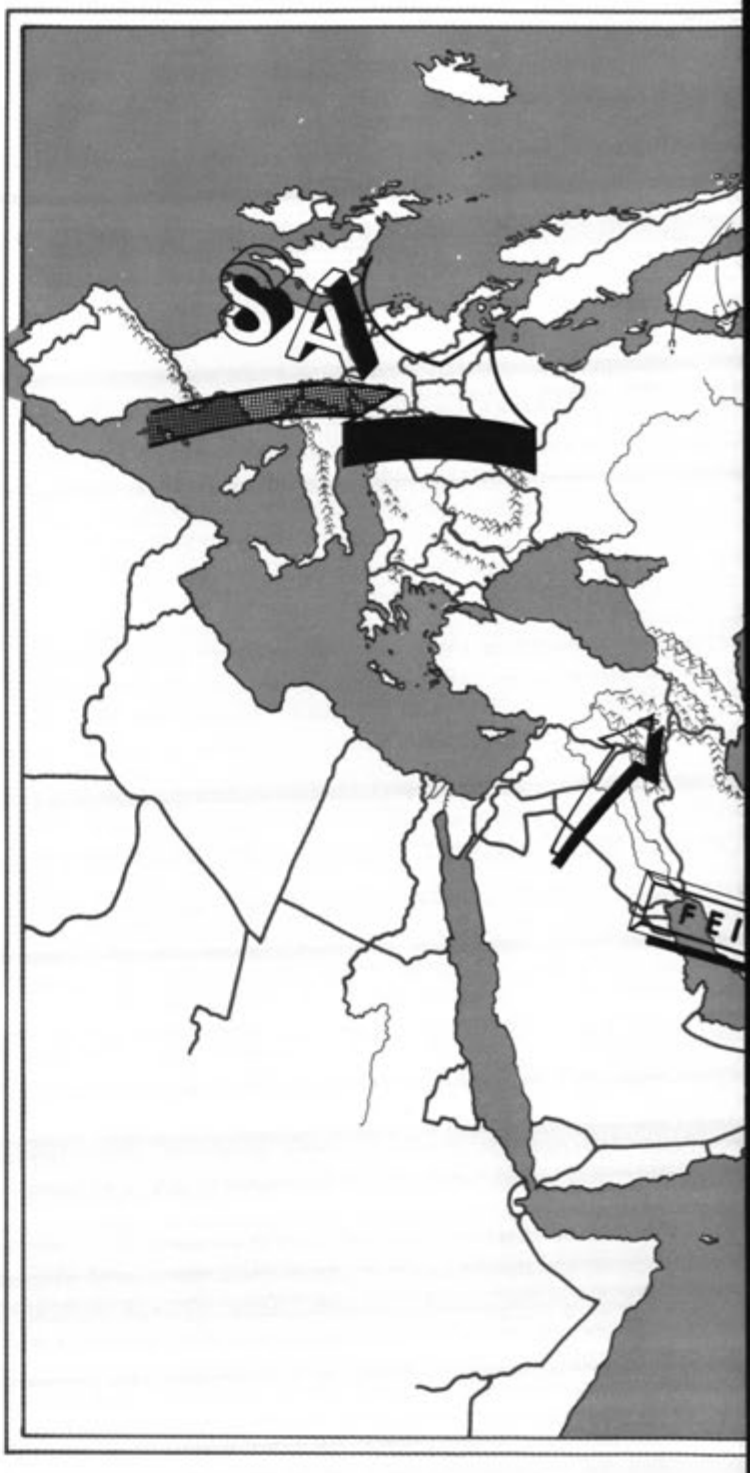
is past. The question to ask is: which of the two routes will be better in the future?

Given the present and projected rate of urban growth in Europe and Western Russia, a future campaign from the Rhine to Moscow could assume all the disadvantageous aspects of city-fighting. On a large scale, that whole section of the world is heavily built-up and becoming more so all the time. Militarily, therefore, it is growing increasingly restrictive to mobility; an army's ability to maneuver there can only diminish as the years pass.

As the western route becomes less appealing, planners will invariably begin to take a closer look at the eastern road. When that happens they may recall that while every invasion from the west failed, all those originating in the vicinity of China succeeded.

New ideas are always confronted by many obstacles. Not the least of those barriers are old ideas themselves. The world is changing at a dizzying rate, we all agree, yet how we cling to aged concepts! And at this point in searching for a new road to Moscow, one encounters perhaps the hoariest of old ideas, namely, never engage in ground war on the continent of Asia. To pass this hurdle we must trip by some mighty important people. General Douglas MacArthur, in a 1951 speech, said, "No man in his right mind would advocate sending our own ground forces into continental China." About the same time, General Omar Bradley warned against getting "involved in a land war in Asia if we can possibly avoid it." General Maxwell Taylor, in an interview some fifteen years later, put himself squarely "among the officers who have said that a large land war in Asia is the last thing we should undertake." The list could be expanded. Formidable opposition indeed. But, even granting the validity of their views in their own time, eliminating a future option because of past opinions is to ignore both the explosion in technological progress and the world's rapidly altering political face.

Who knows how we will fight in, say, a quarter of a century? Nothing is certain except that changes




MISSILE and AIR ATTACK
TS

The Eighth Road To Moscow

will occur at an even more rapid rate than in the past. Just look back 25 years, when today's generals were junior officers. Unheard of then were atomic bombs, jet air fleets, trips to the moon, atomic submarines, intercontinental ballistic missiles, helicopter-borne divisions, laser rays—need I go on? Soldiers tramping a new trail to Moscow will have moving and supplying and supporting them a family of futuristic vehicles and weapons which we cannot even imagine now. Already, with new aircraft and naval vessels, we are making giant strides toward achieving truly astounding strategic mobility. Innovations in vehicular power plants can be expected to free tomorrow's army from the tyranny of frequent refueling; dietary discoveries will substantially reduce the current need to provide virtual mountains of foodstuffs to a field army; advanced weapons and a greater degree of mobility will permit soldiers to fight over stretches of territory far larger than is now thought possible. Those represent only a small sample of the changes to be wrought. Having harnessed the tiger of technology, tomorrow's soldier will accomplish immensely more, while requiring much less support, than his modern counterpart.

Moreover, who can say what bizarre face the political situation will then wear? Next to technology, nothing is more dynamic than international relations. Why, Red China might be our staunchest ally in a conflict with Russia. Or perhaps several dissident Chinese provinces will overtly assist us. Or some other completely unforeseen political alignment may pertain.

All in all, old admonitions against a ground war in Asia simply cannot be permitted to blind us to future possibilities. To base the next war on judgments made in 1950 is about as logical as planning to enter World War II without improved tanks or bombers just because armies in the First World War got along without them.

Whether or not we can launch an invasion from Asia *today* might be a moot point. But it is distinctly possible *tomorrow*. And it is tomorrow for which one plans.

To demonstrate the potential of an onslaught from China, let us set up a sample scenario and then critique it. As shown in the sketch, the main effort out of China would be made in conjunction with a secondary attack from Western Europe and feints along the southern flank. North American based fire support, in the form of missiles and aircraft, would cross the Polar icecap to smash targets ahead of advancing elements. Reconnaissance and other selected support activities could be accomplished by satellite. Allied forces would conduct both secondary attack and feints from prepared bases in Western Europe and across the crescent stretching from Turkey to India.

American units, using Pacific bases as a springboard, would constitute the bulk of the main attack's strength. Those bases—Japan, Korea, Formosa, Vietnam, the Philippines, Malaysia, Indonesia, Australia, and perhaps even parts of mainland China itself—are sufficiently dispersed to remain relatively secure, yet are close enough to the Asian mainland to permit effective support. Logistics officers would also have available to support the invasion a score of first-rate ports all along the China coast.

No one can seriously question the efficacy of mustering a strong secondary attack from Western Europe. Probably spearheaded by Germany, that assault would assuredly attract much of Moscow's attention and effort, tying down a great proportion of Russian combat power. Kremlin leaders would not dare weaken their western front because of the very real military danger and the proximity to Europe of Russia's industrial wealth—not to mention the psychological impact of a Germanic invasion. Russia would be obliged to fight on two fronts—an unenviable situation.

Nor is there much reason to believe feints from the south would be less than effective. Should Russian generals ignore operations on that long border,

Moscow would stand in danger of actually losing vital mineral and food resources. Moreover, forces conducting the feints would pose a serious military threat to the flanks of Russian armies opposing the allied main and secondary efforts. The feints could, then, be expected to cause quite significant diversions of Russian strength. As for fire support being based beyond the Arctic Ocean, that is a concept practical even with current weapons. Perhaps the greatest advantage of such a technique would be the ability to provide constant support to a moving army while not being required to displace as that army advanced from east to west.

Thus, the only debatable portion of the entire scheme is the launching of a main attack from or through China.

The mainland of China is a vast, heavily populated area supposedly unsuited to military operations. Swift and generally unbridged rivers, sharp and barren mountain ranges, broad stretches of desert, and the very size of the country itself: those are the major geographical factors militating against mobile warfare. Yet, some of the heaviest fighting in the history of armed conflict has occurred in China. In this century, Japan, with very limited resources and even more restricted aims, handily overran great stretches of the Chinese nation. Nor was geography a bar to the massive and successful campaigns of Mao Tse-tung. If such militarily primitive forces could campaign in China it seems absurd to claim that it is beyond the capabilities of today's (and even more emphatically, tomorrow's) sophisticated soldier.

As a matter of fact, the enormous expanses involved are quite as likely to prove more an asset than not. Dispersion in modern and future warfare is becoming an ever more important consideration. In the technologically oriented era we are entering, distances are more meaningfully computed in terms of minutes than in miles. Far from being obstacles, such formidable sounding places as Siberia, the Gobi Desert, and the Russian Steppes will provide the wide-open spaces needed for maneuver by tomorrow's ultra-mobile army. The degree to which the helicopter has freed the foot soldier from the old machete-pace rate of march in Vietnam's jungles is but a slight indication of the mobility revolution in the offing.

In short, launching the main attack from China is not only a feasible alternative, it just might be the best alternative.

There, in admittedly grossly oversimplified terms, is projected an eighth road to Moscow.

Obviously, my purpose has not been to develop a comprehensive plan of invasion. Nor have I presumed to be clairvoyant in predicting the future. What I have attempted is twofold: first, to show that we must, as professional soldiers, look ahead regardless of the temptation to avoid controversial subjects; second, in the looking our imagination must not be inhibited by parameters of the past.

A final point should be made. However we fight the next war, and whatever are our weapons and vehicles, one thing is clear: the more mobile force will emerge triumphant. That has been true throughout history; technology's revolutionary advances have only made it all the more certain to continue being the case. We should not be surprised, therefore, should the Kremlin bells ever be rung by an American, to see tugging on the ropes a soldier wearing Armor insignia.

LIEUTENANT COLONEL DAVE R. PALMER was graduated from the United States Military Academy in 1956. Following airborne, jumpmaster and ranger training, he served in Europe as both a tank and a rifle platoon leader. Next he commanded a tank company in the 1st Armored Division at Fort Hood. Then following a tour in Vietnam as an advisor to an ARVN armored cavalry squadron and an aide. He attended Duke University where he received his MA in Military History in 1966. Thereafter he taught military history at West Point three years. He is now assigned to the 3rd Armored Division in Europe.

From The Armor Branch Chief...

THREE C'S

The primary assignment consideration for junior officers remains the attainment of the three C's—Combat, Command, and the Career Course. Armor Branch makes every effort to insure that you receive these career important assignments within the first five to seven years of service. Successful completion of these assignments will insure that you are branch qualified as well as competitive from both the promotion and choice assignment standpoints. Command is an essential goal for members of the Combat Arm of Decision and you should fight for it at every opportunity.

OFFICERS DETAILED TO ARMOR

Commanders are reminded of the provisions of paragraph 3-2c, AR 614-100 which requires that newly commissioned Regular Army lieutenants detailed to Armor serve their one-year detail in a company or troop leadership position.

MILITARY ASSISTANCE OFFICER PROGRAM

A new officer special career program was recently established by Department of the Army. The Military Assistance Officer Program (MAOP), described in AR 614-134, 7 March 1969, incorporates and expands the previously established Civil Affairs Program. MAOP provides a career field for officers having the desire and skills necessary to participate in military assistance activities having social, economic, political and psychological impact. All officers serving on active duty meeting the following general criteria are eligible:

- Serving in the grade of captain through colonel.
- Citizen of the United States.
- Military schooling appropriate to grade and length of service and a baccalaureate degree preferably in the social sciences.
- Varied military background.
- Favorable background investigation.
- At least three years of active duty remaining.
- At least a minimum qualifying score on the Army Language Aptitude Test (ALAT).

Armor officers selected for the MAOP will receive equal consideration with their contemporaries for career development assignments to include command and attendance at service schools and colleges. Officers selected for the program who do not have graduate degrees will be encouraged to apply for advanced schooling in a related social science field.

Those officers meeting the MAOP criteria may apply by letter directly to the Chief of Personnel Operations, ATTN: OPD-Armor, Department of the Army, Washington, D. C. 20315. Nominations for qualified officers may also be submitted from the field in the same manner. Final selections will be made by the Chief of Personnel Operations on a best qualified basis. Further details are outlined in AR 614-134. Additional information may be obtained by calling LTC Lutz, Senior Education Officer, at OX7-1210.

BATTALION LEVEL COMMAND

Battalion command is considered a career developing assignment. Lieutenant colonels are recommended for command assignments if their recorded performance of duty indicates that they are in a competitive position for promotion and increased levels of responsibility.

Armor Branch considers for a command assignment all Armor lieutenant colonels who have graduated from the Command and General Staff College and who have four years of assured retainability following completion of command. Those selected are then programmed against known command vacancies in accordance with their specific availability dates. The number of officers needing command normally exceeds the number of Armor command vacancies occurring during the programmed period. Armor Branch attempts to secure additional command assignments in the US Army Training Centers for those officers not applied against TOE unit vacancies. Officers for whom commands cannot be obtained are reconsidered the next time they are available. All assignments of competitive field grade officers are coordinated to insure at least one year in command prior to consideration for selection to colonel, AUS.

All battalion level commanders are considered for a repetitive command tour. Truly outstanding commanders in Vietnam are programmed for an additional year of command in CONUS or Europe. Those in Europe and CONUS are nominated to the Commanding General, USARV for a command assignment. This program is highly selective and is limited by requirements to fill other career developing needs of the officer considered.

GROUND DUTY ASSIGNMENTS

Beginning in 1965, the world-wide shortage of aviators precluded ground duty assignments below the grade of lieutenant colonel. However, DA Message 887061, dated 13 November 1968, authorized ground duty for all grades and encouraged major commanders to assign commissioned officer aviators, regardless of grade, to other than aviation duties for career development purposes consistent with local aviation requirements.

The increasing number of Armor aviators returning from short tour areas and continuous improvement in the aviation inventory has also permitted Armor Branch to increase the number of non-aviation assignments consistent with world-wide aviation requirements and individual career development needs.

ASSIGNMENT TO SHORT TOUR AREAS

Whenever possible, one year will be the minimum time spent in non-stabilized CONUS assignments.

Armor Branch has provided, and will continue to provide in the future, equitable short tours using as a guide, "the longest back will be the first to return." Exceptions are those officers in stabilized tours. They, in turn, will go to short tour areas as soon as available and as close in time to their contemporaries as possible.

Lieutenant colonels have not begun second involuntary tours in Vietnam. It is anticipated that the first involuntary second tours to Vietnam for lieutenant colonels may begin during the first quarter, FY 1971 (July 1970). Until then, Armor Branch will continue to assign available lieutenant colonels to Vietnam as requirements dictate.

The New Chief of Armor Branch

Colonel Homer S. Long, Jr. was graduated from the United States Military Academy in 1949. Following troop duty in CONUS and Europe, where he commanded a company, Colonel Long served as an aide-de-camp. Next came duty as an instructor at the Armor School. In 1960 he returned to Europe and joined the 4th Armored Division in which he served for four years as a Combat Command S3, Assistant G3 and Commanding Officer of the 4th Battalion, 35th Armor. In 1964, Colonel Long went back to West Point where he was executive officer of the 2d Regiment, Corps of Cadets until he reported to the National War College from which he was graduated in 1966. He next was assigned to the office of the Secretary of Defense. His former assignment was as Commanding Officer, 2d Brigade, 25th Infantry Division in Vietnam.

WASHINGTON AREA ARMOR BALL

The traditional Armor Ball held annually in the Washington, D.C. area has been scheduled for Friday, 23 January 1970 at the Bolling Air Force Base Officers Club. Further details and reservation forms will be mailed to those in the Washington area about one month before the occasion.

ARMOR CENTER innovations

PROFILE—USA CDC ARMOR AGENCY

The overall mission of the US Army Combat Developments Command Armor Agency at Fort Knox, briefly stated, is to determine how Armor units will fight, be organized, and equipped. The Agency has four divisions; Management, Material, Studies, and Doctrine. This first report to members of the Armor Association in the new Armor Center Innovations Department of *ARMOR* Magazine will focus on the activities of the Doctrine Division within the Armor Agency.

The Doctrine Division of the US Army Combat Developments Command Armor Agency consists of a Doctrine Branch, an Organization Branch, and an Evaluation Branch.

The primary mission of the Doctrine Branch is to develop, coordinate, and prepare for publication doctrinal literature on the employment of armor units at brigade level and lower in all types of warfare. Normally, the end product received in the field is the 17-( ) series of armor doctrinal field manuals. The following is the current status of the six armor field manuals for which the Doctrine Branch is responsible:

FM (Date of Current FM)	Current Action	Estimated Distribution Date
17—1, Armor Operations (66)	Change 1	1st Qtr FY 70
17—15, Tank Platoon, Company and Battalion (66)	Change 1	4th Qtr FY 70
17—30, The Armored Brigade (61)	Revision	1st Qtr FY 70
17—36, Divisional Armored and Air Cavalry Units (68)	Change 1	2nd Qtr FY 71
17—37, The Air Cavalry Squadron	New FM	1st Qtr FY 70
17—95, The Armored Cavalry Regiment (66)	Change 1	4th Qtr FY 70

The Doctrine Branch has recently completed a dynamic study known as Armor 75. The study developed armor organizational doctrine for the five-year period beginning in 1970. Armor 75 was based on the world-wide employment of armor in all environments and in all intensities of warfare. The single most important fact about Armor 75 is that it is the start, not the end, of a far-reaching series of basic derivative studies that will continue to search for better means to make armor more aggressive and increasingly mobile.

The Organization Branch is responsible for the formulation and maintenance of tables of organization and equipment, MOS descriptions, and equipment basis of issue for armor units at brigade level and lower. The latest major action in which this branch has been involved has been the update and detailed review of all the TOE to implement the Department of the Army approved changes for the reorganization of the Army Division (ROAD) Study and the Aircraft Requirements Combat Structure of the Army (ARCSA I) Study. This action primarily replaced the nine *UH-1B* helicopters with *AH-1G* helicopters in all air cavalry units. The ROAD Study split the Headquarters and Headquarters Company of the Tank Battalion into the Headquarters and Headquarters Company and a Service Support Company.

The Evaluation Branch prepares plans for Armor proponent troop tests of new doctrine pertaining to Armor organization, tactics and techniques, procedures, and materiel. Current proponent actions within the Evaluation Branch are:

• **The Troop Test, Light Armor Battalion** was conducted at Fort Riley, Kansas and Fort Stewart, Georgia in November-December 1968. The test was designed to evaluate the organizational effectiveness and the doctrinal techniques associated with the Light Armor Battalion. At present, the results of the test are being evaluated and commented upon by major Army commands. The USACDC position letter will be submitted to ACSFOR in September 1969.

• **Field Evaluation, Land Navigation Systems** will evaluate the Aviation Electric, LTD, (Canada) Land Navigation Systems (gyroscopic and magnetic) for use by armor, mechanized infantry, artillery, and armored cavalry units. The evaluation will determine the relative tactical and navigational advantage to be gained through the use of Land Navigation Aids; yield information to determine a suitable basis of issue for the sets within these units; and, provide information on the reliability, operability, and maintainability of the land navigation systems. The evaluation is tentatively scheduled for May 1970.

• **Troop Test, Air Cavalry in Northern Operations** will evaluate the capability of an air cavalry

troop, as currently organized, to operate in northern regions. The test will determine the suitability of air cavalry doctrine, tactics and techniques for application in northern operations. Further, it will evaluate the antiarmor and antimechanized capability of the air cavalry organization of the future. The test is presently scheduled to be held in Alaska from January to March 1971.

M551 UPDATE

The Armor School has been conducting an evaluation of tactics, gunnery techniques, and training methods for the *M551*. Findings to date have been developed in both gunnery and tactics. These clarify areas in which questions arose or fill voids in presently published training literature. Results of the evaluation thus far have been distributed to *M551* user units in the field.

ST. VITH RANGE

Dorret's Run Range at Fort Knox, scene of many demonstrations as well as firing exercises, has been redesignated St. Vith Range. This new title commemorates the 7th Armored Division's gallant World War II actions at St. Vith, Belgium from 17 to 23 December 1944. At this time, the Lucky Seventh played a major role in defeating the German counteroffensive during the Battle of the Bulge and clearly established its place in the annals of Armor.

REVISED FM 17-12

The Armor School Weapons Department has completed the draft mansucript of Field Manual, FM 17-12, Tank Gunnery. Highlighting the revised edition is the substitution of Discarding Sabot Training Ammunition (DS/T) for TP-T ammunition during selected exercises of Tables IV thru VIII, necessary range changes have also been made to allow for target sensing when using the DS/T ammunition. Other major changes include night ranging on infrared sources using a Metascope assembly with the coincidence range finder and adjusting HEP ammunition at extended ranges beyond 3000 meters using a special technique recently developed during field firing at Fort Knox. In conjunction with the new FM 17-12, a new Army Subject Schedule has been drafted to incorporate all changes and to include a complete and comprehensive listing of graphic training aids. The proposed changes are scheduled to be sent to the field for comments on 1 October 1969, with TAG publication tentatively scheduled for the third quarter FY70.

ARMORED VEHICLE CREWMEN'S FUNCTIONAL UNIFORM

The US Army Armor and Engineer Board has completed one year of testing the Armored Vehicle Crewmen's Functional Uniform. (See "Fashions For Fighters" *ARMOR* Jan-Feb 68.) Development of the functional uniform has been under way for some time. The goal is to give environmental protection to armored vehicle crewmen and to permit maximum freedom of movement while operating and maintaining vehicles and equipment. There has been a need for such a uniform with armor since the elimination of the tanker's combat suit soon after World War II. The proposed summer uniform is of one-piece design and is fabricated from 4.4 ounce *Nomex* twill cloth. The winter uniform consists of an outer one-piece suit made of 4.5 ounce *Nomex* oxford fabric which is worn over a separate, two-piece, insulated liner. Both uniforms are water, oil and grease repellant and fire resistant. Both have a retrieving strap for evacuation of a wounded crewman, built-in pistol holster, drop seat and zipper inserts on the arms and legs for ease in donning and doffing. Each is designed for wear with a standard headgear, footwear, handwear, and CB protective clothing and can be laundered in the field. Comments and recommendations regarding suitability for Army use are currently being reviewed by the US Army Test and Evaluation Command Headquarters.

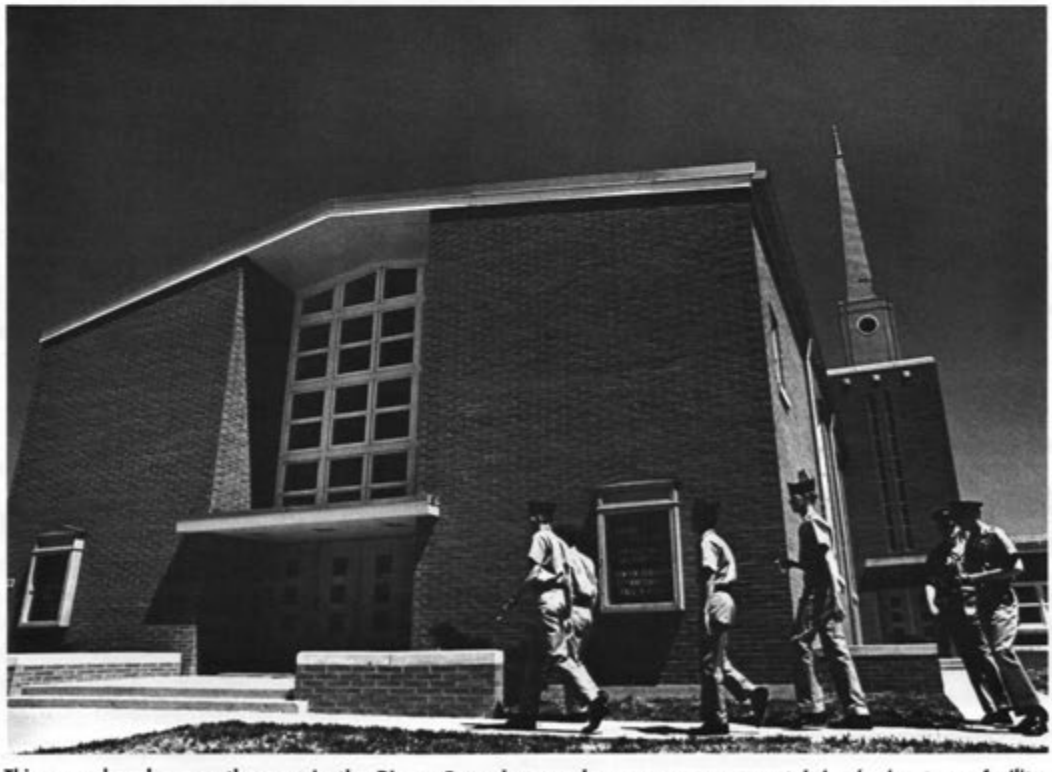
BLADE ANTENNA TEST

The Armor School Communications Department is testing the UHF/VHF Blade Antenna 437S-1/1 for possible use on armored vehicles. This antenna, currently used on the Huey Cobra helicopter, has a low silhouette and an exact tuning capability. Four tests were conducted to compare the blade antenna with AT912/VRC and AS1729/VRC whip antennas. The blade antenna (mounted on a *M60* tank) displayed stronger field strength readings, better receiving potential in ground-to-ground transmission reception, and better air-to-ground reception than a jeep-mounted whip antenna when tested using transmissions from a *U6* aircraft mounting an *ARC44* radio. Transmission reception was also at least as good as the conventional whip model when the sending unit was stationary and the test vehicle moving. Major advantages of the blade antenna stem from lowering the tank silhouette, eliminating the problem of striking power lines with antennas, and being able to tune to the exact transmission frequency, and thereby radiating more signals than whip antennas. Difficulty in tuning to the correct frequency is a problem. The cause may be the lack of a proper mount for the antenna. The Communications Department recommended further testing of the antenna and the development of a mount to install the blade antenna on the *M60* family of tanks.

Buying the first "Home of Armor" souvenir plate is MG James W. Sutherland, Jr., commanding general of the Armor Center. The purchase kicked off the campaign which will help finance additional war relics for the Patton Museum. The first sale was made by George A. Schneider, curator of the Patton Museum. Designed for use on cars registered in states, which like Kentucky, leave no front registration plates, the tags cost $1.25 each. There are two designs available. One is as shown, the other features Remington's "Old Bill."

TACTICAL COMMUNICATION CHIEF COURSE

A new 12-week course of instruction, designed to qualify soldiers as Tactical Communication Chiefs, was instituted on 15 July 1969 by the Communications Department of the Armor School. Graduates of this course will be able to supervise and coordinate the operations of a communications section of a nonsignal corps unit at company and



This new chapel serves the men in the Disney Barracks complex, a new permanent brigade-size troop facility in the U. S. Army Training Center, Armor.

battalion level. Emphasis is placed on junior noncommissioned officer responsibilities in the communications field.

To attend the course a candidate must be an enlisted member of the active Army in the grades PV2 through SP4, be qualified as a field radio mechanic (MOS 31B20), and have a minimum score of 100 in aptitude area EL (five points may be waived at the discretion of the installation commander). Unit commanders should select prospective students who have demonstrated leadership potential. Candidates must have 13 months or more active duty service remaining at the time they would complete the course and be qualified for assignment to a restricted area. All must have a Confidential security clearance.

NEW DA PAMPHLETS FOR SUPPLY AND MAINTENANCE TRAINING COURSES

AR 350-13, 22 March 1967, outlines how to improve the skills of those responsible for and associated with improving the materiel readiness of each organization. DA pamphlets for supply and maintenance training courses were developed to assist commanders to do this. DA Pamphlets 350-20 through 350-36 on supply and maintenance training are listed in DA Pamphlet 310-1. Each of these pamphlets is designed as a course of instruction, an instructors handbook, a student handbook, or a handbook for the subject as indicated by its title. Transparency training aids to illustrate five of the major training pamphlets are listed in DA 108-1, "Index of Army Motion Pictures and Related Training Aids." Transparencies are identified by reference numbers T38-11-1 through T38-11-5 and cross reference to the respective DA Pamphlet number and title. According to the US Army Maintenance Board, DA Pamphlets 350-20 through 350-22-2 on supply training have been revised and are now being printed by the Adjutant General. DA Pamphlets 350-23 through 350-36 on maintenance training are now being revised with a FY70 Target date for publication. These updated pamphlets will reflect the supply and maintenance directives current at the time of publication.

194th Armored Brigade Supports Armor School

Students of the Armor Officer Advanced Course watch as Armor School and 194th Armored Brigade personnel combine efforts to illustrate the capabilities of the *M88* Vehicle Recovery Track. (Bottom Right)

A member of the Armor School's Vehicle Recovery Branch coordinates the efforts of three 194th *M60A1* tanks as they demonstrate the proper method of righting an overturned tank. (Top)

Two of the 194th's *M60A1*s team up to demonstrate the use of combined efforts in vehicle recovery. (Bottom Left)

HOW WOULD YOU DO IT?

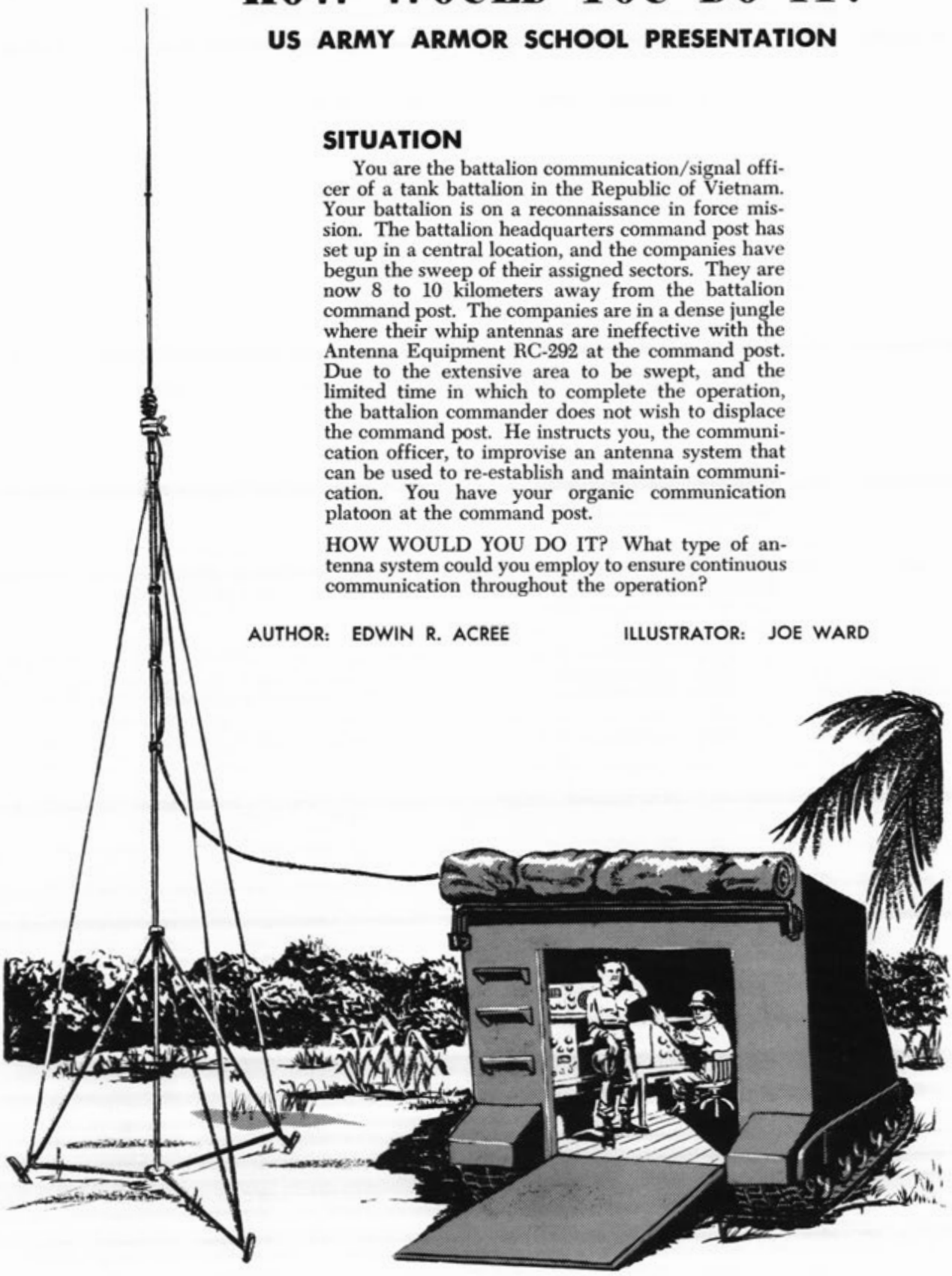
US ARMY ARMOR SCHOOL PRESENTATION

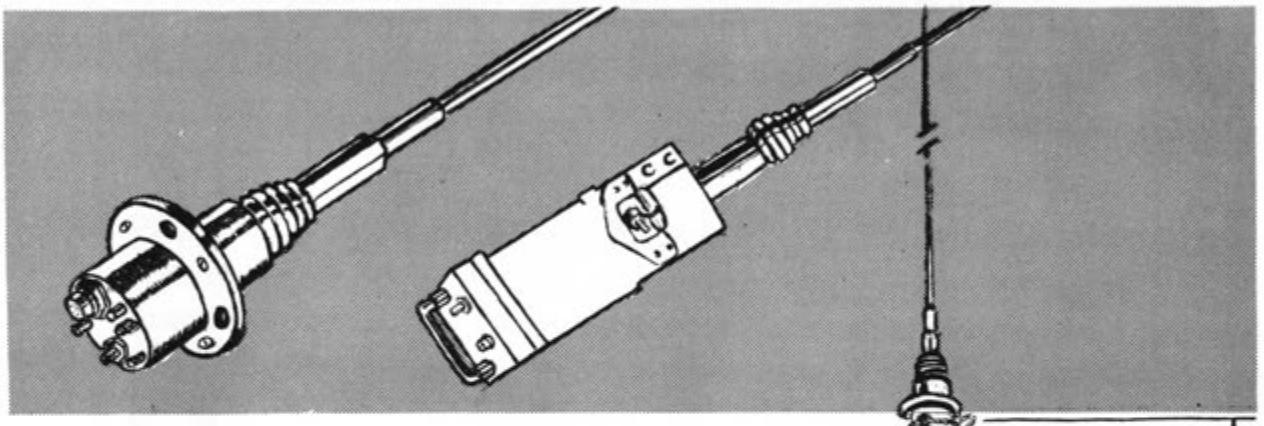
SITUATION

You are the battalion communication/signal officer of a tank battalion in the Republic of Vietnam. Your battalion is on a reconnaissance in force mission. The battalion headquarters command post has set up in a central location, and the companies have begun the sweep of their assigned sectors. They are now 8 to 10 kilometers away from the battalion command post. The companies are in a dense jungle where their whip antennas are ineffective with the Antenna Equipment RC-292 at the command post. Due to the extensive area to be swept, and the limited time in which to complete the operation, the battalion commander does not wish to displace the command post. He instructs you, the communication officer, to improvise an antenna system that can be used to re-establish and maintain communication. You have your organic communication platoon at the command post.

HOW WOULD YOU DO IT? What type of antenna system could you employ to ensure continuous communication throughout the operation?

AUTHOR: EDWIN R. ACREE ILLUSTRATOR: JOE WARD





SOLUTION

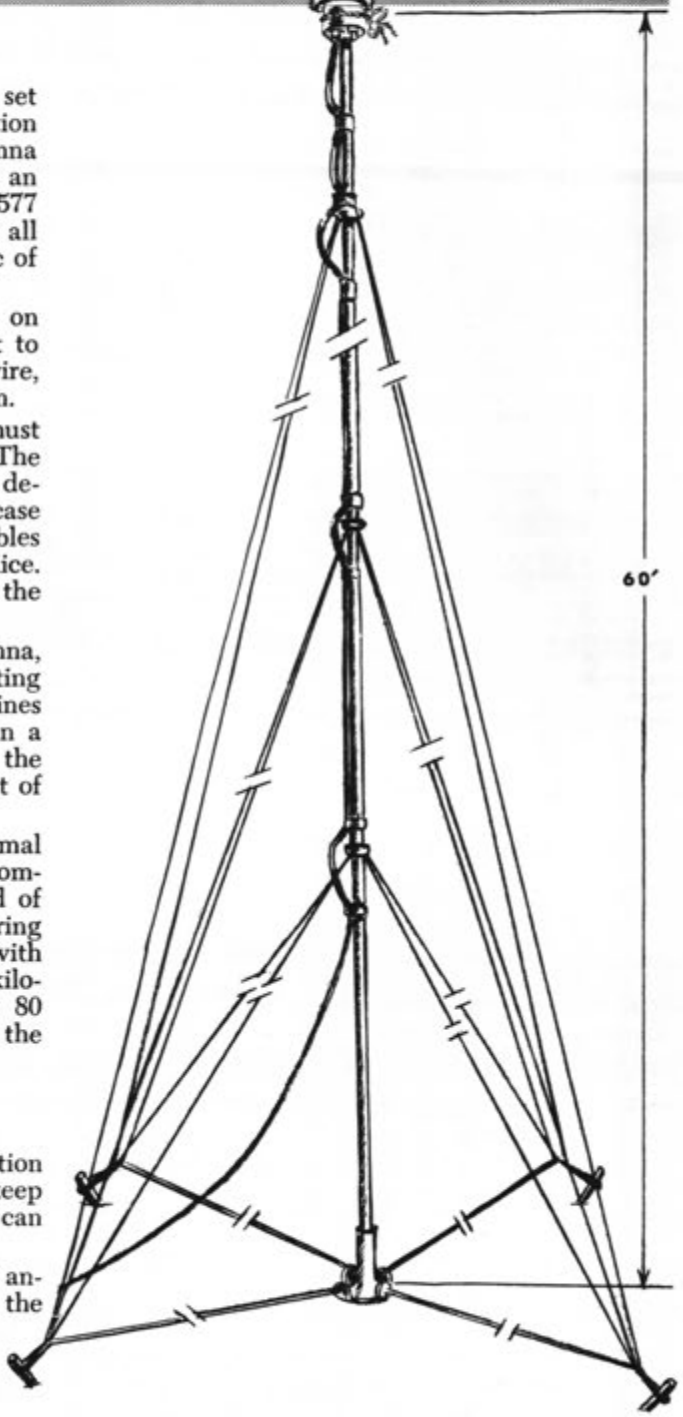
Using the battalion command post radio set (AN/VRC-46 for example), have the communication chief or senior radio mechanic install the antenna matching unit and whip antenna at the top of an extended RC-292 mast or the Antenna Mast AB-577 (part of the AN/GRC-50), which is available to all units at battalion level or higher in the Republic of Vietnam.

The antenna matching unit, which will be on top of the mast when elevated, must be preset to the desired frequency and secured firmly with wire, clamps, or rope so it will be in a vertical position.

If the RC-292 mast is used, the guy lines must be extended using WD-1/TT wire or rope. The length of the coaxial cable can be extended, if desired, using an Adapter UG-642 or PL-283. In case neither of the adapters are available, the two cables may be joined together using a solder splice. Securely wrap the splice and tie the cable to the mast to prevent pulling the splice apart.

Since there is additional weight on the antenna, it is advisable to use at least five men when erecting the antenna. Three men are used on the guy lines and the other 2 for lifting the mast sections, in a hand-over-hand method. Using this method, the antenna can be successfully elevated to a height of 60 feet.

If the Antenna Mast AB-577 is used, the normal erection procedures are observed. It is recommended, however, that 5 mast sections (instead of 6) be used on the "gin pole" for stability during erection. This system should provide you with reliable communication up to a distance of 32 kilometers in the situation mentioned and up to 80 kilometers if the antennas are elevated above the "jungle canopy" at each station involved.



DISCUSSION

It is imperative to maintain communication under this circumstance. The companies must keep the commander abreast of the situation so he can maintain command control of the unit.

The solution is based on the knowledge of antennas and their capabilities. Even though the solution is temporary, it will allow you to maintain communication while operating in that situation.

NEWS NOTES

ARMOR CAPTAIN RECEIVES DSC

Weak from loss of blood from his wounds and in the face of enemy guns, Captain Robert F. Helmick jumped from his track and killed the occupants of an enemy bunker with automatic weapons fire. It was for this and other gallant actions that Captain Helmick was recognized when Major General James W. Sutherland, commandant of the Army School, pinned the Distinguished Service Cross on him in an Armor School ceremony. Captain Helmick performed his exploits while serving as commander of Company D, 16th Armor, 173d Airborne Brigade in Vietnam. His unit was fighting in the northern half of Tuy Hoa city when one of his APC's was hit. Moving in front of the disabled track, Captain Helmick effected the crew's evacuation.

Later, when the enemy hit his right flank with rockets, he fought back, exposing himself continuously and directing the attack until the enemy was defeated.

Recently, Captain Helmick was graduated from Armor Officer Advanced Course Number 3-69. In 1965, when he was at Fort Knox attending the Armor Officer Basic Course Number 8, he was selected as Distinguished Graduate.

ARMOR PILOT RECEIVES DSC

Captain Alan Ace Cozzalio received the Distinguished Service Cross in an Armor School ceremony from Major General James W. Sutherland, Jr., Commandant, for an action that may well be the first of its kind in Vietnam.

On 25 January 1969, Captain Cozzalio was on a mission as a Huey Cobra pilot with Company D, 3d Battalion, 5th Cavalry, 9th Infantry Division. An enemy bunker opened up on an infantry unit below him, killing five men and wounding several others. Spotting the bunker and unable to reach it with Cobra weapons because of its proximity to the Americans, he landed his Cobra and took off in a light observation helicopter. Hovering ten feet above the bunker, he fired into it with his miniguns and fragmentation grenades.

After the bunker's destruction, he landed to brief the ground commander on the best assault route, then returned to his Cobra to pin down enemy troops so that the ground units could overrun them.

Captain Cozzalio is a student in Armor Officer Advanced Course Number 1-70.

MG ROSEBOROUGH COMMANDS SPEARHEAD

Major General Morgan G. Roseborough was recently promoted to his present rank and assumed command of the 3d Armored Division within a week. These two events marked a major milestone in a military career that began in 1939 with his commissioning in the infantry as an ROTC Honor Graduate of the University of Mississippi. Starting as a platoon leader in the 6th Infantry, he soon became a company commander in the 6th Infantry, 41st Armored Infantry Regiment, 2d Armored Division. Assigned in early 1942 as Assistant S3 of the 49th Armored Infantry Regiment, 8th Armored Division, he rose to command the regiment's 3d Battalion which was redesignated as the 49th Armored Infantry Battalion. Then Lieutenant Colonel Roseborough commanded that battalion throughout its participation in European combat. During the early occupation of Germany, he commanded the 376th Infantry, 94th Division and served in key staff assignments in the XX Corps, Third Army and US Forces in Austria headquarters. Returning to the United States in December 1947, he served as an instructor at the Armor School until he attended the Command and General Staff College from which he was graduated in 1957. The next two years saw him as G3, Commanding Officer of the 81st Reconnaissance Battalion and Chief of Staff with the 1st Armored Division. In 1955, Colonel Roseborough was graduated from the Army War College and promoted to that grade. He next served successively as G3 of US Army, Pacific and Deputy Chief of Staff US Army, Hawaii. Following a tour at CONARC Headquarters, he served as Chief of Staff of the Armor Center from 1960-1962. After a year with the Joint Chiefs of Staff in June 1964, he was appointed Chief of Armor Branch. Then, February 1966 he became Assistant Division Commander of the 9th Infantry Division where he was promoted to brigadier general and accompanied the division to Vietnam. In July 1968, General Roseborough returned to Washington to become Director of Plans, Programs and Budget in the office of the Deputy Chief of Staff for Personnel, Headquarters, Department of the Army.

1ST SQUADRON, 9TH CAVALRY RECEIVES PRESIDENTIAL UNIT CITATION

The 1st Squadron, 9th Cavalry, often mentioned in the pages of ARMOR, has received the Presidential Unit Citation. General Creighton W. Abrams, MACV Commander, affixed the streamer to the squadron's colors during ceremonies at Phuoc Vinh for the squadron's extraordinary heroism during the period 2-24 October 1966. The accompanying citation noted that during this period "the squadron conducted a series of classic cavalry operations, comparable with any recorded in United States military history, with devastating effect on all Viet Cong and North Vietnamese Army units."

Colonel James C. Smith, commander of the squadron during this period, was present for the award though he is now Assistant Commander (Operations) of the 101st Airborne Division. He spoke highly of the blue platoons, the ground rifle element of the squadron. One such unit engaged an estimated battalion-size force on 2 October 1966 and killed one-third of the enemy in the first hours of contact. Colonel Smith commented, "unless you can defeat the enemy on the ground all the airmobility has been wasted."

Colonel George S. Patton presents the Distinguished Service Cross to Sergeant Lee O. Wall, 3d Armored Cavalry Regiment at Fort Lewis. SGT Wall won the award for heroic actions with the 11th Armored Cavalry Regiment in Vietnam. The 11th was at that time commanded by COL Patton.

BG GREENE HEADS USATCA

Brigadier General Lawrence V. Greene, son of the late Major General Douglas T. Greene and brother of Brigadier General Michael J. L. Greene has assumed command of the US Army Training Center, Armor.

A 1941 graduate of the United States Military Academy, General Greene is no stranger at Fort Knox, having served there three times prior to his new assignment. His first tour was as a platoon leader in the 69th Armored Regiment and as a platoon leader and company commander in the 1st Armored Regiment. (1941-42). He accompanied the latter unit in six World War II campaigns in North Africa and Italy, rising to the rank of lieutenant colonel (and commander of the regiment's 1st Tank Battalion) three years after his graduation from West Point.

During 1945 General Greene spent two months at Fort Knox on the Armor Center staff. He returned to Fort Knox again in February 1965 when he assumed command of the Army Combat Developments Command Armor Agency, a position he held until departing for Europe in May 1967.

General Greene has also spent time overseas in Austria (1950-53) and Korea (1961-63). His assignments have also taken him to Washington several times for assignments with the Army Staff and the Joint Chiefs of Staff. Prior to assuming command of USATCA, General Greene was Chief of Staff of V Corps in Germany to which position he transferred after serving as Assistant Division Commander of the 3d Infantry Division.

BLACKHORSE AWARDS

Elements of the 11th Armored Cavalry and the 1st Platoon, 919th Engineer Company, long associated together in battle, were jointly honored recently. General Creighton W. Abrams, MACV Commander, attached a Presidential Unit Citation streamer to the standard of the 1st Squadron for its actions and those of the 1st Platoon, 919th Engineer Company in their defense of the Saigon area during May 1968. During a 22-day period the squadron fought seven major engagements against the 9th VC Division, stopping the enemy on their march to Saigon.

At the same ceremony, General Abrams attached the Valorous Unit Award to the standard of the 3d Squadron, 11th Cavalry for actions during the period 31 January 1968 to 5 February 1968. During this part of the Tet Offensive, the squadron smashed the 5th VC Division and saved many Allied lives.

Later, General Tri, Vietnamese III Corps Commander, pinned the Vietnamese Cross of Gallantry with Palm on the colors of the 11th Cavalry for its actions between 7 September 1966 and 10 August 1968 in the Third Corps Tactical Zone when the 11th Cavalry battled the enemy, disease and refugee starvation.

General Abrams also presented the Distinguished Service Cross to Major John C. Bahnsen, 1st Squadron Commander and to Captain Jerry W. Thurman, aircraft commander in the 2d Squadron. Colonel Leach, 11th Cavalry commander received the Silver Star at the same ceremony.

ARMOR MEN ARE ARMOR MEN

When the California Army National Guard's 40th Armored Brigade (Separate) went to Fort Irwin for a rigorous 15 days of desert training this year, commanders found the ranks swelled by more than 700 Army Reservists, called up to meet their annual two-week active duty requirement. Some came from as far away as Virginia to fill critical skill vacancies. The USAR soldiers arrived prepared for field duty, and, as one company commander said, "Just a couple of days and it's just like they've been with us all the time."

BG GALLOWAY HEADS ARMOR SCHOOL

BG James V. Galloway recently succeeded BG William W. Cobb as Assistant Commandant of the Armor School. General Galloway was originally commissioned from the ROTC at Ohio University in 1940. His initial service was with the 69th Armored Regiment, 1st Armored Division. After a tour as aide-de-camp to General George S. Patton, Jr., he returned to troop duty to command a tank company in the D-day landings in North Africa. Following the Algeria-French Morocco, Sicily and Rome-Arno Campaigns he assumed command of the Seventh US Army Special Troops which he led in the invasion of Southern France. As a command and staff officer he served also in the Rhineland, Central Europe and Ardennes-Alsace Campaigns and with the Third and the Seventh Armies in the early occupation of Germany.

In 1946 he returned to the United States to become G1 of the 2d Armored Division and later an information officer with Headquarters, Fourth Army. Following graduation from the Army Information School in 1948, he was appointed aide-de-camp to General Thomas T. Handy then commanding Fourth Army. General Galloway (then a major) remained with General Handy when the latter was assigned to the European Command.

In 1954, General Galloway was graduated from the Armor Officer Advanced Course and became a battalion commander in the 1st Armored Division. Upon graduation from the Command and General Staff College in 1957, he became Military Assistant to the Assistant Secretary of the Army for Manpower, Personnel and Reserve Forces. He then attended the Army War College and, in 1961, became Commanding Officer of the 3d Squadron, 14th Armored Cavalry. After seven months and promotion to colonel, he assumed command of the regiment. In 1963 he was assigned as G3 of V Corps. Upon returning to the United States in 1969, General Galloway was assigned to duty with the Joint Staff until 1966 when he was selected for appointment as a Faculty Fellow at the Harvard University Center for International Affairs.

In 1967, General Galloway began what was to be more than a two-year tour in Vietnam where he served successively as Secretary of the Joint Staff, US Military Assistance Command, Vietnam and Assistance Division Commander of the Americal Division.

GENERAL OFFICER NOMINATIONS

Lieutenant General AUS:

Alexander S. Surles, Jr.

Major General AUS:		**Brigadier General AUS:**	
James F. Hollingsworth	3	Alexander M. Haig, Jr.	7
Richard L. Irby	15	Adrian St. John	12
Franklin M. Davis, Jr.	21	Charles J. Simmons	17
William W. Cobb	33	Jonathan R. Burton	29
		George S. Patton	36
numerals are Sequence Numbers		Rolland V. Heiser	43

TAKING THE "TANK" FOR A RIDE

Fort Knox drivers don't blink when they see the car ahead labeled "TANK." It is merely Major Samuel L. Myers, Jr., who took advantage of the Texas Department of Public Safety specialized license plate program. Under this program, personalized license plates are granted for an extra fee. Major Myers, son of a former Armor Center commanding general, received only his third choice of letters, behind "ARMOR" and "GO ARMY."

BATTLEFIELD TESTING

The assault bridge mounted on the M113 APC reported on in the March-April 1969 News Notes as on its way to Vietnam has been baptized in combat.

Infantrymen of the 4th Battalion (Mechanized), 23d Infantry, 25th Infantry Division used the portable bridge for the first time recently in a sweep near Tay Ninh City when they had to cross the Rach Bio Nau River.

"The bridge worked like a charm," said Sergeant Emmett Simpkins, the assault bridge platoon leader.

Lieutenant Colonel G. E. Taylor is as enthusiastic as his men about the new bridge, "We can save countless miles now by using it," he said; "before, we had to search for a safe place to cross a stream. This sometimes took hours. Now it's just move the bridge into position and cross."

NEW PATTON MUSEUM SUPPORT ACCELERATES

Two more prominent organizations have announced their active support for the up-coming construction of the Patton Museum of Cavalry and Armor at Fort Knox. The Veterans of Foreign Wars of the United States and the American Legion both have taken steps to inform their members about the museum and its need for support. James S. Whitfield, Executive Director of the American Legion, intends extensive publicity support through the American Legion News Service and through internal publications at the national, state and post levels. Curtis M. Jewell, Assistant Adjutant General, Veterans of Foreign Wars, has extended his organization's support through mass mailings to veterans. The VFW and American Legion members will also aid by selecting and assembling exhibits, dioramas and displays that will enrich the new museum.

Construction work is slated to begin in late 1969. The tank and vehicle exhibit segment containing all the existing exhibits collected by the museum since its opening in the old building in 1949 will be the first part to be constructed.

The Cavalry-Armor Foundation in Louisville estimates that the new museum will attract a half-million visitors annually. Funds for the new museum are being raised by public donation.

THUNDERBOLT MEMORIAL PRESENTED

The 11th Armored Division Association has given a memorial plaque to the Tomb of the Unknowns at Arlington National Cemetery. With a number of Thunderbolt veterans in attendance, the formal presentation was made by division association president Allen A. Lanning. Former division commanders Major General Holmes E. Dager and Brigadier General Willard A. Holbrook, Jr., joined the presentation group. The 11th Armored Division memorial plaque brought to 10 of 16 the number of World War II armored divisions thus represented at the famous shrine. Division memorials are yet to come from the 8th, 9th, 13th, 14th, 16th and 20th Armored Divisions.

FRONTIER UNITS COMMEMORATED

Stained glass windows bearing the coats-of-arms of three cavalry regiments are among eight that now grace the academic building of the U. S. Army Command and General Staff College. The Cavalry units honored are the 1st, 7th and 10th Cavalry. Other units are the 4th Field Artillery and the 3d, 6th, 17th and 20th Infantry. Each of these units was associated with the settlement and development of Ft. Leavenworth. The windows are

located in the interwing gallery of the first floor of Bell Hall.

Contributions for these first eight windows came from various sources including the Henry Leavenworth Chapter of AUSA, students attending the 1968-69 Command and General Staff College, and students attending the summer Command and General Staff Officer Course conducted by the Boston, Phoenix and Dallas USAR Schools.

Sub-units of the eight units represented by the windows donated $1,750 toward them. The largest single contribution came from the 1st Squadron of the 1st Cavalry, Americal Division, now serving in Vietnam. The squadron served at Ft. Leavenworth from 1835 to 1861.

Other unit contributions came from the 3d Squadron, 1st Cavalry; 2d Battalion, 7th Cavalry; 1st and 2d Battalions, 3d Infantry; 2d and 8th Battalions, 4th Field Artillery; and the 5th and 7th Battalions, 6th Infantry.

Eight more stained glass windows are planned for Bell Hall. These also will bear the coats-of-arms of old line Army units. The units to be honored on the second and any future such projects have not yet been selected, but they will not necessarily be units connected with Ft. Leavenworth. The Bell Hall Memorial Association will accept contributions from units who would like to see their coat of arms on such a window at Ft. Leavenworth.

NOTEWORTHY TEXTS ARE TRANSLATED

The Chief of the Central Training Command for the Republic of Vietnam Armed Forces has directed that certain U. S. Army publications translated into Vietnamese be distributed to Vietnamese servicemen. Among them are General Bruce C. Clarke's famous book "Guidelines for the Commander" which has been published in Vietnamese as a field manual and DA Pamphlet 355-26 entitled "Your Soldiers" also by General Clarke.

HELICOPTER NOTES

Military pilots of the Republic of China may soon be flying in the Bell Model 205 helicopter—essentially the same helicopter as the U. S. Army's UH-1H "Huey" according to Bell.

Under a co-production agreement between China and Bell, Chinese military and industrial technicians, pilots and manufacturing personnel will be trained at Bell. Some manufacturing and assembly work will also be done in Taiwan, Republic of China. A similar agreement with West Germany has been in effect for three years. It aims at producing 350 UH-1D Helicopters for the Bundeswehr by the end of 1970.

Bell has also announced that the Army has ordered 600 more OH-58A Kiowa light observation helicopters. The Kiowa is the military version of Bell's civilian Model 206A Jet Ranger.

Lockheed Aircraft, meanwhile, is testing a "jet flap" helicopter rotor to establish its basic lift characteristics. To achieve the jet flap, knife-edge-thin slots are cut into the leading and trailing edges of the rotor blades. Air is blown out of the slots at speeds of 700 to 800 mph.

Lockheed engineers say this new idea could increase present lift capability 10 times; thus making 100-ton heavy-lift copter loads possible. Eventually, they hope to achieve a helicopter that can fly at supersonic speeds, stop, hover and then land like the conventional helicopter.

ARVN CAVALRY CITED

The United States Presidential Unit Citation was recently presented to the 3d Armored Personnel Carrier Troop, 8th Reconnaissance Squadron, Army of the Republic of Vietnam. In September 1966, the troop in concert with the 1st and 3d Battalions, 41st ARVN Infantry Regiment, held off a superior enemy force at Van Dinh Thuong hamlet, Binh Dinh province and then counterattacked to defeat the North Vietnamese troops decisively. This action was the beginning of a far-reaching successful ARVN counteroffensive.

BLACKHORSE VETERANS: ARE YOU INTERESTED?

First steps are being taken to organize an 11th Armored Cavalry Regiment Association. All who served with the 11th Cavalry or its supporting units in combat and would be interested in such an organization should write: Major William W. Poynter, P.O. Box 985, Ashland, Kentucky 40121. The response to this announcement will determine further efforts to form the organization.

The Tarpaulin

Covers a bit of everything gleaned from the service press, information releases, etc. Contributions are earnestly sought.

TAKE COMMAND

MG Ralph L. Foster, V Corps, Support Comd . . . **MG Lawrence E. Schlanser,** VII Corps Support Comd . . . **COL Lester C. Bieler,** USAG, Ft. Riley . . . **COL Erwin R. Brigham,** 2d Bde, 1st Armd Div . . . **COL John J. Briscoe,** 5th Bde, USATCA . . . **COL Lauris M. Eek, Jr.,** 1st Bde, 2d Inf Div . . . **COL Howard R. Fuller, Jr.,** 3d Bde, 2d Armd Div

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VICTORIOUS

Distinguished Honor Graduates of the Armor Officer Basic Courses: 16-69 **2LT George L. Burritt,** 17-69 **2LT Robert P. Guilbault, Jr.**. 18-69 **2LT Charles E. Radford**. 19-69 **2LT John G. Madden,** Nevada ARNG . . . **COL Roy W. Farley** and **COL Earl W. Fletcher** have been selected to attend Senior Officer Aviator Training . . . The 1969 winners of the Joseph M. Hibbs Award have been announced by the Armor School. Winners are: **Major Dudley M. Andres,** Command & Staff Department; **Major James S. Meadows,** General Subjects Department; **SSG Dennis G. Chiodini,** Army Maintenance and Management Department; **Mr. Keith L. Baughman,** General Subjects Department; and **Mr. Arden W. Nichols,** Communication Department. The Hibbs Memorial Awards were established in 1967 to officially recognize the most outstanding officer, enlisted and civilian instructors at the Armor School and to perpetuate the memory of Mr. Hibbs, whose work in the Instructor Training Division for a period of twenty years helped set the high standards attained by today's Armor School instructors.

AND SO FORTH

LTC Frank Grandone was first to receive the Meritorious Service Medal at USA Finance School. This recognized service as Director, Department of Military Science . . . **BG Clarke T. Baldwin,** ADC, 4th Armd Div had stars worn by his wife's father, **BG Peter Rodes**, pinned on at ceremony marking his promotion. . . . One of those now revealed as **Penelope Ashe** authoress of best-selling non-book **Naked Came The Stranger** is 2d Armd Div's **SP4 Barry P. Abisch.** This Hell on Wheels soldier proudly maintains that his chapter is just as bad as those of the other 25 true co-authors. Next in view—**Confessions Of A Loader Or What Really Goes On On The Turret Floor.**

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Distinguished Military Graduates Receive Armor Association Awards

1LT John R. Giger

1LT Lawrence P. Larson

Annually the United States Armor Association awards a presentation saber to each of the two top Distinguished Military Graduates of the Army Reserve Officer's Training Corps who receive Regular Army commissions in Armor. The recipients are selected by Headquarters, Department of the Army using the same criteria as for the Mershon Award for which all Distinguished Military Graduates are in competition.

Receiving Armor Association sabers this year were 1LT Lawrence P. Larson, 3d Battalion, 68th Armor, 8th Infantry Division and 1LT John R. Giger, 1st Squadron, 17th Cavalry, 82d Airborne Division.

Lieutenant Larson is a 1968 graduate of the University of Minnesota where he was a cadet colonel of the ROTC unit and Captain of the Scabbard and Blade Company.

Lieutenant Giger is a 1968 graduate of the University of Toledo where he was cadet brigade commander and received the National Commander's Award of Pershing Rifles.

FROM THE BOOKSHELF

GENERAL GIAP: POLITICIAN AND STRATEGIST

by Robert J. O'Neill. Praeger. 1969. 219 pp. $6.95

Major O'Neill of the Australian Army has written this book to fill a practical military need: the need for a thorough study of General Vo Nguyen Giap. Bernard Fall used to criticize our army for failing to know and understand the enemy in Vietnam, and there was truth in his charge. In fairness, however, it was heavy going in the propaganda thickets of Giap's own writing (*People's War People's Army*. Praeger. 1962 and *Big Victory Great Task*. Praeger. 1968), writings that were intended more to praise the Party than to enlighten the enemy. Major O'Neill has cut away those thickets and given us a readable, comprehensive and balanced account of General Giap.

While the book fills a practical military need—"know your enemy"—the writing of it was a scholarly exercise in historical research. The problem: sources. Most of the available sources on Giap are propaganda of one type or another. Major O'Neill recognized this problem and, as he explains in his preface, carefully cross-checked Communist and non-Communist authors of several nationalities. He has thus pieced together an accurate story of Giap's early life, his joining with Ho Chi Minh in 1940, and their subsequent struggles against the Japanese occupiers, Vietnamese rivals, and the French Expeditionary Corps. The early influence of Mao's doctrine, post-1949 Chinese aid and advice, and the Viet Minh capability to exploit rapidly military and political opportunities are clearly brought out. Some things are omitted: there is no mention of American aid to the Viet Minh in 1945. Some things are needlessly added: there is a long discussion of the French reasoning behind the Navarre Plan. The resulting portrait of General Giap is complete enough, however, so that by the time the sources start to run out (1957), Major O'Neill can analyze this unique leader of the new revolutionary war. Giap emerges as a tough, competent politician, who is also a tough, competent general. In both fields he has made mistakes, learned from his mistakes, regained the initiative, and gone on to win. Giap is worthy of our study, and this book is the best compilation and analysis of what is known of him today.

A note on the author: in the first ten years of his commissioned service, Major O'Neill has served in Germany and Vietnam, has gained a degree in electrical engineering from Melbourne and a Ph.D. in modern history from Oxford, and has published four books on military subjects. Anyone interested in professional military reading might keep an eye open for the works of Major Robert J. O'Neill, Australian Army. LTC THOMAS W. COLLIER, USMA

THE PRESIDENT AND THE MANAGEMENT OF NATIONAL SECURITY

edited by Keith C. Clark and Laurence J. Legere. Praeger. 1969. $6.95

BNSP, DPM, JSOP, NSAM 341, SIG/IRG—if these convey little or no meaning to you, then a reading of Clark and Legere's book offers a cost-effective expenditure of time and money. Although it was not intended as a primer for pre-war college students or for prospective DA and DOD staff officers, it serves that function adequately and unscrambles the alphabetical combinations above.

The editors' aim, however, is more purposeful. Writing for the Institute for Defense Analysis, they have reviewed the process of decision-making in national security affairs and have suggested procedural improvements to the President. The authors contend that there are three possible systems for national security decision-making: a White House centered approach; one that relies heavily on the State Department; and an intermediate system that distributes functions among the White House, State, and other government agencies. Clark and Legere favor the last. Their delineation of responsibilities assigns the function of resource allocation to the White House and that of coordination of operations to State. A third function, policy planning, is treated at length and somewhat inconclusively. Should the President adopt the highly structured, codified version of policy planning embodied in Eisenhower's use of the National Security Council? Or was the *ad hoc* style of Kennedy and Johnson a better approach to decision-making in a dynamic world? Good middle-of-the-roaders, Clark and Legere recommend the best of both with the proper balance reflecting the President's predilections and the urgency of the issues. These major themes are developed against a backdrop of future domestic and international influences on national security; brief bureaucratic histories of the White House National

Security Staffs, the State Department, and DOD from 1947 to the Nixon administration; and recommendations for the improved functioning of the latter two.

Of particular interest are some of the authors' comments on DOD. The JCS and the service staffs are still behind DOD civilians in the use of systems analysis; the services have failed to assign their best people to DOD, and DOD staff duty is an impediment to star and flag rank promotions; and the Secretary of Defense should take on the Clausewitzian function of the "chief military philosopher." In espousing this role for the Secretary, the authors have offered a perceptive thought. The reader might appropriately ask: With systems analysis having triumphed over administrative chaos in DOD and with prospects that this situation is permanent, would not our country be better served at the highest levels with those best qualified to relate military power to political goals rather than with individuals whose primary strength is business management? The question is perhaps rhetorical since recruitment would pose a problem. A nation such as ours that does not encourage the teaching and learning of military history is unlikely to have a plethora of Churchills waiting in the wings.

Endemic to all multi-authored books is redundancy. This study, which has seven contributors, is no exception; but the repetitions are well within acceptable limits. An index, however, is lacking. Clark and Legere's book, a clearly written and concise review of our procedures in national security policy, is most appropriate for the student of this subject but offers valuable insights for the experienced practitioner as well. LTC JAMES F. RANSOME, JR., USMA

THE WAR BUSINESS

by George Thayer. Simon & Schuster. 1969. 383 pp. $6.95

For the soldier familiar with the tools of his profession, *The War Business* is a fascinating account of these same tools in quite a different setting. George Thayer skillfully and knowledgeably examines the international arms trade, revealing many of our old reliables—*M2* carbines, *M47* Pattons, *F86* Sabres—in some very fancy political and commercial deals. Mr. Thayer discusses the trade in this order: American and then Western commercial dealers, American and then Western governmental agencies, the old arms manufacturers such as Krupp, and finally the Communist nations. This order of presentation represents Mr. Thayer's order of knowledge of the trade and therefore his order of skill in narration.

Starting with the amazing Samuel Cummings of Interarms, Mr. Thayer gives a thoroughly researched inside picture of private arms dealers. He moves easily and knowingly in the jungle of reputable, not-so-reputable, and downright crooked dealers, manipulators, and smugglers. His approach is restrained and factual, but the excitement of the trade and the depth of the author's knowledge make this the most fascinating part of the book. It is like a cross between a detailed staff briefing and a racy gossip column.

The next section is a change of pace. It is equally as well researched, but Mr. Thayer's distaste for the Defense arms sales program takes the fun out of it. His opinion of the "Pentagon drummers" is best said in the quotation from Virgil's *Aeneid* that he uses, "A monster fearful and hideous, vast and eyeless." Distasteful or not, the subject is given thorough coverage and sharp analysis. This section of the book is the most pertinent and important to the American military reader.

As Mr. Thayer leaves the American scene, his knowledge and relevance thin out. Generally, since America—and particularly the Department of Defense—dominates the trade, this is not important. The only real disappointment here is his rather flat account of the arms deals of the Communist nations. Unable to break through Communist security, Mr. Thayer is stuck with published Western sources: newspapers, magazines, and books. They just do not give the kind and amount of information that make the first chapters so fascinating.

The last chapter of the book is the most controversial. It covers the effects of the arms trade on international affairs, and makes recommendations for changing and controlling those effects. This is an exceedingly complex matter, and a dangerous one: the headlines from the Mideast alone remind us of that daily. Mr. Thayer's approach seems too doctrinaire and his recommendations too simple and absolute. Armed with the facts that he presents so well in the first nine chapters, you may want to debate his conclusions in the tenth. LTC THOMAS W. COLLIER, USMA

PEOPLE'S WAR: CONDITIONS AND CONFERENCES IN SOUTHEAST ASIA

by J. L. S. Girling. Praeger. 1969. 244 pp. $6.50

Based on an extensive background in Southeast Asia, author Girling examines the conditions that make for success or failure in revolutionary war. With a far-reaching review of China's fall to the Communists as a backdrop, he proceeds to an examination of the failure of the insurgents in Malaysia and the Philippines, and their success in Vietnam. In this accounting, successful revolution is not a matter of technique or organizational skill; nor is it simply the result of a carefully perpetrated fraud by revolutionary leadership. Rather it is shown that revolution cannot succeed without the support—willing or not, of the people. Thus Mr. Girling explains the circumstances that create the environment for insurgency, and conditions necessary for its success. Finally, using Malaysia and the Philippines as examples, he suggests ways revolutionary wars can be countered or suppressed. He concludes with a pessimistic look at US involvement in Vietnam through TET 68, suggesting that none of the conditions necessary for containment or suppression of the revolution in Vietnam are or have been present. A good account; thoroughly documented with original sources; but a disappointing ending. Like most other authors who write on the subject, Mr. Girling can tick off what's wrong in Vietnam, but shies away from suggestions for positive action to improve the situation. From one who obviously knows it well, his subject deserves better treatment. DAS

ON BORROWED TIME: HOW WORLD WAR II BEGAN

by Leonard Mosley. Random House. 1969. 509 pp. $8.95

"Neville Chamberlain is a Dummkopf," Admiral Canaris said in 1939, and so he appeared in the last year before World War II. Chamberlain, Prime Minister of Great Britain since 1937, felt that a new approach was necessary to deal with the growing powers of Germany and Italy. Thus was born the strategy of appeasement. Rejecting numerous opportunities to halt German expansion, Chamberlain followed his concept of how peace could be maintained in Europe. Major errors were made: the failure to support Czechoslovakia with its anti-Nazi element, modern arms, fortifications, and a well-trained army; the alliance with Poland, originally done as a sop to British public opinion, but tying Britain to an emotional and weak country with an archaic government and army; the later failure to combine with Russia, the one power which could absorb the majority of German strength in the event of war; the shoddy way in which the relationship with France was handled; and an earlier rejection of Franklin Roosevelt's idea to hold a Congress of Nations. The Prime Minister was the one man in Great Britain who could stop the rising tide of Hitler. He bungled every opportunity with his policy of appeasement. Chamberlain's failure is the major theme in Leonard Mosley's book which is ". . . an account of the last turbulent days of peace and the first brutal days of battle when World War II began in Europe in 1939. . . ."

Unintended by the author is an explanation of the policies of the post-war American government. Lyndon Johnson, Clark Clifford, Dean Rusk, Richard Nixon and many others grew up during the unsuccessful overtures to Hitler. World War II was a shattering experience to these men and they promised to prevent another world war. Appeasement, embodied in the agreement at Munich did not prevent conflict. A strong armed force in being and properly used could have prevented war. This message is vividly portrayed in *On Borrowed Time*.

The book is well written. The author uses his skill as a journalist and as a novelist (five novels and twelve works of non-fiction prior to this book) to tell the story. History becomes interesting and homey with numerous anecdotes interspersed among the more important events. This strength, however, is also Mr. Mosley's weakness. Single events portray entire situations when a more detailed and thoroughly researched account is needed. Oversimplification is a result. Chamberlain favors appeasement—he is a failure. Churchill and Eden do not favor appeasement, ergo they are heroes. The book often reads like a newspaper with a day by day account of the period from Munich to the invasion of Poland which is many days and many pages later.

Regardless of these weaknesses, the book is interesting and informative. LTC JAMES E. TORRENCE, USMA

WHY FRANCE FELL: THE DEFEAT OF THE FRENCH ARMY IN 1940.

by Guy Chapman. Holt, Rinehart and Winston. 1969. 403 pp. $8.50

The expansion of Germany in the 1930's is a frightening story, as Austria, Poland, Norway, and finally France came under Hitler's control. The French fall is perhaps the most tragic, for a dynamic

France could have upset the German plans and preserved the peace. The French army, however, was not prepared nor capable of halting the Germans. Guy Chapman's purpose in writing the book, *Why France Fell,* is to try to determine why.

Mr. Chapman divides his book into three parts. Part I deals with the period between the wars: the reconstruction of the French army and the numerous errors in French military preparedness. Revulsion from hundreds of thousands of casualties suffered over the long years of World War I led to a defensive doctrine and spirit typified by the Maginot Line. Part II discusses the phony war between September 1939 and May 1940. The French mobilized and maneuvered their forces but were unable to correct the deficiencies of planning and defensive thinking which had dominated the past 20 years. The people dully accepted the inevitable and expected, as did their leaders, a long war. Part III, the largest part of the book, discusses in exhausting detail the fighting between 10 May, when the Germans launched their attack into Belgium, to the surrender of the French on 25 June 1940. Mr. Chapman criticizes Petain's opinion that tanks cannot come through the Ardennes, dispels French criticism of the British withdrawal to Dunkirk, and rather abruptly challenges the myth of de Gaulle.

The author is qualified to write about the fall of France. He was born in England in 1889. He served in the British Army in both WW I and WW II. He was a Professor of Modern History at the University of Leeds, a visiting Professor at the University of Pittsburg, and a member of the Institute of Advance Study at Princeton. He has published several books about France, to include *The Dreyfus Case, A Reassessment* in 1955 and the *3d Republic of France, First Phase* in 1963. His book is well documented and includes an extensive bibliography.

Why France Fell is hard to read. Extensive research has led to excessive detail, particularly in Part III which reads like a situation report or a unit diary with no maps or overlays to clarify the action. The style of writing paints the picture of confusion and shows the inability of the French leaders to comprehend the German objectives and tactics. For the historian the book will supply some details, but it is not a good book with which to relax on a Sunday afternoon. LTC JAMES E. TORRENCE, USMA

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