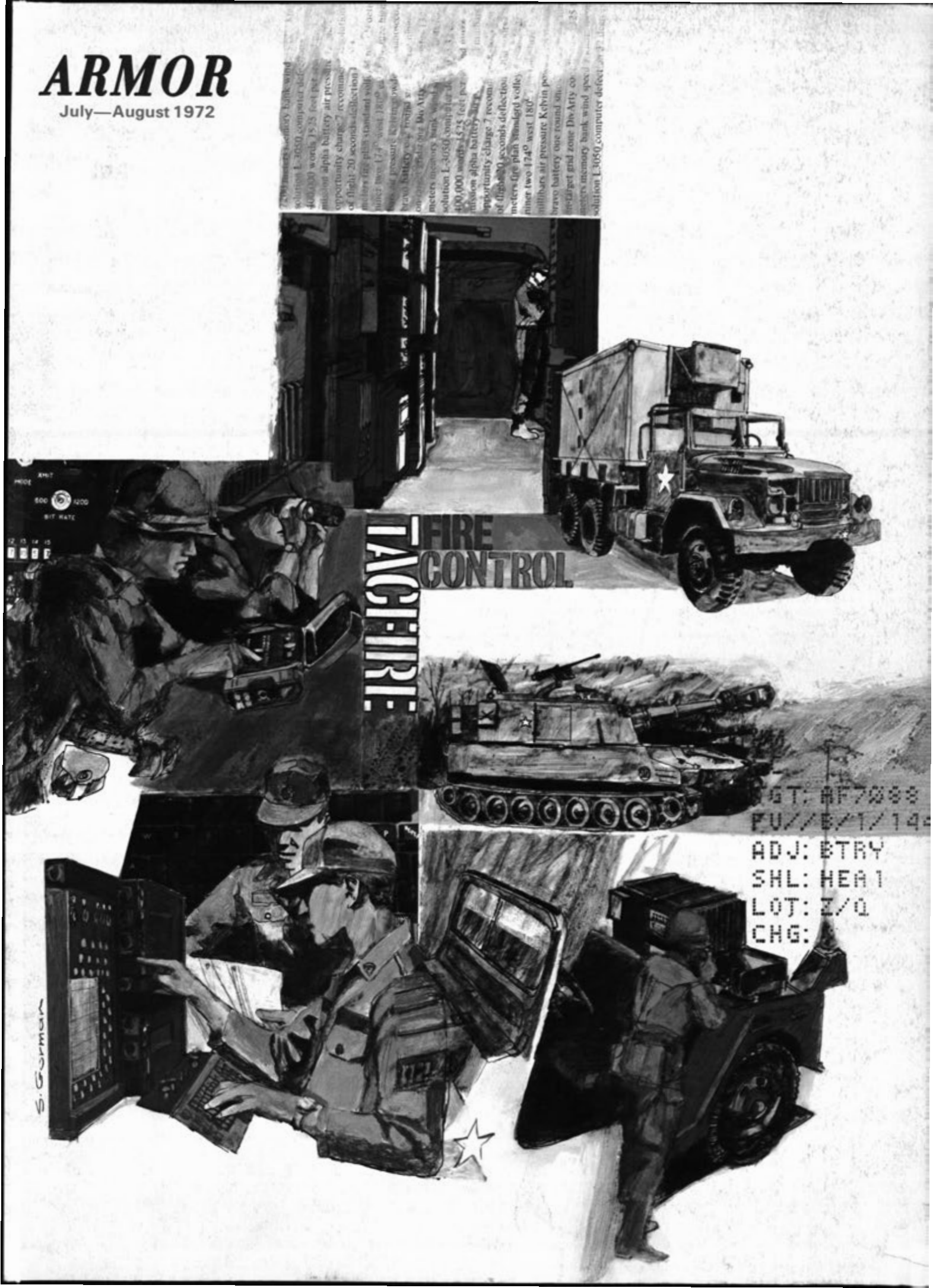
ARMOR

July—August 1972



General Abrams nominated as Army Chief of Staff

General Creighton W. Abrams Jr. has been nominated by President Nixon to succeed retiring General W. C. Westmoreland as Army Chief of Staff.

General Abrams, a 1936 graduate of the United States Military Academy, was commissioned in Cavalry. During his 36-year military career, he has served in numerous Armor-related positions. He was battalion commander and combat command commander with the 4th Armored Division from its activation in 1941 until VE Day in 1945. From 1946 to 1948, he served as director of tactics for the Armor School and in 1955, as chief of staff of the Armor Center. The general has also been division commander of the 3d Armored Division from 1960 to 1962, commanding general of V Corps from 1963 to 1964, and Vice Chief of Staff from 1964 to 1967. From 1961 to 1967, General Abrams served on the Executive Council of the United States Armor Association.

Since 1968, General Abrams has served as commanding general of the United States Military Assistance Command, Vietnam.

ARMOR

the Magazine of Mobile Warfare

Volume LXXXI July-August 1972 No. 4

ON THE COVER . . .

So that Artillery can respond quickly to the critical needs of modern warfare, a new fire direction process, TACFIRE, has been developed.

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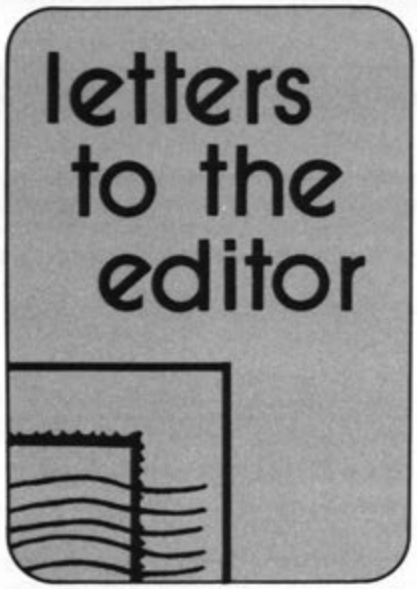
letters to the editor



Redeye and the M151

Dear Sir:

Captain Alfred T. Bowen, in his article "Improving Redeye Effectiveness," mentions only the faults of the *M151* and the advantages of a light armored vehicle. Granted, the *M151* is not the best means of transportation for the *Redeye* team. Many times I have had to bounce across the countryside trying to keep up with the tanks and mechanized infantry. And all too often have I been sandwiched between *M60s* along a tank trail at night completely blacked out, praying that the driver behind me could see my jeep. The *M151*, however, does offer some important advantages over the *M113* or *M114*.

The use of a light armored vehicle in in place of the *M151* would result in the following:

- Reduced visibility and hearing. The *Redeye* team relies on their eyes and ears as their primary means of detection. Thus, all members of the team need freedom of movement. But how much could you hear wearing a CVC helmet? How much freedom of movement can you have when you are a TC? I have used both type vehicles; the jeep is better.
- Misuse of the *Redeye* section. Unfortunately, on too many field exercises, the *Redeye* section becomes just an additional recon element. Putting the section in armored vehicles will only further tempt commanders who do not know or care about air defense to use the section as a ground combat element. I have seen this happen before.
- Greater maintenance problems. Obviously, the jeep is easier to maintain.
- A vehicle harder to camouflage. The size of the jeep makes it easier to hide. If need be, the trailer can be hidden separately.
- Storage problems. The jeep trailer can hold six *Redeye* missiles in their containers plus other gear. Another three missiles can be put on a homemade ready rack in the back of the jeep. Also, the team leader would be holding one. I would like to see how these missiles, with or without containers, would be stored in an *M113* (this alone should knock the *M114* out of the race). Accessibility to these missiles would be severely limited. There just would not be room for all the needed equipment.
- Reduced reaction time. It is much quicker to jump out of a jeep while holding the missile than it is to off load from an *M113*. Those few seconds may make the difference between a kill and another target that got away.

I would also like to comment upon Captain Bowen's example of employing two *Redeye* teams to protect one possible air target. An infantry or tank battalion only has four *Redeye* teams. What type target at battalion level would be worth sacrificing 50 per cent of your air defense protection of the front line troops? *Redeye* teams are allocated one per company; this is how they should be deployed in most cases.

Furthermore, Captain Bowen splits these two teams into four defensive positions. Unless he plans on these individuals remaining on watch 24 hours a day, his new *Redeye* team would have to consist of at least four men (more storage problems). The *Redeye* team was never designed nor trained to be split apart; they do not even have the commo equipment to accomplish this.

It should be remembered that according to *Redeye* doctrine, the team will be deployed outside the range of enemy small arms fire. Also, any attacking aircraft will not be going after a lone jeep but rather the tanks, artillery and infantry. Thus, the team's need for armor protection is not that great.

Captain Bowen suggests "an antiaircraft gun-type capability." I agree. But I would recommend mounting the .50-caliber machine gun on the *M151* and adding only one more person per team to man the gun. This would cost the *Redeye* team the three missiles kept in the back of the jeep.

I further recommend that all *Redeye* gunners be trained in the use of the .50-caliber machine gun in the antiaircraft role. This could be done easily with a few days additional training at *Redeye* school. I do not recommend ever splitting the *Redeye* team.

These suggestions would be more economical and easier to accomplish without destroying the basic structure of the *Redeye* section or drastically altering *Redeye* doctrine.

All in all, as a *Redeye* section leader in a conventional warfare environment, given the choice today between a light armored vehicle or an *M151*, I would stick with the *M151*.

WILLIAM J. VANDEN BROOK
Captain, Armor
Fort Hood, Texas 76546

Dear Sir:

I read with interest Captain Alfred T. Bowen's article, "Improving Redeye Effectiveness," in your March-April issue. It is not often that people take notice of the *Redeye*, much less know what it is.

As a *Redeye* section leader for the 1st Battalion, 37th Armor, I agree that each team needs increased ground security and a secondary back-up air defense (AD) weapons system. However, I firmly disagree with the proposed solution of changing from *M151A1s* to either *M113s* or *M114s*.

It is true that the *M151A1* does not afford physical protection (e.g. so many inches of armor); however, one does not have to expose an armored vehicle in order to have protection. The proper use of camouflage, cover and concealment provides all the necessary protection a team needs.

Redeye is an all-arms AD weapon—not an assault weapons system. *Redeye* has no business being in the vanguard of an assault. The weapon should be deployed so as to *cover* the assaulting force.

An *M151A1* moves faster and quieter than either an *M113* or *M114*. The *M151A1*, when it goes tactical, is much easier to conceal (especially with the canvas off and windshield down and covered with either a shelter half or tarp) than either the *M113* or *M114*.

As for the *M151A1* not being able to keep up with its supported unit, my experience has shown that my vehicles have yet to lose a supported unit. The jeep can and does traverse terrain that the *M113* and *M114* cannot—for example, jeeps do not have to worry about weight limitations and they can enter and leave heavily wooded areas at will.

Finally, personnel strength in almost all *Redeye* units is and always has been low. Also consider that a *Redeye* section is usually looked upon as a battalion detail section, and one will find that the actual amount of time for both training and maintenance is a scare factor. My point being, a *M151A1* is easier to maintain than either the *M113* or *M114*.

The solution for increased ground security and a back-up AD weapon is not to be found in changing vehicles, but in the addition to the TOE of either an *M60* machine gun or a .50-caliber machine gun, two per team.

With either machine gun, the problem of increased ground security (hence, team survivability) is increased—remember, *Redeye* is an AD weapon, we defend ourselves if necessary but we do not go

looking for ground action.

One last point, a *Redeye Block III* round cost approximately $6,000. If a low performance aircraft or helicopter is downed by a *Redeye*, it is not "expensive and unnecessary." I have yet to see an aircraft and a trained pilot cost less than $6,000. Furthermore, any intelligence gathering or artillery observation that the pilot and his passenger had in mind will have been literally shot down in flames. If a troop carrying helicopter is downed by a *Redeye*, then any plans that the airborne rifle squad had in mind are permanently laid to rest *before* they hit their LZ.

My final point is that the *Redeye* weapon is the primary weapon for a *Redeye* team—regardless of what changes in the TOE occur. *Redeye*, if correctly fired by the gunner, will bring down any aircraft with almost near certainty—not so with any other automatic weapon, whether it be a 20mm or a machine gun.

RODGER W. NAGY
1st Lieutenant, Armor
APO New York 09177

M48s in RVN

Dear Sir:

In your March-April issue, Lieutenant Colonel Richard M. Meyer stated in "The Road to Laos" that in January 1971, 1-77 Armor was the last Active Army unit in Vietnam that was equipped with the *M48* tank. Perhaps if 1-77 Armor was manning straight *M48* "gassers," they were the only unit so equipped. However, until October of 1971, 1st Squadron, 10th Cavalry was operating out of AnKhe with *M48A3* tanks. One would further assume that in January 1971, the tank company of the 2d Squadron, 11th Cavalry was still in operation along with the rest of the squadron using their *M48s*.

While 1-77 was the only tank battalion in the country at the time, the tankers in other units would have it known that they were still on the job.

NED B. RICKS
Captain, Armor
Fort Hood, Texas 76545

Interesting Counterpoints

Dear Sir:

I have not, in the past, felt compelled to write a letter to the editor of *ARMOR*. But, articles in your last two issues ("The Death of the Tank" and "Tank/Antitank Spectrum or Mobile Warefare") indicate to me that *ARMOR* is finally ceasing to be a house organ and is taking a stab at providing controversial and thought-provoking exchanges which should be the hallmark of a professional journal.

Colonel Moreau's article is timely and his point well taken. There is, unfortunately, no direction for doctrinal development for the Army in the field. Doctrine, both at CDC and DA, is basically the responsibility of agencies/sections which are proponents for a system/organization. The result is an overwhelming parochialism which often leaves the tanker and infantryman underrepresented at the highest levels.

Trade-offs for exotic items and unproven theories come at the expense of those who must physically accomplish the Army's basic mission of sustained ground combat. Vertically structured support organizations appear beyond the complete control of the combat commander and which restrict his ability to influence his own operations.

In short, the operational guidance (doctrine) which should be Colonel Moreau's single policy, is the result of who's on top, not a coordinated plan. Such doctrine should be developed, as Colonel Moreau points out, through an approved single philosophy provided as guidance to the working levels, and not through a proponency oriented bureaucracy.

The two articles I first mentioned have interesting counterpoints in the March-April issue. Colonel Moreau's article has a companion piece in "An Aerial Blocking Force." The uncritical remarks about the *Cheyenne* and *TOW* serve to emphasize to me what Colonel Moreau said about "some analysts depicting graphically that *TOW* provides the real cost-effective way to negate the potential armor threat. They ignore the fact that the missile may require an unusual set of circumstances to insure attainment of the analytically derived kill probabilities." As long as proponents of a system or organization are allowed to honcho studies which are conducted to prove out what the proponent is pushing, the result will be a mass of confusing and inaccurate facts.

"The Death of the Tank," whether you agree or not, has some interesting counterpoints in the March-April issue. "Tank Add-on Stabilization" may be great; however, it does illustrate the exotic equipment complex which is symptomatic of the oversophisticated/unmaintainable/highly expensive garbage we have been putting on our tanks for too many years.

Contrast this with General I. D. White's book review in the same issue—"Eventually, the old reliable *M4 Sherman* with 76mm gun took over the tank role in Korea." (General White goes on to comment upon personal prejudices and inflexible theories held by those who determine policy; shades of Colonel Moreau!)

If the tank is really dead—and I don't think it is—it is because we have allowed ourselves to be overcome by proponents who are selling equipment and don't have to fight in the damn thing. We have forgotten one of the basic principles—Keep It Simple. If the tank is dead, it did not die as a result of light weight, inexpensive, and lethal antitank weapons. If the tank is dead, it probably committed suicide.

In closing, you have one more mission to accomplish if *ARMOR* is to continue to provide a professional platform for tankers. Reduce the ridiculous staffing necessary to get a controversial article approved for publication in a professional journal. Articles should be reviewed only for possible security violations and technical accuracy. They should not be subject to comment by all interested agencies at all levels of command.

Reviewers should have short suspense dates and not be permitted to officially recommend any changes unless requested by the author. They should not hold up publication (I wonder how long it was for Colonel Moreau's article to see publication from the time he submitted it?). The present process lends itself to sterile thinking and is not conducive to the professionalism to which we claim to aspire.

GERSON J. SUBOTKY
Lieutenant Colonel, Armor
Fort Knox, Kentucky 40121

G-2: Intelligence for Patton

Dear Sir:

Brigadier General Donn A. Starry's review of *G-2: Intelligence for Patton*, on which I was privileged to collaborate with the late Brigadier General Oscar W. Koch, was the most perceptive yet to appear. I am particularly pleased that he recognized the credit due Koch for Third Army's spectacular response to the German penetration in the Battle of the Bulge.

It also is personally quite gratifying to see in print the debt combat intelligence as a military science owes to General Koch. He was a rare individual in many ways, but above all a dedicated professional soldier.

I am grateful to both *ARMOR* and General Starry for bringing this work to the attention of your readers.

ROBERT G. HAYS
Carbondale, Illinois 62901

More Books About Armor

Dear Sir:

In the months that have passed since I wrote "Books About Armor," more publications have come to my attention.

From behind the Iron Curtain, *Bronetankovaya Technika Armie Kapitalisticheskich Gosyedarsty* (1964) by M.G. Nersesyai and B. Kamenshcheva is a well-illustrated and up-to-date description of Western vehicles as of 1964. *Tank* (1958) by B.M. Selevochin is a paperback edition similar to the East German *Das Kleine Panzerkunde* with minor tactics somewhat reminiscent of our own Armored Force's

Field Manual 17, *The Tank Platoon* (1942), which in turn was copied from the 1938 German *Tankbush* by Lieutenant Kaufmann. Both were published by the War Ministry in Moscow.

The Polish War Ministry published *Rycerze Pancerni XX Wieku* by Janusz Magnuski in 1967, similar to the Soviet *Tank* mentioned above, and *Wspolczesne Transportery Opancerzone* by Stefan Brudny, an excellent study of wheeled and tracked armored personnel carriers.

Panzer in Russland by Horst Scheibert and Ulrich Elfrath is a 1971 publication by Podzun-Verlag of Dorheim/H, West Germany. The text is in both German and English and covers the course of World War II on the Eastern Front. There are over 900 combat photos and an added bonus is a display of organizational charts and panzer division identification symbols.

A newly received Japanese photo history of excellent quality is the *Maru Graphic Quarterly 8/Summer 1971*, which comprises mainly of combat photos with a few Japanese experimental vehicles. The Armin Halle-Carlos Demand book *Tanks* mentioned in my article is a work of art, but treats the subject from the standpoint that the tank is dead and now of historical interest only. *Armoured Fighting Vehicles of the World* (Ian Allan, London 1971) by Christopher Foss includes many new photographs, but the text is unevenly done. It is understood that Peter Chamberlain is to produce a similar book this year. *Armor Camouflage and Markings, North Africa 1940-43* by George R. Bradford and published in Canada by the author, is a well-illustrated slick paper book, partly in color, which is of considerable interest to collectors and model makers.

Other photographic coverage is provided by *Portrait of Power: A Photo History of US Tanks and Self Propelled Artillery* (Normount Technical Publications, 1972) in which Colonel G.B. Jarrett and I made an effort to use fresh photos, both static and combat. I also authored *Modern US Army Support Vehicles, Profile Book No. 1*, published in England late in 1971.

On the more serious side, there is *The Blitzkrieg Era and the German General Staff 1865-1941* by Larry H. Addington (Rutgers University Press, 1971), which ascribes the eventual failure of German blitzkrieg to the effects on logistics of distance and inadequate transportation. Doubleday will publish my *Famous Tank Battles*, which covers 32 combat actions and operations from 1917-67, in April. The long-awaited *Patton Papers I: 1885-1940* edited by Martin Blumenson is now on the market.

Finally, mention should be made of two more graduate papers. One, a doctoral dissertation on the influence of Soviet armor theory on the training and development of the North Korean Army, is by Daniel S. Stelmach of St. Louis University. The other is a master's thesis titled "The Mechanization of the US Army 1900-1916," which deals with Service attitudes during that period, is written by Norman Miller Cary Jr. of the University of Georgia. Mr. Cary expects to present a doctoral dissertation covering the same subject from 1917-23.

I would also like to point out that due to a typographical error in the first part of my article (the January-February issue, page 56), the author of "To Lose a Battle: France 1940" should have read Alistair Horne.

ROBERT J. ICKS
Colonel, USAR-Ret.

Elmhurst, Illinois 60126

The above is an update of a two-part article that appeared in the January-February and March-April issues. THE EDITOR.

Armor in Internal Security Operations

Dear Sir:

I regularly read your fine magazine in an effort to keep up-to-date on modern armor.

We, in the Canadian Armed Forces, are very conscious of our internal security (IS) role in support of our civil powers. Much of our training is slanted toward IS duties throughout our training year. Because internal security operations is a relatively untouched field of endeavor in our military history, we are still very much open to suggestions and ideas from anyone that may help us in a situation of civil unrest. We have received much advice from our British friends and have studied numerous American case histories.

One aspect that has never been satisfactorily attacked is the role of armor in internal security operation. We have some ideas about how tracks should be used but, as I said, we can use other ideas. If at all possible, I and many other Canadian readers would like to see an article dealing with this subject in your magazine.

As a matter of fact, I'll offer you a trade. If someone will write an article about armor in internal security operations, I will submit to you an article on armor in arctic operations. Deal?

J.S. COX
Captain

2d Battalion
The Royal Canadian Regiment

The 83d Annual Meeting

Dear Sir:

Having just returned from the 83d Annual Meeting of the US Armor Association at Fort Knox, I want to express to both the Armor Association and the Armor Center my appreciation for their fine efforts.

After four years away from the Home of Armor, it was a most interesting conference. The entire program was presented in a positive, professional, forward-looking, refreshing manner.

As the young soldier says—Beautiful!

G.E. TAYLOR
Lieutenant Colonel, Armor

Management Information
Systems Directorate

ARMOR Stamps Cover

Dear Sir:

Can you furnish me a list with catalog numbers of the stamps on the May-June issue?

NEIL B. DOWNEY
Colonel, Armor

Department of Mathematics
US Military Academy

The stamps appearing on the May-June cover were obtained from Harold Scharff, a collector of militaria and stamps. Those interested should write him at 2410-AR Barker Avenue, Bronx, New York 10467. THE EDITOR.

Armor Aviators Questioned

Dear Sir:

In an effort to determine the career interest of Armor aviators, 96 aviators in two Armor Officer Advanced Courses were asked the following question: "Would you like to see the Army establish Army aviation as a new combat arm?" The results were that 44 replied they would, while 52 responded that they would not.

The comparisons of the responses of the group with Armor proponent aviation assignments, with those who have had primarily branch immaterial aviation assignments, provided an important difference. Almost every officer with an air cavalry background replied no, while practically all with little or no Armor proponent aviation experience replied yes.

Near the end of both courses, the questionnaire was readministered to the same officers. Of those that responded yes, 8 of the 44 changed their response to no. This reflects an 18 per cent reduction in the number of those previously supporting the establishment of Army aviation as a new combat arm.

The challenge for our Branch is to instill in all its aviators the spirit and traditions of Armor and Cavalry. We also have to insure that they get the educational and assignment opportunities for their qualification in the employment of all the multidimensional forces of the Armor Team. While this appears to be a job for Armor Branch and the Armor School, it is really a task for all. Armor Branch presently has at least twice as many aviators as it has aviator positions in Armor proponent units. The Armor School, in the short amount of time that

(continued on page 62)

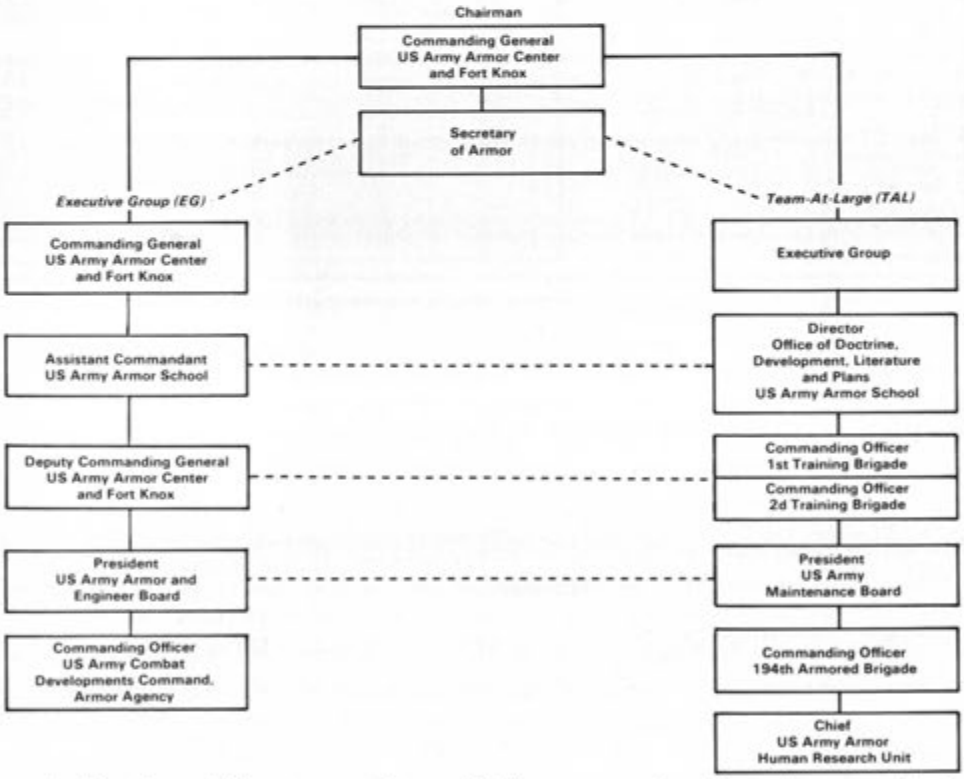
Armor Center Commander's Update

MG William R. Desobry

In the past two issues of *ARMOR*, I discussed the subjects of Modern Armor and the Main Battle Tank Task Force. With this issue, I would like to return to my original thoughts of providing you with a summary report of the major activities taking place at the Armor Center and an update of information previously presented.

Some questions have been received from the field on the purpose and organization of the **Armor Center Team**. The purpose of the Team is to utilize the collective experience and expertise of the entire Armor Community at Fort Knox to study and develop unified positions on matters pertaining to Armor doctrine, materiel and training. Team positions are used to influence decisions or to initiate actions which will insure Armor's combat effectiveness.

THE ARMOR CENTER TEAM



We meet at least monthly, or more frequently if necessary, to address Armor-related problems. We are also active in exploring new ideas by visiting various organizations and commands or by inviting their representatives to Fort Knox. For example, in December 1971, we met with Major General Erwin M. Graham Jr., Munitions Command (MUCOM), and members of his staff at Picatinny Arsenal, New Jersey, and received a complete update on Armor-related munitions developments. This visit also provided the Team with an opportunity to query the munitions experts about items of current interest. Among these were the United

Kingdom 105mm *L52* APDS round and the *L45* APDS practice round. MUCOM has now received authorization to manufacture both 105mm rounds in the United States. The practice APDS round is ballistically matched to the service APDS round out to ranges of 2,000 meters; however, the reduced maximum range will permit firing on almost all tank gunnery ranges around the world.

In January 1972, the Team visited Yuma Proving Ground, Arizona, and observed the testing of the *Cheyenne* attack helicopter and *TOW* missile system firings. In early February, selected members of the Team visited Fort Hood, Texas, to observe the testing of the Air Cavalry Combat Brigade (ACCB). The overall objective of the test is to examine the validity of the concept of the ACCB (that being, how best to employ our air cavalry assets) and to attempt to determine the desired organizational structure at the company and troop level. In April, the Team visited the Weapons Command (WECOM) at Rock Island, Illinois. The ensuing discussions concerning tank development were very enlightening for all members. Since the Team cannot visit all the activities related to Armor developments, a comprehensive program of briefings by invited guests is also conducted here at the Home of Armor.

These are but a few of the Armor Center Team's efforts to present user views to the developers of equipment and to keep abreast of Armor developments around the world, thus making timely contributions in all areas of doctrine, materiel development and training.

The Armor School has developed a draft **"Consolidated MOS Study 11E10/11E20"** to assist enlisted personnel to prepare for their annual MOS evaluation test in these skill levels. This draft, a consolidation of all required study reference material into a single source, is now being reviewed by major units in the field. Tentative plans call for publication of the manual during late summer. Manuals for other skill levels of MOS 11E and 11D are in the planning stage. Because the manual follows the MOS evaluation test outline, commanders will also be able to use the book as convenient source material in support of unit training to correct weaknesses reported on the unit MOS Evaluation Test Profile Summary Report. (This report may be obtained by units down to company size from the US Army Enlisted Evaluation Center. It is a summary of all individual results of a given MOS when ten or more men are evaluated.)

The Armor School is also in the final stages of production of a **TV tape entitled "Your Destiny in Armor."** The tape is intended to assist enlisted personnel in becoming aware of their responsibilities in career planning. It includes a discussion of four of the major promotion points areas: MOS evaluation testing, the commander's evaluation report, military training to include the NCOES program, and civilian education. The tape should be completed and ready for field use during the fall. Copies of the color tape, with a running time of about 20 minutes, may be obtained by writing the Director of Instruction, US Army Armor School, ATTN: ATSAR-DIT, Fort Knox, Kentucky 40121.

The Armor School and the USACDC Armor Agency participated in establishing a milestone schedule for **improving the M551 Sheridan vehicle.** Field recommendations submitted to date and results of world-wide tests will establish the basis for improvement of the *Sheridan*. Some examples of these recommendations include: the installation of the laser rangefinder; improved telescope/periscope reticle and fire control instruments; and a more reliable turret electrical system. These improvements are designed to provide reconnaissance units with an improved, more reliable weapons system. The product improvement program is proceeding according to plan and is scheduled for completion in early 1973.

In the field of ammunition, we are having success with **a new 152mm cartridge case.** The *XM157* cartridge case, common to the original 152mm rounds for the *Sheridan* and *M60A2*, has now been replaced by the **M205 high density case,** which is now type-classified Standard A. *M411A1* TP-T round, with the *XM157* case, is Standard B and can be used for training until the old stockpile is depleted. The Armor Center Team observed demonstrations of the new *M205* "hard" case at Picatinny Arsenal in December 1971. These demonstrations compared the new *M205* case with the old *XM157* case and with standard metal-cased tank ammunition under conditions of firing, exposure to flames, rough handling and penetration by simulated shell fragments. These demonstrations proved that the *M205* case is a major improvement over the original combustible case.

Sheridan crewmen will also be happy to hear that we have an **improved searchlight, the AN/VSS3A,** on the way to the field. At an In-Process Review last November, the *AN/VSS3* model was type-classified Standard B and the *AN/VSS3A*, the improved model, was type-classified Standard A. The improved converter box incorporates modular components and

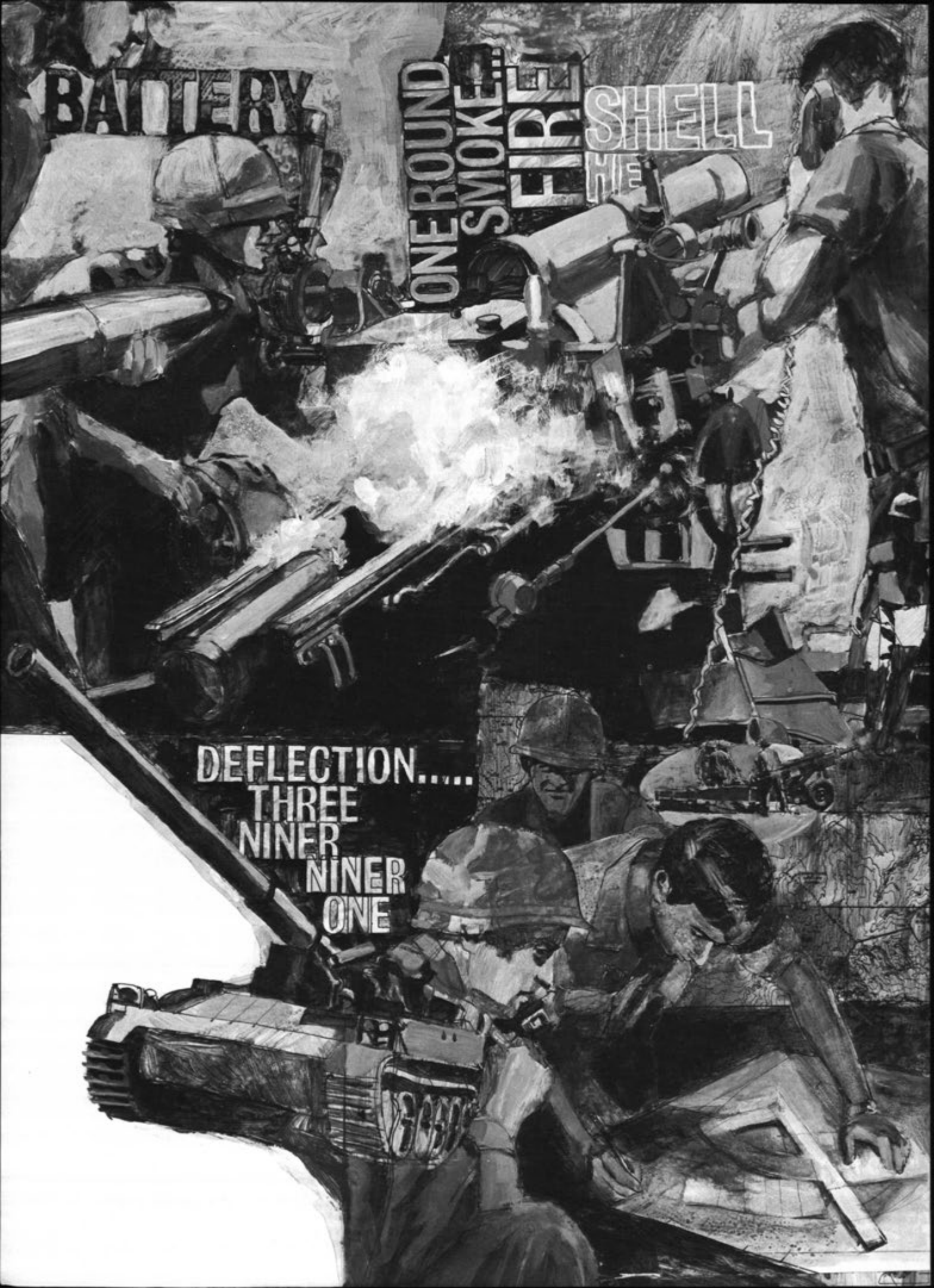
the case design has been changed to facilitate lamp replacement. These are just some of the changes made on the old *AN/VSS3* model that will provide a better light and reduce maintenance problems. The Armor School has received a sufficient quantity of these new lights and has commenced operator and organizational maintenance training.

As a result of the world-wide canvas of users of the **Armored command post vehicles M577 and M577A1,** conducted in FY70-71, a **product improvement program** has been initiated. A large number of recommendations were received from the users in the field and all of these are being carefully considered. Some examples of these recommendations are: armor shielding for auxiliary equipment located on top of the carriers; reinforced bottom or detachable belly armor; a second or larger output auxiliary power unit; reduced noise level of the generator; built-in heavy duty circulation system to reduce temperature level of radio equipment; additional sliding map boards; and built-in field type desk and storage cabinet. The Armor Center Team has developed a formal position on this product improvement program.

During February 1972, the Armor School conducted a two-week training program for Lockheed test pilots and Army helicopter pilots scheduled to participate in the **evaluation of Cheyenne, Blackhawk and KingCobra helicopters.** The evaluation will be held in August at Hunter-Liggett Military Reservation, California. The program was specifically designed for these pilots and emphasized subjects, such as, attack helicopter tactics and nap-of-the-earth flight navigation. Additionally, a two-day panel discussion on attack helicopter tactics and techniques was held at Fort Knox during March 1972. Participating in this discussion were representatives from the Armor School, aviators from 8th Squadron, 1st Cavalry and helicopter test pilots from the Army Systems Test Agency at Edwards Air Force Base, California, who will also participate in the testing. The purpose of this panel was to promote and acquire a better understanding of the current thinking in tactics and employment of the attack helicopter in mid-intensity warfare. (As a side note to the subject of attack helicopters, the 334th Attack Helicopter Company, redeployed from Vietnam, was assigned to Fort Knox in March 1972).

The Armor School has **revised Army Subject Schedules 17-11D10 (Armor Reconnaissance Specialist) and 17-11E10 (Armor Crewman),** through systems engineering techniques, to insure that training presented during Advanced Individual Training is more challenging, demanding, attuned to the time, and free of redundancy from Basic Combat Training. This also reduced the training time for AIT to seven weeks. Both programs were directed primarily toward performance-oriented, hands-on-equipment type training and are currently being implemented in USATCA, and in the unit of choice AIT programs, on a trial basis. The programs have eliminated general-type training received in BCT and training that was oriented toward a specific geographical area. The tank gunnery portion of the 11E10 program has also been revised. Some of the significant changes are: Tables I through III are fired using the new laser firing device in lieu of the coaxial machine gun; the exercise fired in the gunnery tables have been modified to require less ammunition; and a crew machine gun exercise has been added to emphasize training in stoppage procedures. These new programs will fulfill the objective of qualifying a soldier to perform the duties of a Basic Armor Crewman and Armored Reconnaissance Specialist, plus give him a firm foundation for continuous and progressive development in his MOS.

In the literature field, a long-term complete **review of all Armor training literature** is being conducted by the Armor School. The purpose is to evaluate the adequacy of our current formal training literature (FMs, TMs, ATPs, ATTs, ASubjScds, DA Pams, TCs) to meet the needs of today's tankers and cavalrymen, and to review administrative publication procedures. Complaints most often heard are: training literature does not meet the requirements of the units in the field; the time lapse between development of new doctrine and techniques and their incorporation into official training literature is too great; and publications on any one subject are excessive. To date we have received very few comments from Armor leaders in the field on our formal training literature. In our attempt to gain more comments from the field, beginning this summer, and on a test basis, some new and revised Armor publications will contain tear-out, postpaid, preprinted forms to assist in and encourage the submission of comments from the user. It is time to take a new and fresh look at all our training literature and your comments are solicited. Address them directly to the Director of Doctrine, Development, Literature and Plans, US Army Armor School, ATTN: ATSAR-DMP, Fort Knox, Kentucky 40121.


BATTERY
ONE ROUND SMOKE
FIRE
SHELL
HE
DEFLECTION.....
THREE
NINER
NINER
ONE

From its primitive forebear, the catapult, Artillery has gone through a series of evolutionary changes, both responding to and generating development and radical shifts in warfare. Today, developments in modern warfare, its tactics and its equipment have created threats which Artillery must response to. What has fallen behind is the fire direction process, which is no longer capable of responding quickly enough to meet the critical needs of modern warfare.

TACFIRE

An Innovation in Artillery

by George E. Miller

Army doctrine states that the mission of Artillery is "to provide accurate and timely fire support to ground-gaining arms"; the term ground-gaining arms classically applying to Armor and Infantry. This has been the case since the beginning of modern warfare.

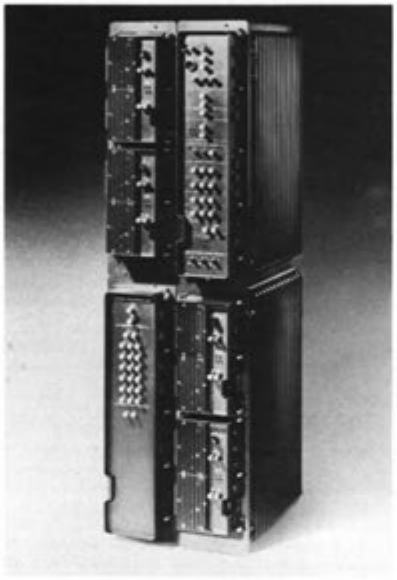
Obviously, any increase in the accuracy and response time of Artillery can only be to the advantage of the units being supported. In neutralizing or destroying those enemy facilities most dangerous to the supported elements by restricting movements in rear areas, and by disrupting enemy command capabilities, Artillery is adding to the firepower and effectiveness of the supported units.

With the ever-increasing mobility of the battlefield, rapid reaction and minimal response time from supporting elements, be they Artillery, air strike forces or other means, are all important. Just as important, however, is that fast reaction does not impede the accuracy of these strike units; the requirement, therefore, is to optimize response time while increasing accuracy.

The US Army has, for a number of years, been studying ways and means to increase the effectiveness of the Artillery fire direction process. These studies revealed that the problem areas could be divided into five broad categories: target acquisition; communication of target information by the forward observer (FO); calculation of the gun data at the fire direction center (FDC); transmission of the gun firing data to the battery executive officer; and relay of the data to the individual guns.

In addressing these problem areas, the FDC ranked highest, and efforts to improve capability in

The Fixed Format Message Entry Device allows the forward observer to communicate directly with the computer in the fire direction center using standard radio or wire-line.



The powerful *AN/GYK12* computer is the heart of the TACFIRE System. The unit shown contains 32,000 words of memory.

The battalion fire direction center can be set up in a *S280* shelter.

that area resulted in the development of the Field Artillery Digital Automatic Computer (FADAC), an electronic computer that performed the calculation of the ballistic solution while integrating meteorological and survey information entered manually by an operator in the FDC. FADAC was fielded in the mid-sixties and enhanced the capability of Artillery to a degree.

Meanwhile, continuing studies resulted in competitive bids being called from industry for a fully automated fire direction system. This competition concluded in 1967 with an award to Data Systems division of Litton Industries for the design, development and production of the TACFIRE system.

TACFIRE encompasses not only the battalion FDC and its subelements, but also includes the division FDC and a fire support element as required for larger Army operations. TACFIRE does not change the doctrinal procedures in processing Artillery functions, it only improves the accuracy, capabilities and time responses in the performance of these functions. It is conservatively expected that TACFIRE will just about double the effectiveness of the Artillery.

All the key problems are addressed and solved by a mission-oriented system of electronic equipment designed specifically for field deployment and an extensive repertoire of operational computer programs. All the equipment is housed in man-transportable transit cases which are installed in standard *S280* shelters allowing deployment by truck, helicopter or aircraft. Setting up for operation takes about 5 minutes. The equipment can also be removed from the shelters and set up in bunkers, tents or tracked vehicles, in less than 30 minutes.

To obtain fast, safe and accurate target reports, TACFIRE provides the FO with a Fixed Format Message Entry Device (FFMED). The FO enters all relevant target data—coordinates size, type, degree of protection and many other factors, by means of the thirty 16-character switches. This one-way, input device communicates directly with the computer in the FDC via the standard radio link or by wire. All the information is transmitted digitally in a 1.3-second burst. This brief digital transmission provides secure communications, and because of its digital nature, the possibility of misinterpretation is eliminated.

A fire request from the FO is received at the battalion FDC where it is automatically checked and any errors corrected. An acknowledgement is sent back to the observer by radio tone signal which activates a light on the FFMED. At the FDC, the

request is entered automatically in the powerful *AN/GYK12* digital computer.

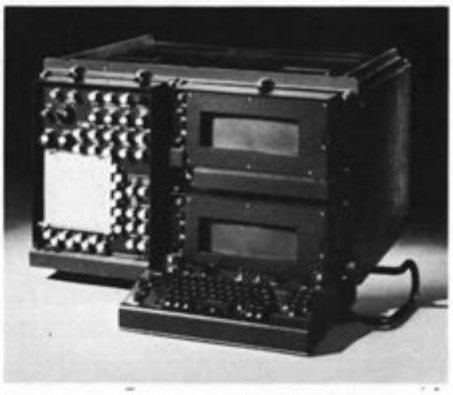
With its large memory capacity, the TACFIRE computer stores and correlates all of the data relevant to Artillery missions which it receives from its peripheral posts. The FO's fire request is processed by the computer utilizing the stored data in its memories before calculating the optimum fire mission solution. In addition to determining all the necessary tactical data, this calculation includes a simulated trajectory to adjust the fall of shot without losing the advantage of surprise. Within 7 seconds from receipt of the initial fire request by the computer, the fire direction officer (FDO) has all of the data he needs, in hard copy print out, in order to decide how best to counter the enemy threat. In practice, the FDO selects the solution suggested by the computer about 90 per cent of the time, but it should be emphasized that TACFIRE always leaves the ultimate firing decision to the officer.

The data is presented to the FDO in three forms: by the Artillery Control Console (ACC); the main man-machine interface device in the FDC which, by means of two cathode-ray tube screens, allows both incoming messages; and a computer mission solution to be displayed in user language clearly and rapidly.

The Artillery Control Console allows the FDO real-time entry and query capability to the computer in user language by means of an alphanumeric keyboard. The FDO is further assisted by the Electronic Line Printer, which provides printed copies of the data displayed, and by the Digital Plotter Map, which is driven directly by the computer and plots a graphic representation of the battlefield situation based upon inputs from observation units. At the divisional Artillery FDC, an additional device, the Electronic Tactical Display (ETD) is available to the S2 to analyze intelligence data.

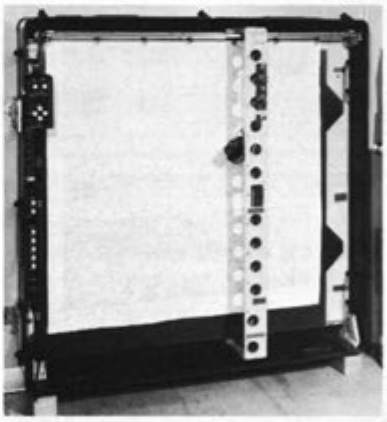
The battery command post is equipped with a Battery Display Unit (BDU). As in the FDC, the incoming message is checked and errors corrected before sending an automatic acknowledge of receipt. The message is then printed out for the battery executive officer who acknowledges the receipt manually and then gives the firing commands to the individual guns. When a round is fired, he informs the battalion FDC who instructs the FO that the round is on the way.

In addition to the FO and the gun batteries, a number of other essential elements can be linked by the TACFIRE digital system to the battalion FDC. The survey party and the meteorological unit both input data without which it is impossible to make

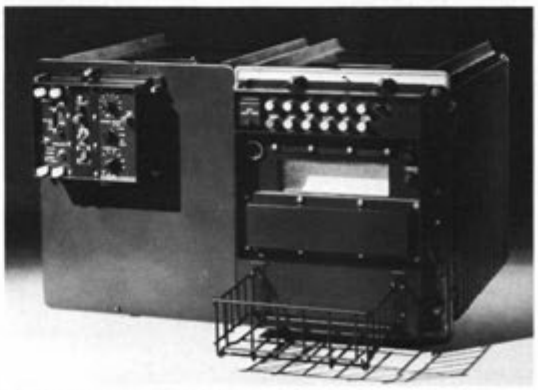


The Artillery Control Console is the main man-machine interface in the fire direction center.

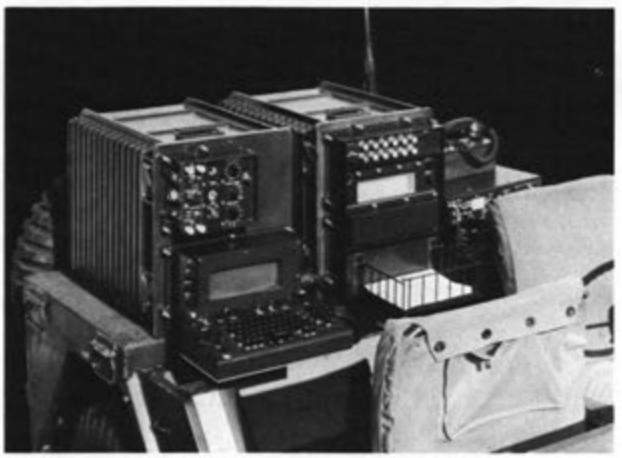
The Electronic Line Printer provides record of all messages and maintenance information at a speed of 500 lines per minute.



The Digital Plotter Map, measuring 4 feet by 4 feet, marks up all tactical data on standard Army field maps, giving a graphic overview of the situation.



The Battery Display Unit, located at the battery command post, receives and prints out gun firing data.



The Variable Format Message Entry Device, located with remote units, provides capability for two-way digital communication directly with the fire direction computer.

any accurate calculations for a fire mission. Liaison officers with the units being supported by the Artillery require to be kept informed of fire plans, and must be able to coordinate changes and alert Armor and Infantry of impending fire. Headquarter's personnel manning the fire support element (FSE) of the division tactical operations center (DTOC) must be able to initiate fire support, either Artillery or select other delivery means and weapon type, and request special processing tasks. All of these elements can, therefore, be provided with the Variable Format Message Entry Device (VFMED) which will enable them to maintain high-speed, two-way digital communications with the TACFIRE computer at the FDC.

As previously mentioned, time response is one of the critical issues involved in supportive firepower. The table below shows some of the dramatic reductions in time response achieved by TACFIRE as compared to currently used manual methods.

TIME RESPONSE (in seconds)

	MANUAL	*TACFIRE*
Survey (15 leg traverse)	1,800	2
Fire Mission (1 fire unit)	60	10
Automatic Target Intelligence (Search through 1,000 targets)	480	7
Fire Planning (35 targets, 10 fire units)	7,200	700
Preliminary Target Analysis (1 target, 10 fire units)	900	10

Although a fire mission based upon a FO's fire request requires the fastest response, it is just one of

At the divisional Artillery fire direction center, the Electronic Tactical Display is available to the S2 to analyze intelligence data.

the Artillery's missions and, in a sense, the easiest to perform. Perhaps the most difficult Artillery function today in terms of men and time is fire planning. This time-consuming process includes: the assignment of phases; establishing priorities and intervals of fire; selection of the optimum fire unit and number of rounds for each target; ensuring that the proper quantity and type of ammunition is available; and scheduling of the fire for each target relative to H-hour. This function done manually takes the entire battalion FDC personnel complement two to four hours to prepare a fire plan for just 35 targets.

With TACFIRE, one operator need only enter target descriptive data on the ACC, and the computer will generate the complete 35 target fire plan, including ammunition allocation, in about 10 minutes. Based on operator entries, the computer can shape the plan to provide for specified priorities, phases and fire intervals for selected targets, and provide the optimum schedule for the selected fire unit/target combinations.

TACFIRE also performs the vital function of preliminary target analysis (PTA) on targets whereby the optimum delivery means and weapon type are selected. In this process, target information is correlated to the desired damage effects, and the process considers the delivery means and weapon types available such as other cannon, rockets, missiles and aircraft. The optimum counteraction against all or critical segments of the target threat can then be taken.

The use of the integrated, mission-oriented TACFIRE system answers the critical Artillery problems of today. The response time, the accuracy, and the capacity of the battalion have been vastly improved. The key bottlenecks and prime points for human error have been eliminated, so the effectiveness of the Artillery battalion—and indeed the entire tactical force—is far greater than that previously possible.

At this point in time, the US Army Program Manager has taken delivery of the engineering test/extended service test system from the contractor. This system comprises a division Artillery fire direction center, and four battalion fire direction centers. The equipment is presently undergoing extensive field tests by TECOM at Fort Sill, Fort Huachuca and White Sands, for a test period estimated to last approximately 12 months, after which the contractor will be given the go-ahead for the production of TACFIRE equipment sufficient to equip 16 divisions of Artillery at the battalion and divisional fire direction center level. It is expected that the systems will be deployed in the field early in 1975.

GEORGE E. MILLER, a graduate of the University of Vermont, is the director of the TACFIRE Program at Litton Industries.

We have spent staggering sums on aircraft and missiles to support the Armor-Infantry team, while bungling the minimally-funded development of the tank our close-combat forces need.

We Need a New Tank

by General James H. Polk

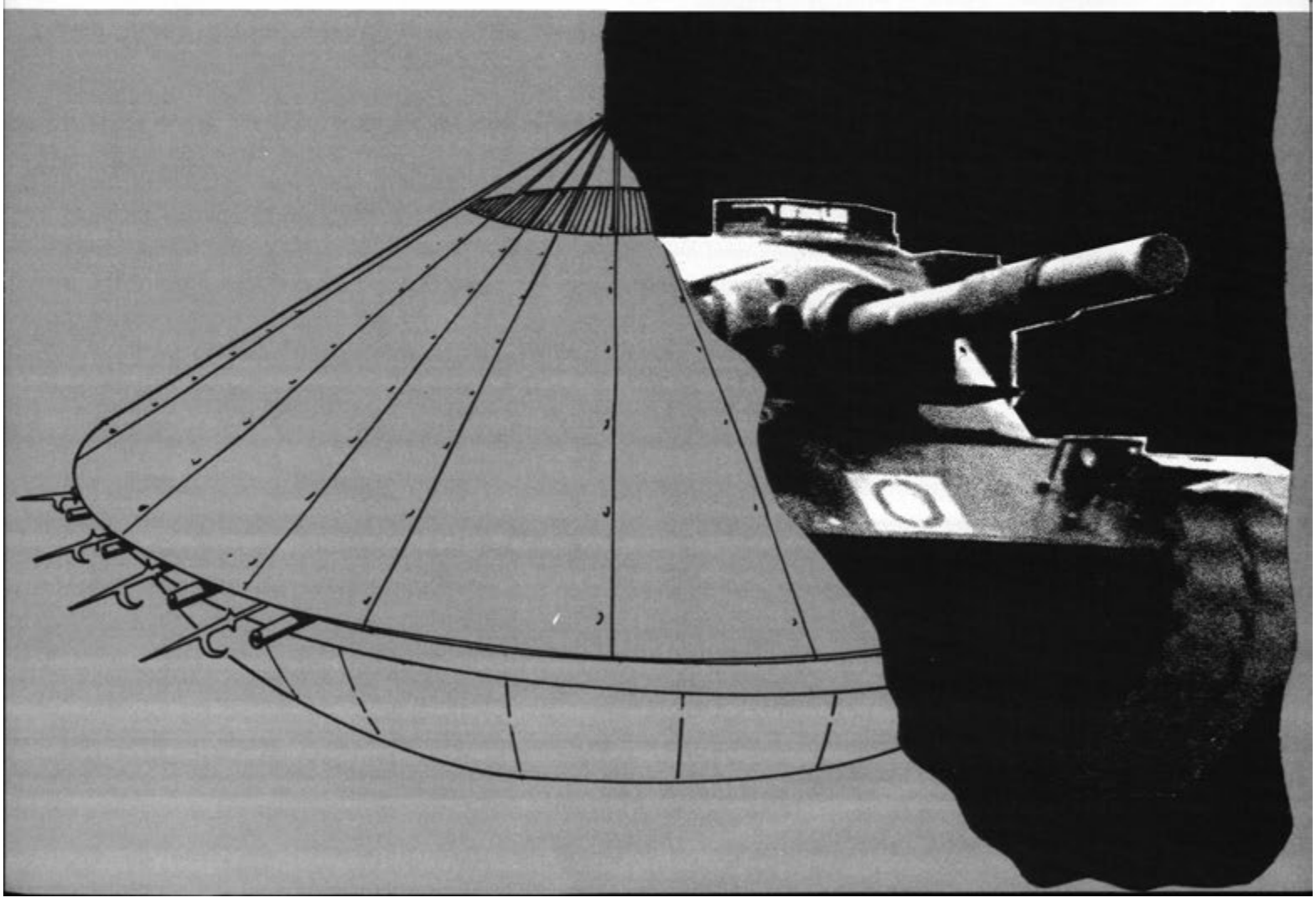
USA-Retired

As every military man knows, some of the most momentous struggles in which his profession engages are not necessarily confined to the battlefield. These are the tussles over a new weapon system or concept—bloodless in a literal sense, but whose outcome is so vital that it can spell the difference between success and failure when troops take to the field.

Such an issue is the current debate over the future of the tank in the US Army, a future which is becoming increasingly cloudy as exponents seek to move its development forward against such criticism as that it is too expensive to be cost-effective or that it represents an outdated system that cannot live on a modern battlefield.

And yet, no nation, corporation or research and development agency has ever invented a suitable substitute for the tank. In providing mobile, armor-protected firepower in any kind of weather, day or night, under any intensity of battlefield conditions, no other weapon system is its equal in all characteristics.

Moreover, unless we build a new tank to replace the tired, old, second-rate *M60* series, there is no doubt that we will be in an inferior position among the world's armored forces. Today, both the West



German *Leopard* and the British *Chieftain* tanks exceed our *M60A1* in both gunnery and mobility; moreover, the US tank presents the highest target silhouette on the modern battlefield.

It is clear that the lessons of history are going unheeded as we drift into a runner-up spot in the quality of our armor. In World War II, the German *Panther* and *Tiger* were far better than our *Sherman* in both hitting power and armor protection, and we paid for this inferiority with much American blood. When the Korean War broke out, the closest US tanks were in Hawaii and, to our shame, the first battalion of Infantry troops to make a stand in Korea was overrun by the old Russian *T34*.

The new *Leopard II* now in production will far exceed our *M60A1*, most of which have been returned to the US Army tank plant at Mainz, Germany, for their second or third rebuild. In a belated effort to correct this situation, the Army now is engaged in a program to modernize the *M60A1* fleet in Europe on the third or fourth rebuild cycle over a four-year span. When modernized, this reworked, *A3* version will not be the best tank on the European battlefield by any stretch of the imagination.

With all this, we continue to pour money down the hole represented by the *M60A2* missile-firing tank. When that exercise is finished, we will field what is called a product improvement, some 540 tanks costing $450,000 each, which the Army at this very moment is trying to decide how to both employ and maintain. In 1966, as assistant chief of staff for force development, I recommended that we cut our losses and drop this particular product but was overruled because the sunk costs were too high and, besides, the problems could be "fixed." We are still fixing them and the sunk costs have doubled.

The latest act in this tragedy of errors occurred in December 1971, when the joint Senate-House committee killed the *XM803* Main Battle Tank Program, despite a rather half-hearted reclama by the Army staff and the expenditure of about $400 million in research and development. The joint committee's recommendation, as approved in the Appropriation Act for 1972, allocated $20 million to terminate the program and another $20 million to begin all over again.

So died the greatest tank ever built—the one that met and exceeded Robert McNamara's directive to push the state of the art in every feature of performance.

Why did the project fail and why was the program terminated? First and foremost, it appears to have been a matter of per copy cost and some curious associated logic. While we are quite willing to pay staggering sums for aircraft, missiles and nuclear weapons to support the Infantry-Armor close-combat battalions, we are unwilling to arm them with the very best close-combat equipment, despite the cost. In the new fiscal 1973 DOD budget request, the Army has asked for $48.9 million to buy 166 *M60A1* tanks (about $300,000 each). Also requested is $104.8 million to retrofit the *M60A2* tanks so they can at last enter service, making the total procurement budget for tanks about $154 million. At the same time, the budget for Army missile procurement is $1.33 billion.

However, here is another interesting figure: the total procurement bill for military aircraft (Army, Navy, Air Force and Marines) in the FY73 budget is about $5.4 billion. Or put another way, we are requesting 35 times as much money to spend on aircraft as we are on tanks, and most of these aircraft are scheduled for employment by general purpose forces, to be used in support of the ground-force battle. Apparently, in building the deterrent and war-fighting armed forces for the mid-1970s, we believe that aircraft are much more important than tanks on the outworn theory that if we win the air war, the enemy will surely capitulate. One more statistic: the Army is spending 13 times as much money on missiles as it is on tanks. One can only conclude that the close-combat forces are relatively not very important in the overall equation.

Another way to view the money and emphasis devoted to the new main battle tank and associated direct combat systems is to look at the 1973 Army R&D budget request. First, Army Materiel Command will continue to develop those major tank components from the *XM803* (formerly the *MBT70*) project that appear to be likely candidates for consideration in the new program, and requests $19.7 million for the task. Moreover, all major research and development that can be considered close-combat-oriented are requested as follows:

Bushmaster automatic cannon	$ 5.6 million
Prototype infantry combat vehicle	10.8 million
Armored scout vehicle	15.6 million
New tank components	19.7 million
Total	$51.7 million

The total Army R&D request is $2,068.7 million, of which about 2.5 per cent is devoted to the three combat vehicles as noted above. In contrast, the Army is requesting $132.6 million, or 6.4 per cent,

The Army is fielding over 500 *M60A2* missile-firing tanks, originally conceived as a stop-gap between the end of *M60A1* production and the introduction of the now-cancelled *XM803*. Meanwhile, the *M60* tank series is still in production, and even after rebuilding to *A3* standards, Seventh Army won't have anything like the best tank in Europe.

to develop three helicopter types that will be used in support of the three new fighting vehicles. These second-generation helicopters (attack, utility and heavy-lift) are to replace first-generation helios that were produced well after the older generation of ground combat vehicles entered the inventory, but by the testimony of the chief of R&D, highest priority is nonetheless to be given to air mobility in the 1973 program.

Continuing on cost, one is struck by the attitude of our defense legislators and their reasoning that a competition between two new tank prototypes will bring costs of the final product down and "get us out of the doldrums" in the tank program. Surely they have set back the program from six to eight years and the new R&D costs will undoubtedly exceed the requirements of the old development program by from $100 million to $200 million. Any chance we may have enjoyed to build a modern, first-class tank for about $600,000 is gone, what with inflation and the cost of technological advance, unless we are willing to settle for another "catch-up" product. With a totally new requirements document due in the Pentagon by August, the whole dreary process begins anew, meaning that our Armor-Infantry team will continue to be second-best well into the late 1970s.

A really vitriolic and detailed attack on the Army's Armor program is included in "An Evaluation of the Austere *MBT70/XM803* and an Analysis of the Overall Armored Vehicle Program," a report by the Surveys and Investigations Staff of the House Committee on Appropriations. It is published as an appendix to Part 5 of the DOD procurement hearings for 1972 and is a classic in incorrect data and poor logic, although it does give a clear insight into why Congress killed the new tank.

The report emphasizes the engine and transmission development controversy and the problem of excessive costs. With regard to the first, curiously enough, the Army had elected to continue development and test of the Teledyne engine and Allison transmission instead of the German Bentz and Renk combination. The latter choice seemed not only technically correct but wise in view of current gold flow and budget problems; yet the report is most critical of this "buy American" approach. The report quotes some unidentified experts who are obviously enemies of the program and are careless with their facts. At the same time, the report ignores the unbiased opinions of some very eminent civilian scientists who checked the program in detail as late as the summer of 1971. The opinion of these outside scientists was that the three items originally considered a technical risk (power pack, caseless ammunition and automatic loader) had been resolved and that what was now required was no longer a risk but rather an integration-and-test program.

Moving on to the question of survivability, a tank's quotient or score in this area is made up of a complex mix of mobility, silhouette, slope and quality of armor along with interior arrangement and stowage. For instance, the *T54/55* series is smaller and lower than the *M60* and about the same in mobility, but is extremely vulnerable because these Soviet models carry fuel in exterior containers and both fuel and ammo are stowed together inside the hull. For this reason, a penetrating hit on the right side of the frontal plate (beside the driver) is a guaranteed catastrophic kill.

From lessons of the Arab-Israeli Six Day War, considerable thought and careful design were de-

The West German *Leopard* tank betters the US *M60A1* in both mobility and gunnery and has a lower target silhouette.

voted to reducing vulnerabilities in the *XM803* so that in mobility and silhouette it was far ahead of its competitors. The innovation of spaced armor, intelligent fuel storage with self-sealing tanks, bulkheads and fire doors, as well as blowout vents for ammunition stowage areas, were all incorporated—of course, at some considerable cost. This made the *XM803* the safest tank in the Allied inventory as well as the most difficult to hit or kill.

By contrast, when considering cost effectiveness, it is almost axiomatic that the most vulnerable, most costly and least survivable system on the modern battlefield today is the fighter-bomber. Considering the tremendous quantity and sophistication of Soviet air defenses, there is real doubt that our most modern fighter can accomplish the close-support mission in the traditional sense. To survive, it appears that the fighter must come in very low and very fast with poor target identification or it must attack in a stand-off or fire-and-forget mode. To quote John Foster, director of defense research and engineering, the Air Force in the FY73 R&D budget is "spending large amounts of money to detect, identify, locate, confuse, deceive, suppress and destroy enemy ground-based air-defense systems." It appears that we will soon be in a position where the single fire-and-forget missile will cost more than the tank it destroys, or it will take five confusing and suppressing aircraft to support the one in the close-support sortie. The limited utility, low survivability and high cost of aircraft in this role brings into question its value in terms of other alternatives.

But to return to survivability, the tank is often cast in the role of moving down a road or crossing an open space where it stumbles onto an antitank crew in ambush and is destroyed. While there may be some doubt as to the winner in this encounter, there is no doubt as to what would happen if the roles were reversed and the *TOW* crew, however mounted, stumbled onto the tank. However, engagements are not fought as duels but rather as all-arms attacks, wherein the *TOW* and *Dragon* antitank crews, in the open or in foxholes, must face and survive an artillery preparation, followed by the direct and area fires of tank cannon and coaxial machine guns and finally the assaulting Infantry while they in turn are engaging enemy tanks. And since these new antitank (AT) weapons have a considerable firing signature (features of a weapon's fire—for example, muzzle flash—that make it vulnerable to detection by the enemy) and tanks attack generally in platoons or companies, any brave and unprotected AT crew can be sure that upon scoring a hit on the first tank, the remaining tanks will be hunting that crew like the hounds of hell. To destroy a tank requires a well-trained crew with a special-purpose weapon at the right place and at the right time, and even then the outcome is in some doubt and the ultimate survival of the AT crew is highly questionable.

In order to understand the relationship of the various battlefield weapon systems and their contribution to the overall combat results, one must understand both their limitations as well as their ideal utility. Put another way, under certain conditions of terrain, weather and situation, a particular system becomes dominant while a major change in these conditions may cause the same system to almost become a passive observer. To illustrate, in the battle of El Alamein (1942), the Infantry and combat engineers spearheaded the attack and were critical to breaching the minefields; yet once the British attackers

The Soviet *T62*, considered the best ballistically shaped modern tank, is lighter, faster and lower than the US *M60A1*.

were clear of these defensive barriers, the tank forces were dominant and settled the issue. Obviously, each was essential to the success of the other at some phase of the operation.

In examining the *TOW* and *Dragon* antitank system and its contribution, one must agree that it obtains maximum utility in the defense when carefully emplaced, with good observation and long-range fields of fire. The system has a high firepower score, for it is extremely effective against moving and stationary tanks, even under marginal visibility conditions. Since the missiles are so expensive and are issued to crews only in limited numbers, these must be husbanded and used generally against tank targets only; that is, as a single-purpose weapon system. Moreover, the system's vulnerability score is poor, for the weapon has a strong signature and both crew and weapon can be destroyed readily by any battlefield weapon that engages it. Finally, the system is mobile in the sense that it can be readily lifted by helicopter, truck or jeep. However, it is difficult to man-carry and slow to set up for action and, of course, has no combat potential while in motion. Its value in an attack is virtually zero except in a very limited supporting and overwatching role. However, and most important, it gives the Infantry battalion a strong defense against enemy tank attacks and thus corrects a serious weakness of many years' standing.

Of the new weapon systems, the attack helicopter is another that has aroused great interest and considerable controversy. And again, this system has a very high firepower score with its cannon, rockets and antitank missiles all capable of destroying almost anything in the battle arena; and unlike the *TOW*, it has a multipurpose weapon capability. It is also highly mobile and agile and can fly in weather that grounds fixed-wing craft. These valuable characteristics are offset by extreme vulnerability to automatic weapons as well as to the regular antiaircraft and *Redeye*-type weapons as demonstrated in Vietnam. Thus, vulnerability determines the tactics and technique of employment, and the attack helicopter attains maximum utility in a war of movement when employed in an ambush type of action. Employing speed, mobility, surprise and an impressive array of weapons, it can harass, delay and inflict casualties among advancing enemy columns and armor thrusts while supporting the ground counterattack with firepower. The parallel is somewhat like the Minutemen at Lexington—but recall that the British never repeated that error. Since the system cannot attack or defend in the true sense of constant domination of the enemy and his position, it must be cast as a supporting system similar to tactical aircraft. In this supporting role, it adds new dimensions and possibilities to the commander and assists the Infantry-Armor team in a new and exciting dimension. Unfortunately, by itself it does not win battles.

In this vein, somehow in the past decade we have gone in very heavily for defensive systems in our R&D effort, in tune with the inherent defensive nature of our alliances but not actually in tune with the philosophy of flexible response. Thus mines, sensors, radars, antitank weapons and barriers get much attention while the Infantry-Armor team with its associated combat vehicles and weapons has been neglected. Despite this trend, any good defense—as countless historical examples have demonstrated—cannot be structured as a linear and rigid occupation of key terrain or position. Rather than to stand and die in place, the modern defense must consist of a light security force, a reasonably held defended area (not a static position area) and a sizable counter-attack force ready to intervene at the point of enemy main effort. This principle, called the mobile defense and the very foundation of NATO's mission, is so basic as to seem ridiculous to restate, yet it needs reiteration and much more emphasis. The forward defensive strategy needs the counter-attacking tank-Infantry team to make it work, to blunt main efforts, to hit the flanks of breakthroughs and to clean up the spillovers around our strong points. If our defense is to succeed, we must maintain an impressive capacity to carry combat power to our adver-

Great Britain's 56-ton main battle tank, the *Chieftain*, mounts a 120mm gun and exceeds our *M60A1* in both gunnery and mobility.

sary, to counterattack and to drive him and dominate him and destroy him. To do otherwise is to fail. At least one historian maintains that it was not corruption and dissipation that led to the fall of the Roman Empire; rather, it was that the Roman Army forgot how to counterattack.

A brief comparison of the Soviet *T62* with our *M60A1* may help shed some additional light on future requirements. First, the *T62* is considered the best ballistically shaped modern tank and is exceeded in mobility only by the German *Leopard*. With an overall height of only 2.3 meters, the *T62* is almost one meter lower than the silhouette of the *M60A1* at 3.26 meters. While it is lighter, faster and lower than the US combat tank, and hence harder to hit, it is probably more fire-prone and more vulnerable to catastrophic kills because of exterior fuel tanks, inferior armorplate and magnesium alloy engine housing.

The *T62* mounts a 115mm smooth-bore gun that fires fin-stabilized hollow charge as well as APDS (armor-piercing, discarding sabot) rounds, the latter at more than 5,000 feet a second. The gun is considered a very good performer out to about 1,500 meters, but at longer ranges develops severe inaccuracies. It has a stabilizer but no rangefinder, carries the *T55* tank's infrared night-fighting equipment and mounts the standard coaxial machine gun. In the assault, Soviet platoons of three tanks each normally employ the short-halt technique and at extended ranges will fire by platoon at a single target.

The *M60A1*, with an excellent gun, ammunition, rangefinder and fire-control combination is unquestionably superior to the *T62* in engagements at more than about 1,200 meters range. At shorter distances, the systems are about even and the first tank to fire is probably the first to hit and win. The US infrared and white-light equipment is generally similar to Soviet equipment and suffers from the same limitations so that there appears to be no net advantage between the two in night fighting. In general, one can conclude that the American *M60A1* tank has a distinct advantage in clear weather at extended ranges, particularly in defensive or ambush situations, but that the *T62* is better in the attack or counterstroke role. In sum, it appears that in any large present-day tank-versus-tank battle, the US tankers must cut the Soviets down to near equivalent numbers at long range and early in the engagement if they hope to win.

The real gut question now is to determine what direction the Army should take in drawing up the new requirements document and in building the subsequent prototypes. Presumably to satisfy Congress, the tank must be fairly cheap, should avoid complexity and excessive sophistication and yet handle the Soviet threat in all its aspects—a very large order indeed. There is also an implied Congressional requirement that the new prototype be significantly different from the rejected *XM803*. Unfortunately, in none of its deliberations did Congress say what sort of performance is desired in the new tank, yet this is surely the overriding determinant of the final product.

First, if we are forced to cut costs and reduce performance, the new tank can forego the missile and rely primarily on a high-velocity kinetic energy (KE) round as its primary tank-killer. Since the cross-over point of effectiveness between the KE round and the missile against moving targets in the *XM803* system was somewhere between 1,500 and 2,000 meters, this decision means that we will not be able to hit moving targets beyond this point except by chance. To illustrate, with our current *M60A1* system and despite much intensive practice and training, the gunner has great difficulty in hitting a target moving at a constant speed and on a crossing track at 800 yards. The skill required is somewhat like that of a trap or skeet shooter and requires superb hand and eye coordination with sufficient practice to judge the lead from almost any angle of observation.

By comparison, the skill required to hit with a missile is child's play.

The Soviets realize full well that their gun—ammunition–fire control combination is inferior to most Allied tanks out beyond 1,000 to 1,200 meters, primarily because their tanks are not equipped with a rangefinder and the gunner must estimate the range to the target. On the other hand, at 1,000 yards or closer, the Soviet gunner can employ the simple telescope for direct laying and does not need to range as the trajectory drop of the projectile at that distance is not sufficient to cause a miss. Because of this, in both doctrine and in actual practice, to be certain of hitting they attempt to rush the objective and close the range as rapidly as possible. They are willing to pay the price in this somewhat desperate tactic, just as they did during World War II in the human sea attack. Thus, a decision to give up on an ability to kill moving tanks at extended ranges is a serious one, demanding careful study of the trade-offs involved.

Next, the new prototype tank can forego the hydromatic variable suspension system and adopt a tube-over-bar substitute, a rather modest product improvement over the current torsion bar method. In such a pure mechanical system, the variable silhouette is lost but, more important, far greater demands are placed on a gun stabilization system than did the more responsive hydromatic system. Obviously, the better the suspension system and the smoother the ride over varied terrain at speed, the less demanding is the performance required of the gun stabilizer. At some point in a degraded performance, the ability to fire the main gun accurately on-the-move is lost and the gunner is forced to adopt the "short halt" method.

The short halt has been used for some years as an accepted technique by the Warsaw Pact nations as well as by British tankers, and will be used by the Germans with their *Leopard II*. The Soviets teach that their rather gross order stabilizer permits the gunner to identify the target and to aim and hold the tank cannon in rather close alignment to it, thus enhancing survivability by maintaining motion. At the short halt, the gunner then refines his aim to a precise gun lay, fires, and the tank automatically moves out again—all in less than 15 seconds. Unlike our accepted technique, he does not wait to determine his success in order to fire an adjusted second round but goes through the short halt procedure again, as often as required for a sure hit. In addition, the stabilizer refines the accuracy of fire of the coaxial machine gun in the final phases of an assault. Obviously, a stabilizer with this kind of general accuracy is cheap, fairly simple and reliable and will be installed in the rebuilt *M60A1* series, giving our old workhorse tank a capability at least equal to that of the *T54/55*.

Another way to simplify the design and save money is to eliminate the automatic loader and go back to the four-man crew, with one crewman manually loading, probably with some kind of mechanical help. Unfortunately, this solution requires a whole new tank design which is probably the case in any event. However, the automatic loader gives the combat tank two important attributes by insuring both a faster rate of fire and the ability to load and fire on-the-move. The former is important in short-range engagements where it is fairly easy to hit and speed of engagement becomes the critical factor. Put another way, when one side is outnumbered and to hit is to kill, the rate of hitting will determine the outcome; otherwise the larger force will defeat the smaller at a geometric rate as comparable attrition widens the disparity between the forces. Secondly, and probably more important, the lack of an automatic loader will significantly reduce the ability to fire on-the-move and will require a return to the burst-on-target or the short-halt technique, discussed earlier. It simply is not possible for a strapped-in crewman in a highly mobile and lurching vehicle to be efficient in selecting the proper type of round and to load it, even when the round is within reach. Moreover, it should be clear at this point that the counterattacking tank, in order to fire accurately and quickly while advancing toward the enemy threat, requires a high order of agility, improved suspension, advanced stabilization and an automatic loader.

Although quite costly, we simply cannot afford to economize on the recently developed night viewing and sighting optics, as these give us a very real and important advantage over our potential adversaries that they can hardly afford to match. These new developments give the tank commander excellent passive night vision and the gunner laser illuminator sight for precision shooting. Not only are these refined devices a considerable improvement over the current infrared and white searchlight system; they lack the searchlight's vulnerability to detection and destruction. Interestingly enough, the Israeli forces

have given up on the searchlight due to what they call its instant battlefield mortality.

Finally, it is indeed regrettable that the six second-generation *XM803* prototypes were never built after the expenditure of so much R&D money. Any new or different features that may be incorporated or developed in the new tank cannot be measured against the *XM803* except in the abstract. We will never know the relative merits of the two systems. However, we do know that we have lost six to eight years; we will increase R&D costs by $100 million to $200 million; and we may hope to produce a tank that will be clearly superior to the projected Soviet tank of the late 1970s. That it will be cheaper than the *XM803* is indeed doubtful; that it will be the best tank on the battlefield is by no means clear. But it must be.

I, for one, believe that the US tanker deserves the best; a tank that can dominate the battlefield in the years ahead. Thus, it should have the expensive built-in survivability of the *XM803*, an impressive ability to fire and hit on-the-move and be able to kill moving targets out to extended ranges. Furthermore, it requires the latest and best and admittedly expensive night viewing and sighting devices to give it the required 24-hour combat day. All these characteristics are attainable without technical risk, so if the price in maintainability and sophistication is high, we should be prepared to pay it. If the price in dollars is high, we can forego or delay some other expensive system used in the supporting role. To do otherwise is false economy at its worst.

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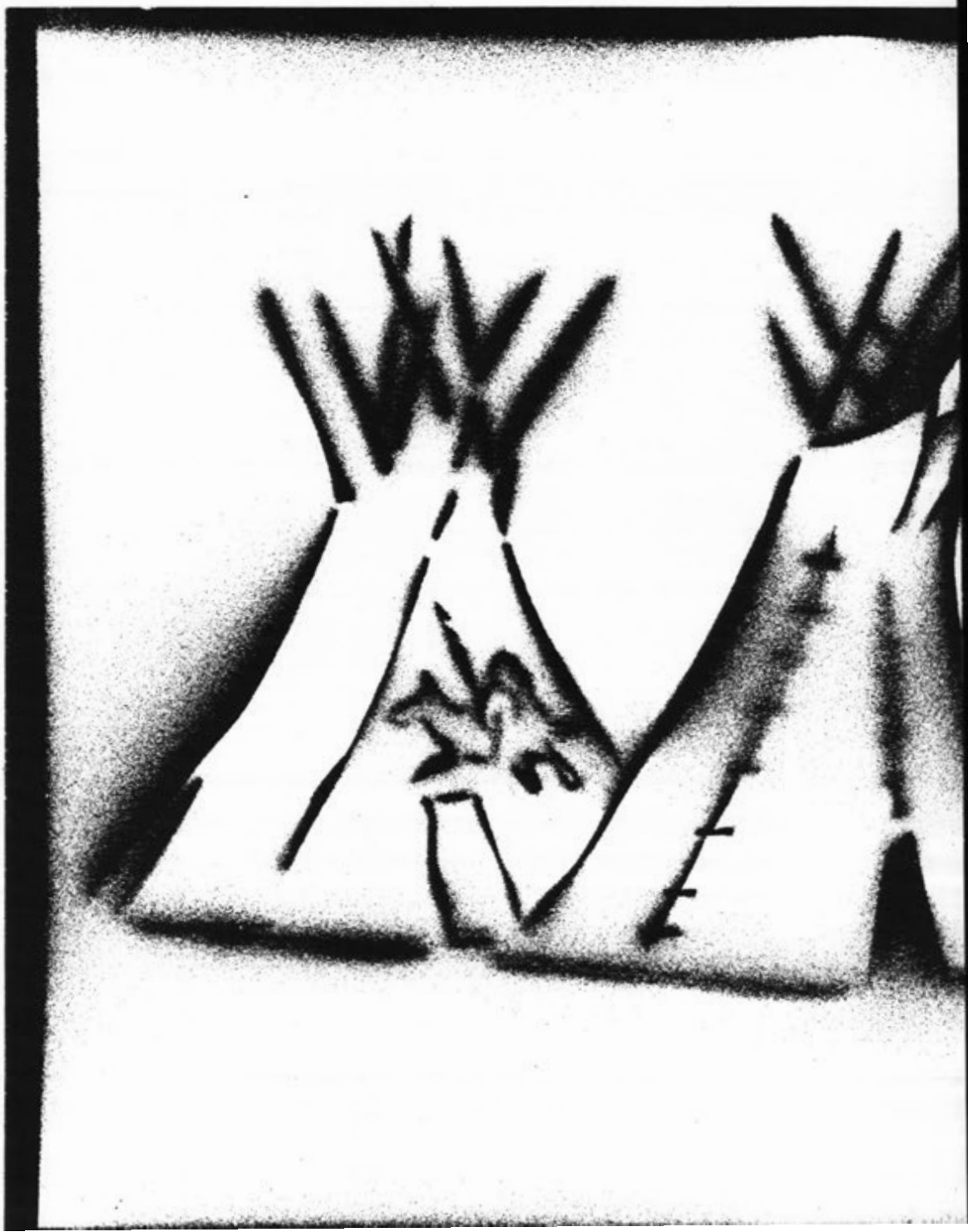
GENERAL JAMES H. POLK, USA-Retired, was commander in chief of US Army Europe and Seventh Army, 1967-71, during which time he was also commanding general, Central Army Group of NATO. General Polk is currently serving as the 25th President of the United States Armor Association.

FROM SAND CREEK TO MY LAI

Misunderstandings Surround Military Misadventures

PART II—THE PIEGAN MASSACRE

by William Gardner Bell



Six years after Sand Creek, another incident occurred. This one in Montana Territory and involving Regular Forces and the Piegan Indians.

The Piegans were a part of the Blackfoot confederacy of three tribes of common descent and language. They roamed the general area between the Sasketchewan and Missouri Rivers embracing present day Alberta-Sasketchewan and Montana. The Blackfeet proper was the northernmost, with the Bloods in the center and the Piegans below the line.

These affiliated tribes traded with the Hudson's Bay Company prior to the arrival of white Americans in the upper Missouri River region. They were savagely hostile to American trappers in the early years of contact. Indeed, it was the Blackfeet, in combination with unfriendly terrain, that turned westering whites away from the Lewis and Clark "water" route up the Missouri River and dictated the development of the Platte River Valley trail to the Far West.

When American traders penetrated the upper Missouri area seeking trade with the Indians, they gradually weaned the Blackfeet away from the opposition by supplying them not only with guns, ammunition, beads and utensils, but with generous stocks of alcohol. Although whiskey trading with the reds was prohibited by the sumptuary laws of the territory, Northwestern Montana was a remote and vast area and the law of supply and demand held sway. The proximity to an international boundary and of foreign competition sharpened American enterprise and indeed deflected official attention away from strict observance of the law.

As settlers and miners entered the region following the decline of the fur trade, the contact between reds and whites widened and the incidence of trouble kept pace. Although a condition of war did not exist, the decade of the 1860s was marked by numerous depredations by the Indians, and there is no doubt that Blackfeet use of trade whiskey was responsible for much of the theft and killing that took place. Indian offenses were treated as civil violations by individuals, to be dealt with by civil authorities, rather than as acts of war by tribes, to be met with military action.

Things came to a head in Montana in 1869. In mid-year, William F. Wheeler became United States Marshal with headquarters at Helena, and began to assemble evidence on depredations so that he could move against guilty Indians. In October, the Grand Jury of the Third Judicial District met to consider the evidence and returned an indictment. Several Indians were named in warrants, identified by family witnesses to the murder of a prominent rancher named Malcolm Clark. The guilty reds were said to be harbored in the village of a Piegan leader named Mountain Chief. To illustrate the play of provocation, Mountain Chief's brother was shot down by white men on the streets of Fort Benton at about this time. Depredations increased, carried out for the most part by young men over whom the tribal elders had little control.

General Alfred Sully, superintendent of Indian affairs in Montana at this time, doubted that the whites who murdered Mountain Chief's brother could be convicted in a territorial court. He also felt that the only way to insure peace was to bring

military authority to bear against whiskey traders in the region, as alcohol was a major cause of Indian incitement.

In 1869, the Hudson Bay Company, because of its overextended and disjointed operations, ceded extensive land holdings north of the Montana line to the Canadian Government. Some highly mobile independent traders moved to fill the vacuum, among them Montanans who saw opportunities north of the boundary to barter with the Blackfeet free of territorial inhibitions. Fort Benton on the Missouri River served as a US base of operations, and Fort MacLeod in the heart of Blackfeet country in Canada became the northern terminus of what soon became known as "The Whiskey Road," or, more aptly, "The Whoop-up Trail." It is interesting to note that two of the leading American traders were members of the Montana legislature.

Although trade whiskey was often diluted, it was also "enhanced," if that is the word, with such additives as molasses, tobacco and capsicum, all to suit the fiery Indian taste. The product thus became relatively lethal when consumed in large doses. Indeed, the Indian commissioner estimated that upwards of 25 per cent of the 1867 Blackfeet population died from drinking these concoctions.

It was only logical, as trouble spread across Montana, that the civil authorities, the Indian agent, and the citizenry should gradually turn their attention to the Army to solve their problems. But the Army was thinly spread. Montana Territory at this time fell in a chain of command that began with the Military Division of the Missouri commanded by Lieutenant General Philip Sheridan in Chicago, stepped down to the Department of Dakota under Major General Winfield Scott Hancock at St. Paul, and extended out to the District of Montana, headquartered at Fort Shaw and commanded by Colonel Philippe Régis de Keredern de Trobriand. Here, at the end of the line, de Trobriand in the early months of 1869 had only a few companies of infantry at three widely scattered posts. Although he received four companies of cavalry in the summer, total Army strength in the District in October was only 11 companies with an aggregate of 879 men.

Military action was not an inviting prospect. It was difficult if not impossible to wage selective war on dissidents within a tribe without extending it to innocent elements. It was next to impossible to catch small raiding parties in a vast and relatively unpopulated region. And a Canadian sanctuary lay right at hand should any of the guerrillas become hard pressed.

Thus, when Marshal Wheeler presented the Indian agent, General Sully, with a copy of the grand jury indictment and warrants, Sully, out of his awareness of the military considerations, presented his problem to the Indian Bureau in Washington. The commissioner directed Sully to call a council of the Blackfeet chiefs and request that *they* hand over the guilty parties. Sully and the marshal dutifully met at the Blackfoot Agency near Choteau to deliver the ultimatum. Unfortunately, only four head men showed up. Sully gave them two weeks to deliver up the murderers of Malcolm Clark and return all stolen stock to the agency, saying that if they did not do so, the Army would move against them, crossing into Canada if necessary. The chiefs made some promises and the conference ended.

By this time the District Commander, Colonel de Trobriand, had decided that he should move against the Piegans. On 13 December, he had sent Sheridan a message saying, "no better time or opportunity can present itself to punish the parties guilty of the murders and depredations committed last summer. Most of them, if not all, are with the band of Mountain Chief, now within easy reach of here . . . which I intend to strike first, by surprise, killing or capturing those who may be found there; then sweeping other bands . . . at or near the trading post lately established by Mr. Riplinger for the Northwest Fur Company . . ."

Because of differences of opinion between Sully and de Trobriand on how to deal with the Indians,

Mountain Chief

Sheridan sent his Inspector General, James Allen Hardee, to Montana. Hardee arrived only a few days after the Sully conference with the Piegan chiefs, and promptly conferred with key civil and military

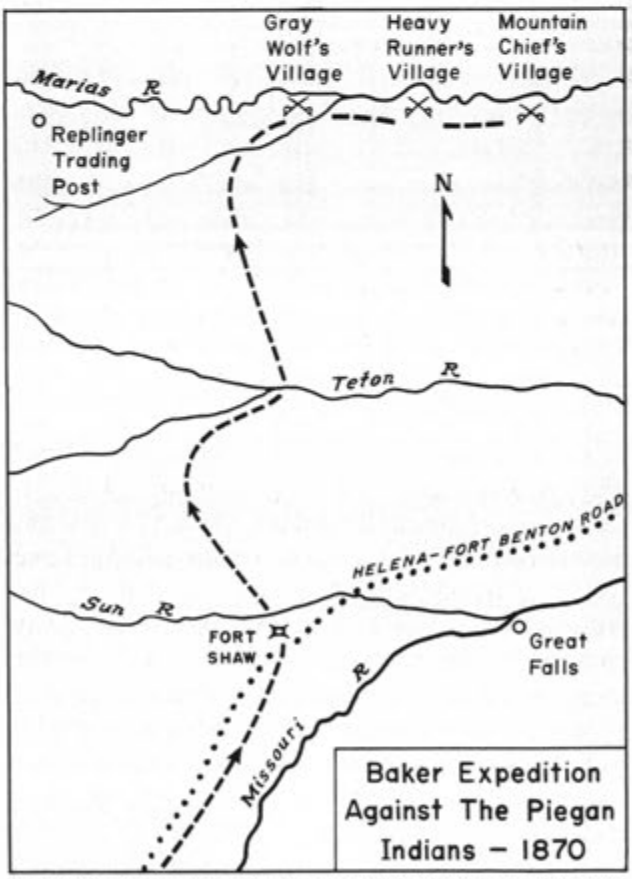
MONTANA HISTORICAL SOCIETY, HELENA

Major Eugene M. Baker (center with hand on railpost) and officers of the 2d Cavalry Regiment at Fort Ellis, Montana.

officials in the area. Even as he was sizing up the situation, four companies of the 2d Cavalry Regiment, at de Trobriand's order and under Major Eugene M. Baker, were marching over the 200 bleak and snowy miles from Fort Ellis near present day Bozeman to Fort Shaw near present day Great Falls, preparatory to launching a campaign against the Piegans. Hardee wired Sheridan of de Trobriand's plans and of the "feeble efforts" by the Piegans to meet Sully's terms. Sheridan's reply gave the final authority: "If the lives and property of citizens of Montana can best be protected by striking Mountain Chief's band, I want them struck. Tell Baker to strike them hard."

At 10 o'clock on the morning of 19 January 1870, Baker moved out of Fort Shaw with Companies F, G, H and L of the 2d Cavalry, a company of mounted foot soldiers of the 13th Infantry, and a dismounted infantry company to guard the wagon train, about 240 men in all. The temperature ranged between 20 and 30 degrees below zero. In a series of night marches, he moved onto the main trunk of the Marias River by the 22d. There, before daybreak on the 23d, his scouts discovered and the soldiers surrounded a small Piegan camp of five lodges that proved to be Gray Wolf's village. Gray Wolf informed Baker that the combined villages of Chiefs Big Horn and Red Horn, both high on the hostile list, were a few miles downstrean. Baker detached a sergeant and 10 men as a guard to ride upstream some 20 miles to Riplinger's Trading Post, left the wagon train and its infantry escort to cover Gray Wolf's village, and led the mounted column downstream at a lively gait as the sky began to brighten.

About six miles down river, the command came upon a large village of 32 lodges. Baker dismounted his troops and deployed them along the bluffs overlooking the village. Joe Kipp, one of the scouts, broke silence to call out to Baker that he recognized one of the lodges as that of Heavy Runner, a



This map traces the route of the Baker Expedition along the Marias River in Montana, showing the three villages located by the troops.

ROBERT J. EGE HISTORICAL COLLECTION

The Marias River, site of the Army attack on the Piegan Indian villages in January 1870.

friendly chief who was not to be molested. Kipp's shout alerted the Indians to the presence of troops. An Indian came out of Heavy Runner's lodge and ran toward the troops on the bluff, shouting and waving a paper. He had covered only half of the distance when a single shot rang out and he fell. That shot—later determined to have killed Heavy Runner himself—opened hostilities. Indians poured out of the tepees and scattered into the brush as the soldiers laced the village with fire. Although the Indians attempted to fight back, they were at a complete disadvantage. Mounted troops moved into the village to pull down the lodges while other men beat the brush to round up scattered Indians.

While the mopping up went on, Baker led some troops down the river in search of Mountain Chief's village, said by some of the prisoners to be perhaps five miles away. But Mountain Chief had been alerted and the troops found only a hastily abandoned camp of seven lodges.

Baker's force had marched about 30 miles in 30 degree below zero weather and mostly in the dark, and had neutralized or destroyed three Piegan villages with a loss of only one man. At the big village, Lieutenant G. C. Doane and the scouts assessed the Indian casualties as 173 dead, including 120 able men and 53 women and children. There were 140 prisoners, and when it was found that the village was infected with smallpox, all thought of returning them to a populated area was abandoned. They were released to join other Indian villages in the area.

The Baker Massacre became a center of controversy. Although a friendly chief, Heavy Runner, had been killed, several hostile chiefs had also been eliminated. Both friendly and hostile Indians had been united in the camp, as was so often the case. It was charged that Baker had attacked innocent and peaceful Indians, that most of the dead were women and children, that the men were out hunting, and that Baker and his men were drunk. Several politicians took a free ride at Baker's expense. Actually, Baker followed orders, used winter operations, secrecy and surprise to advantage, and was the victim of the difficult circumstances that inevitably surrounded Indian campaigning. Perhaps the best way to judge the campaign is to note that peace settled upon Montana Territory after Baker's expedition. When Indian Bureau officials criticized the operation, Baker demanded a full investigation, but no one picked up the challenge and no investigation was ever held.

What of official Army reaction? Leaders at all levels defended the operation. The Expedition Commander, Major Baker, believed that "every effort was made by officers and men to save noncombatants." The District Commander, Colonel de Trobriand, stated that "quarter was given to all known in time as women and children." The Department Commander, General Hancock, in his report declared that "it is to be regretted that . . . some women and children were accidentally killed, but the number was very greatly overstated in the newspaper accounts published throughout the country, emanating from unreliable sources of information in Montana." The Division Commander, General Sheridan, said that "should any of the women and children of the Piegans have lost their lives, I sincerely regret that they had not places of refuge, though I doubt if they would have availed themselves of them, for they fight with more fury than men." And finally, General of the Army Sherman saw "no question at all of responsibility save and except only as to whether Colonel Baker wantonly and cruelly killed women and children unresisting, and this I never believed."

The concluding portion, Part III—"The Battle of Wounded Knee," will appear in the next issue of ARMOR.

The M60A1 *is* the main battle tank of today and tomorrow.

The Future is Now

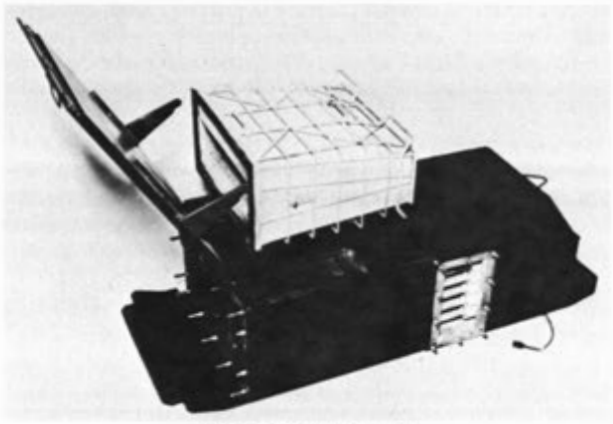
by Colonel Stan R. Sheridan

The tank is not dead—it is always the tank and its crew that must carry the brunt of the battle, close with the enemy and secure the objective. Until some other means is conceived for accomplishing this task, tanks will continue to be a military necessity.

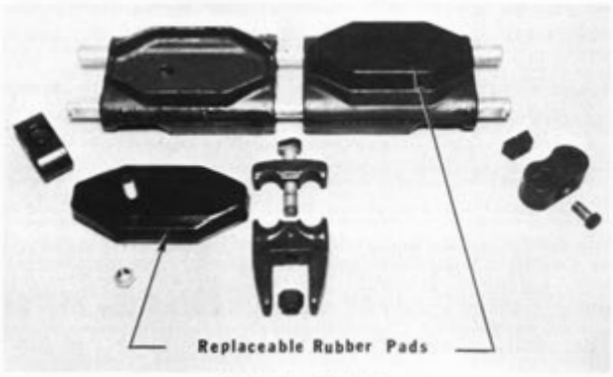
However, with the cancellation of further development of the *XM803*, tank crewmen are undoubtedly wondering about their future battlefield role.

We tankers must take another look at the *M60A1* in consideration of its role on the battlefield. The *M60A1* is generally considered to be equal to any tank in the world. Since it will continue to be our main battle tank during the remainder of the 1970s and into the 1980s, and perhaps beyond, increasing its combat effectiveness and extending its service life has become more important than ever before. This is being done effectively through an extensive product improvement program which has been underway since 1969. At that time, the Army realized that *M60* tanks would be the backbone of the fleet well into the 1980 timeframe, regardless of the development of a new MBT.

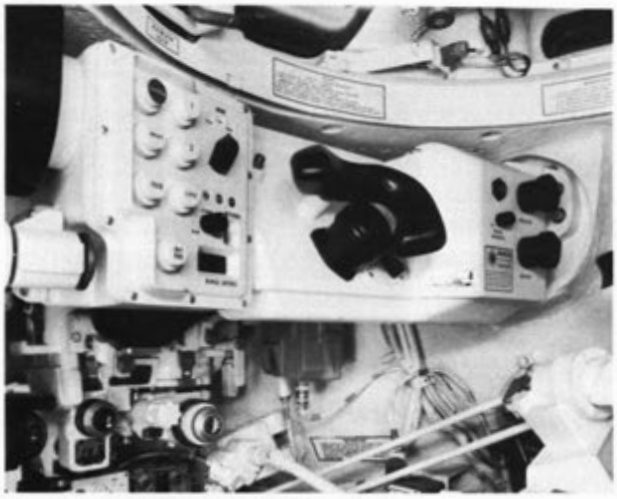
Although this product improvement program has not been widely heralded, it has been progressing quite satisfactorily with results meeting or exceeding expectations. All of the improvements being considered are designed for application by kit to tanks in the field as well as to new production tanks. Therefore, *M60* or *M60A1* crewmen can expect continued modernization of their vehicles.



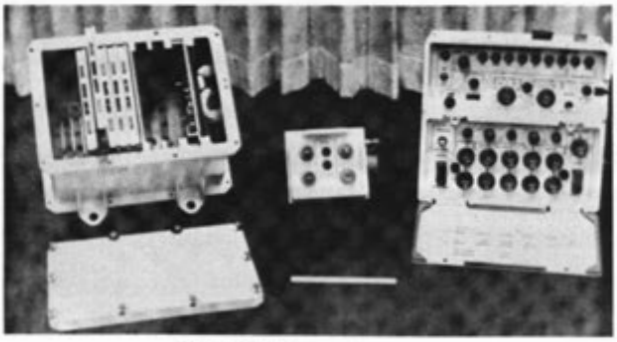
Top Loading Air Cleaner



T142 Steel Track



Laser Rangefinder



XM21 Solid State Computer

Improvements will allow us to shoot faster and more accurately; shoot on the move; and move cross-country at higher speeds. Additionally, the tank will be made more reliable by replacing those components which have a high failure rate with ones which are more reliable and easier to service and maintain. Application of these improvements will improve the operational characteristics to such a degree that a new model designation will be required—the *M60A3*.

The product improvement program for *M60* tanks is a three-phased effort. Phase I consists of those improvements going into production now; Phase II deals with those improvements planned for production in 1975; and Phase III covers those improvements now under study for later application.

PHASE I

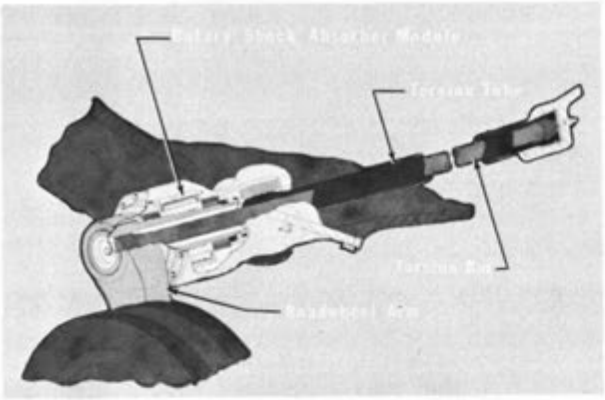
The first phase consists of product improvements that are going into production now and will be seen on new tanks in the near future. These improvements include an add-on stabilization system (see "Tank Add-On Stabilization," by John G. Loridas, *ARMOR*, March-April 1972), a top-loading air cleaner, and an improved steel track with replaceable track shoes. Of these, the add-on stabilization system will have the biggest impact on armor tactics. Tankers now will have a shoot-on-the-move capability for both the main gun and the coaxial machine gun, as well as an increased capability of surveillance while on the move. This will also result in a shorter time to fire if the tank is required to move and then stop to shoot.

The top-loading air cleaner increases engine life by reducing dust and dirt ingestion. In addition, the top-loading feature makes the air cleaner easier to maintain.

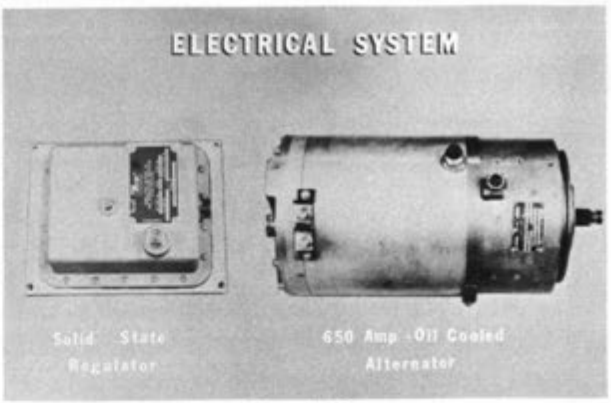
The new track, designated *T142*, provides a significant improvement over the current *T97*, since it has twice the life and incorporates replaceable pads. This track is currently going into the supply system and can be put on as direct replacement for the *T97* track.

PHASE II

The second phase improvements consist of a laser rangefinder, a solid-state computer, a tube-over-bar suspension, a more reliable engine and a new electrical system. These items are under test now and will be introduced into the fleet as a package beginning in 1976. When they are introduced, the



Tube-Over-Bar Suspension



New Electrical System

M60A1 will then be redesignated the *M60A3*.

The laser rangefinder, in conjunction with the new solid-state computer, significantly improves the tank's fire control. The rangefinder is designed so that either the gunner or commander can range quickly and accurately under day and night conditions. It fits in the space currently occupied by the right half of the optical rangefinder, and since it is boresighted with the main gun and the gunner's sights, both the gunner and commander will have a ranging capability. Instantaneous, accurate range is fed by the laser to a new computer system which automatically points the gun without disturbing the sight picture. The only action required of the gunner will be to make a final fine lay if required.

The new solid-state computer system will contain sensors for vehicle cant, cross wind, main ammunition grain temperature and gun tube wear. It also compensates for a moving target by feeding the proper lead into the sights when the target is tracked. This combination allows for faster and more accurate firing from either a standing or moving tank against stationary or moving targets.

The tube-over-bar suspension improves the ride. When the terrain is rough, it is frequently necessary to slow down to speeds not much faster than a man can walk. Under these conditions, the tube-over-bar will permit more than double the cross-country speed, and under other, less severe, terrain conditions will provide a smoother ride and more stable gun platform. This smoother ride, in addition to permitting higher cross-country speeds, will reduce shock on both the crew and tank components. An added feature is an internal rotary shock absorber which is ballistically protected and less subject to dirt contamination, as well as mine damage.

In addition to these items which increases operational capability, an improved engine and new electrical system are being added to increase reliability. The engine reliability improvement is being accomplished by replacing those components in the current engine which have high failure rates with newly designed, longer life components. Examples of these new components include starter, turbo charger, fuel injection pump, cylinders and pistons. It is fully expected that this improved engine will be more than twice as reliable as the existing engine. The new parts will be applied to new production engines, and will also go into the supply system to be applied to already fielded engines during overhaul. Besides improving reliability, the new parts will increase durability and extend the time between engine overhauls.

The new electrical system, which will be introduced with the improved engine, will consist of an oil-cooled alternator, a new solid-state regulator and new electrical cabling.

This alternator, in addition to being more reliable, will provide 650amps as compared to the 300amps of the present generator.

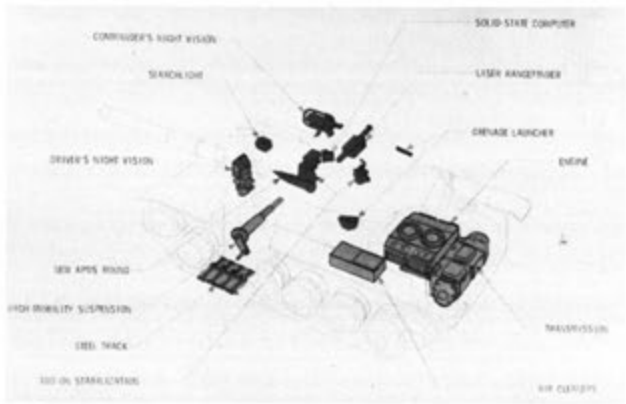
All these improvements described can be applied at a depot during a scheduled overhaul. Since, as a package, they provide a marked increase in the capability of the *M60A1*, the Army is now studying methods of applying them faster than the currently scheduled overhaul rate so that the *M60* fleet can be modernized as quickly as possible.

PHASE III

Although the first two phases effectively modernize the *M60* fleet, the Army is also studying items which could be applied to improve even further the tank's combat capability. Most significant of these are an increased horsepower engine, a new transmission, new final drives and an advanced night vision system.

Initial design work has already been accomplished

M60 SERIES TANK PRODUCT IMPROVEMENTS



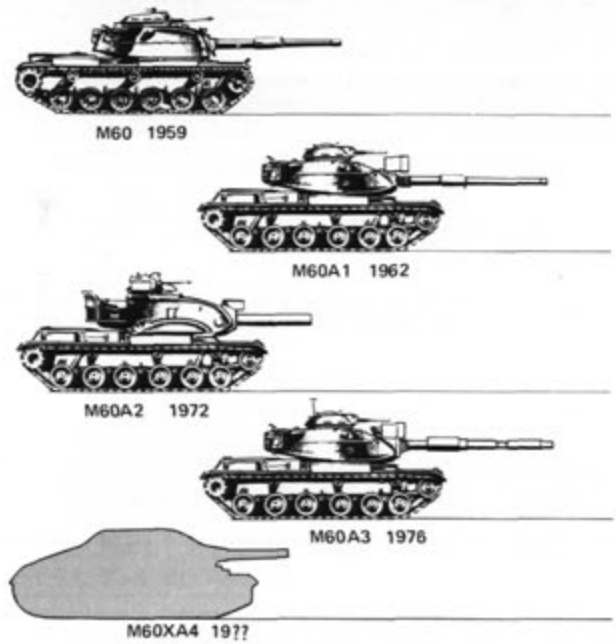
on up-powering the existing engine to 900 horsepower, and coupling it to a new four-speed hydrostatic transmission in conjunction with new planetary geared final drives. This combination will provide greater acceleration, higher top speed and considerably better control.

Development work has also been initiated on prototype models of a thermal imaging night vision fire control system which can be incorporated into the *M60A1* gunner's periscope. This passive system will provide a greater target acquisition and target identification capability than the current infrared system without the use of the searchlight. Because it works on thermal imaging principles, it can be used to improve daylight vision, particularly under smoke, fog or dust conditions.

As in Phase I and Phase II, the Phase III product improvements are being designed for application during new tank production or by retrofit to already issued tanks.

This three phase and continuing product improvement program is assuring our tankers, as well as the rest of the Army, that the *M60A1* will be competitive on any battlefield for some time to come. Therefore, when you are looking for a future main battle tank, look at the tank you have because *the future is now, the M60A1 is the main battle tank.*

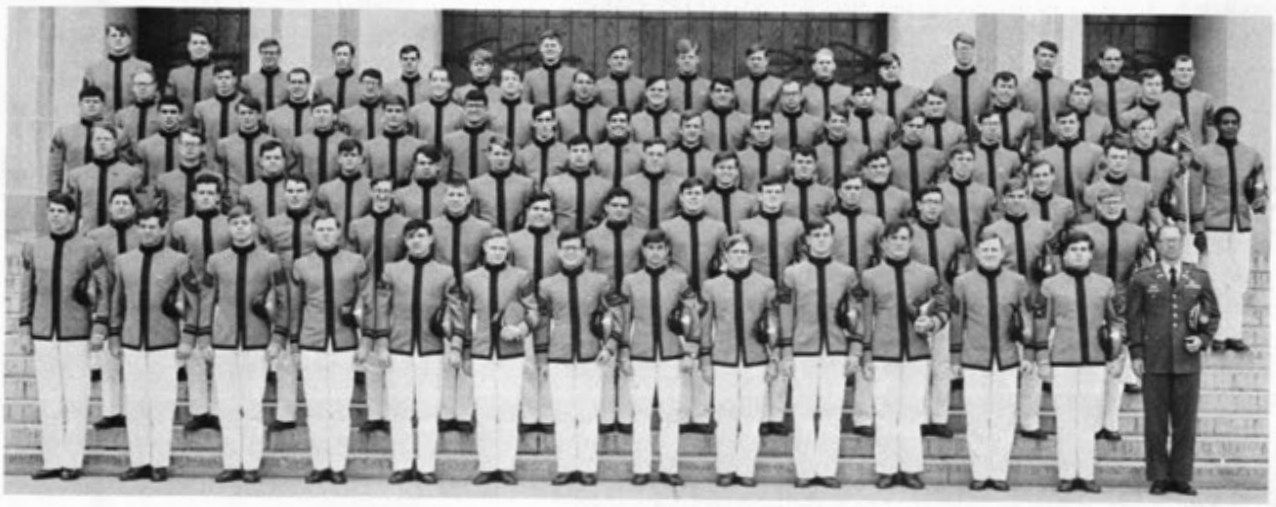
M60 SERIES TANK EVOLUTION



COLONEL STAN R. SHERIDAN, commissioned from the US Military Academy in 1951, is the Project Manager of the *M60* series tanks. A graduate of the University of Southern California and the Industrial College of the Armed Forces, Colonel Sheridan has had numerous research and development assignments.

ARMOR GRADUATES
CLASS OF 1972
THE UNITED STATES MILITARY ACADEMY

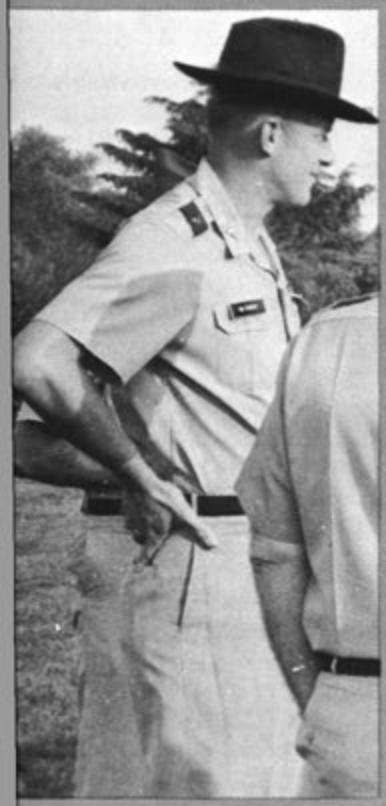
We are pleased to welcome into Armor Branch 90 members of the United States Military Academy Class of 1972. They are an impressive group, including in their ranks 36 cadet officers and 32 members of varsity teams. In a graduating class of 823, they range in relative order of merit from 1 to 812. Twenty-six have volunteered for aviation training after a year of troop duty, in addition to which all will attend one or two TDY schools in addition to AOB, including 55 to Ranger School and 59 to Airborne School. Six have requested first assignments in Korea, 28 in USAREUR and 56 in CONUS. Welcome aboard!



1st Row: (left to right) Williams, G., Latimer, A., Webb, G., Thomas, H., Curtis, S., Wilson, F., Licht, N., Kobbe, M., Leibert, R., Perry L., Irwin, H., Dessert, R., Harlan, W., Major Ralph Garretson, Senior Armor Instructor.
2d Row: Slone, J., Miller, S., Babington, J., Wightman, W., Ash, R., LeBlanc, C., Hunt, G., Walker, J., Lupfer, T., Johnson, P., Miller, R., Webb, W., Grayson, D.
3d Row: Brockman, K., Magneson, R., Sweeney, T., Newlin, D., Wicker, D., Boxberger, J., Barnes, L., Walker, K., Ford, P., Ryan, T., Koger, M., Driscoll, M., Reiser, F., Harris, J.
4th Row: Bushnell, P., Reyna, L., Hatch, W., Walter, G., Bush, R., Goshorn, J., Sherman, F., Simons, W., Schmidt, U., Lewis, R., McQuary, T., Ferrin, F., Moncure, J., Merritt, D., Donahue, D., Dedmond, T.
5th Row: Ritter, J., Ferguson, J., Lawson, R., Godfrey, W., Quimby, R., Greczyn, N., Jacob, M., Broussard, S., Nicholl, R., Snyder, W., Tanner, J., Wildes, D., Baker, J., Wold, J., Rash, K.
6th Row: Wildrick, G., McCauley, R., Williams, E., Timboe, R., Dull, R., Muchow, D., Wheelock, J., Alex, W., Halvorson, R., Oskvarek, P., Olson, M., Corcoran, J., Walter, J., Holtz, B., Parsons, R., Kratz, K.
Absent: Brown, S., Ralph, D., Ray, W.

The United States Armor Association 83d Annual Meeting

Fort Knox, Kentucky, 18-20 May 1972



Thursday, 18 May 1972

1830 Cocktail Buffet with American Ordnance Association

Friday, 19 May 1972

0800 Noncommissioned Officer Honors Ceremony at Brooks Field
0820 Welcome by Major General William R. Desobry, Commanding General, US Army Armor Center
0825 Response and Introduction of Keynote Speaker by Brigadier General Hal C. Pattison, 24th President, The United States Armor Association
0830 Keynote Address by General Ralph E. Haines, Commanding General, CONARC
0900 "The Tank on Tomorrow's Battlefield" by CDC, Armor Agency
0945 "The AH1G versus Enemy Tanks at An Loc" by Major Jerome R. Daley
1000 "Highlights of Armor Activities" by Captains Charles R. Scott and Michael J. Sivigny
1100 "Challenges of Armor Today" by Armor School Faculty and AOAC Students
1145 Luncheon and Business Meeting
1345 Patton Museum Ground-Breaking Ceremony
1150 Armor School Field Training Exercise at St. Vith Range
1830 Cocktail Party and Banquet with American Ordnance Association
Banquet Address by General Bruce Palmer Jr., Vice Chief of Staff

Saturday, 20 May 1972

0900 Executive Council Meeting

ALL ANNUAL MEETING PHOTOGRAPHS BY SP6 ROGER L. DAVIS

Noncommissioned Officer Honor Ceremony

It is a distinct honor and privilege for the US Army Armor Center to honor those past and present leaders of Armor and Cavalry who have assembled here today for the 83d Annual Meeting of the US Armor Association. As a part of this ceremony, we would like to pay tribute to a dedicated group of soldiers—the noncommissioned officers of Cavalry and Armor—for it is to these magnificent professionals that we are indebted for the day-to-day performance of the Mobile Arm, whether it be on the ground or in the air.

The noncommissioned officer has great responsibility and plays many roles. He is, at one and the same time, a harsh task master, a father confessor, a mechanical expert, a small unit leader par excellence, and above all, a courageous, diligent and tenacious fighting man. It is to this man that the commander looks for mission accomplishment. Without his initiative, adaptability and efficiency, the Armor and Cavalry units of the Army would have been unable to attain their greatness in the military annals of our country. He is untiring in his efforts to gain perfection.

His contributions to Armor and Cavalry are legion. Whether it be in the winter snows of Europe or the steaming jungles of Vietnam, the steadfastness of the noncommissioned officer has proved to be an inspiration to us all. He is, in full measure, that able soldier so aptly portrayed by Rudyard Kipling when he said, "The backbone of the Army is the noncommissioned man."

Taking the review with Brigadier General Hal C. Pattison are Command Sergeants Major Arnold E. Orr, William C. Johnson, Lorenzo DeLeon and Dwight M. James.

As we march down the era of the 70s, it is to that dedicated soldier that we look for the continued outstanding performance of duty that is the heritage of Armor and Cavalry. Today, on this field, we acknowledge the presence of the noncommissioned officer. He is represented world-wide by the following: Command Sergeant Major Arnold E. Orr, Sergeant Major of the US Army Armor Center; Command Sergeant Major Dwight M. James, Sergeant Major of the 2d Armored Division, Fort Hood, Texas; Command Sergeant Major William C. Johnson of the Mississippi National Guard 1st Brigade, 30th Armored Division; and Command Sergeant Major Lorenzo De Leon, Sergeant Major of the 6th Cavalry Regiment, Fort Meade, Maryland, who are taking the review with Brigadier General Hal Pattison, President of the US Armor Association.

The commander of troops is Command Sergeant Major Donald Rittenhouse, Headquarters, 194th Armored Brigade; the aircraft platoon commander is Command Sergeant Major Raymond Kelly, 8th Squadron, 1st Cavalry; the commander of the tank platoon is Sergeant First Class Marion Foster, 6th Battalion, 32d Armor; the commander of the mechanized rifle platoon is Sergeant Major James L. Embrey, Headquarters, 194th Armored Brigade; the commander of the armored cavalry platoon is Sergeant Major Pedro Laboy, 5th Battalion, 33d Armor; and the howitzer battery commander is Sergeant First Class Dwayne Lamke, Battery D, 94th Artillery.

Welcoming Remarks

by Major General William R. Desobry
Commanding General, US Army Armor Center

It is indeed an honor to welcome all of you to the 83d Meeting of the Armor Association. I would also like to welcome the members of the American Ordnance Association's Fighting Vehicle Systems Section who have joined us for this meeting.

These are important and exciting times for Armor. We are in the midst of some extraordinary developments in our fields of responsibility. It is our job to make them work to the maximum of their capabilities. It is not necessary to remind this audience that we are responsible for armor formations, armored cavalry formations, air cavalry formations and attack helicopter formations. For the purpose of this meeting, we are calling these The Four Dimensions of Armor. Our program is designed to cover these four dimensions.

By design, we hope to spark throughout your stay here, and long after you leave, discussions, constructive criticism and participation in the further development of the Armor Team. For, only through the complete participation of the Armor Community can we totally succeed. We welcome

your help. The heart and soul, the muscle, the home run hitter of the Combined Armored Team is the main battle tank. Recently we were given the responsibility for the development of the materiel need document for the new main battle tank, plus the design of the Army's tank program. We would laugh at those who now speak of the death of the tank if it were not so serious, for these people are quite amateurish and very damaging.

I can only say that there is no other weapon or combination of weapons in being or on the drawing board that can do the job of the tank. Without a superior tank, we would have a second-rate Army. I'm terribly afraid, in many instances, the capabilities of antitank weapons have been oversold. I can assure you that the tank we come up with at Fort Knox in the next few months will be far superior on the battlefield to any our potential enemies can field. This, we know, we must and will do.

In a presentation this morning, the Combat Developments Command, Armor Agency will present some thoughts on the new tank design—hopefully, to spark discussion and participation. We cannot give you the answers today, for its development has not been completed. Following this presentation, the Armor Center Team, the Armor School and our Allied liaison officers will bring you up-to-date on the highlights of Armor activities.

Recently we introduced into the Advanced Course curriculum an eight hour "think piece," a series of seminars on The Four Dimensions of Armor. The faculty and student body got a great deal of professional enjoyment out of these seminars. We will share some of these with you in our last presentation of the morning. Following the ground-breaking ceremony at the Patton Museum site, we will go out to St. Vith Range to witness a field exercise showing The Four Dimensions of Armor in a combat firing exercise. This exercise is designed to show the student officers what they have been talking about. It is an integral part of the curriculum. We are merely visitors.

It is a pleasure to have you with us, but I must be candid. Our presentations are designed to provoke discussions and participation here and long after you leave. None of us here at Fort Knox are thin-skinned. Our one desire is to get the best we can for Armor and the Army.

Your help and assistance will be most appreciated.

Introduction of Keynote Speaker

by Brigadier General Hal C. Pattison, USA-Retired
24th President, The United States Armor Association

On behalf of the Association, I echo General Desobry's welcome to the many members of the American Ordnance Association who are present. For the second successive year we are meeting concurrently with the Fighting Vehicles Section of the American Ordnance Association, an arrangement which was so congenial last year, and the benefits so apparent to both organizations, that we readily agreed to repeat it. Hopefully we will make it an annual custom.

In planning our Annual Meeting, we are always pleased when the people at the Armor Center tell us they will be able to host the meeting. This insures for us not only a well-run meeting in surroundings congenial to Armor people, but it guarantees that we will meet many of our old friends here at the Home of Armor. I know that I speak for all of us when I express our appreciation to General Desobry, General Patton and General Long and all their people for the time they have spent in making the arrangements for this meeting.

This year, as General Desobry indicated, we are meeting again in difficult times for the Army and its Arm of Decision. In our meeting last year, we dealt in a pioneering way with some of the problems of leadership and that program was enthusiastically received both within the organization and outside of it. This year, our meeting will address the problems connected in achieving unanimity of views concerning the role and missions of Armor in today's atmosphere and the means to be used in accomplishing our mission. I hope we can leave, after this, our 83d meeting, with a new feeling of unity and accomplishment.

I received a telegram from Colonel Walter Plummer, the 53d Colonel of the 3d Armored Cavalry Regiment, asking me to convey to the members of the Association the greetings and best wishes of the officers, noncommissioned officers and troopers of the Regiment of Mounted Riflemen on the occasion of the 83d Annual Meeting of the Association.

Regrettably, some of our most distinguished members were not able to be present today. General Bruce Palmer, who will speak at tonight's banquet, is not able to be here this morning. General Jim Weyhenmeyer's 50th Armored Division is on its active duty training period, and as a consequence, he could not be here. Generals Bruce Clarke and John Waters send their greetings, and our Honorary President, Lieutenant General Willis Crittenberger sends his greetings and says that he is in good health and good spirits. For the first time in many years, Lieutenant General Sam Myers is not here. He is going to undergo surgery. For those of you who may not have heard, I am sorry to announce to you that Major General Olando Ward, a wartime commander of the First Armored Division, and a long-time member of the Association, passed away several months ago. I wrote to Mrs. Ward on behalf of the Association.

Our Keynote Speaker is a man who needs no introduction to you. He was commissioned a Cavalryman upon his graduation in 1935 from West Point, and he joined the embryo armored forces at Fort Knox as a tank company commander in 1940. He has commanded armored elements of the Army at all levels from company to corps. His staff experience in the Pentagon, as

well as in the field, has been diverse, extensive and distinguished, culminating in a 15-month stint as Vice Chief of Staff of the Army.

He served with great credit to himself and the Army as a senior Army member of the board which planned the overall reorganization of the Army in 1962, and from 1965 to 1966, he chaired the Army Board of Officers who reviewed and determined the adequacy of the Army School System. It can truthfully be said that the accomplishment of few officers have influenced the careers of so many of you as has that of General Haines.

It is a pleasure to present to you our Keynote Speaker, the Commanding General of the Continental Army Command, a truly distinguished soldier, General Ralph E. Haines Jr.

Keynote Address

by General Ralph E. Haines Jr.
Commanding General, US Continental Army

I am sincerely happy to have the privilege of delivering the initial presentation at the 83d Annual Meeting of the United States Armor Association. I was flattered by the Association's invitation until, upon reflection, I recognized that such honors usually are extended to those with at least one foot partway in Fiddler's Green.

To set the record straight for the younger members of this audience—and in recognition of bets that may have been laid—I'd like to state categorically that I have not attended all 82 of the previous annual conclaves. In view of the fact that there are some distinguished members here who still consider me a Johnny-come-lately, both in the Army and in the field of Armor, I suggest that we agree right now to drop the subject of chronology entirely.

There's an advertising slogan that tells today's emancipated woman that she's not getting older, she's getting better. This slogan is appropriate to the Armored Concept that I'd like to talk about.

For the moment, let's retrace history to the real beginnings of Armor—to the days of the Depression and turbulence that marked America's entry into the decade of the 40s. Prior to that time, the Infantry, hampered by funding restrictions, had developed tanks on a relatively modest scale, primarily as an additional supporting weapon to facilitate Infantry combat. On the other hand, the Cavalry, although continuing to champion the role of the horse, did substitute the machine for the horse in two of its regiments, visualizing mechanized operations of a more independent character and an organization which included organic artillery, air, engineer and signal elements.

In light of unfolding world events, punctuated by the onslaught of German Panzer units on the low countries and France, our Army awoke to a harsh fact of life—it would have to mechanize on a massive scale at the same time it mobilized, in order to field a meaningful and viable ground combat force. The means of achieving this end took shape within the ranks of an amalgam of unconventional thinkers and doers of Infantry, tankers and mechanized cavalrymen—combined with a scattering of representatives from other branches. Whatever this mixed bag may have lacked in terms of pedigree was more than compensated for by the fact that its dynamic leadership was neither overawed, nor otherwise hindered, by outdated ideas.

The pioneers of the Armored Force were tough-minded realists who were not prone to vacillate with the winds of Branch partisanship that blew strong in support of preserving the status quo . . . at all costs! They merged the "raised pistols and charge" Cavalry philosophy with the "look before you leap" Infantry philosophy into a doctrine which represented a marked improvement on both.

From personal knowledge, I assure you that the period 1940 through 1943 was an exciting time here at Fort Knox as the Post tripled in size and new buildings went up at a rate of 160 a month. The fledgling Armored Forces spawned out cadres and expanded rapidly to a total of 16 divisions and scores of separate tank battalions. An Armored Force School and a Replacement Training Center were built from scratch to provide the necessary training base.

Despite the excitement and turmoil of those days, however, one characteristic loomed large and served all of us well. We had straightforward direction and guidance from a centralized source—initially General Chaffee, the

Father of the Armored Force, and subsequently General Devers, his successor, who was primarily responsible for developing and expanding the force. They had a clear vision of long-range objectives and an unusual ability to get things done. I well remember a sign which hung on the wall behind General Devers' desk which read simply: "Do something." I have a similar sign behind my desk today to remind my staff officers, as well as myself, that we must bite the bullet in the decision-making process, and then carry through resolutely.

Armor's early leaders weren't unnecessarily preoccupied with the technical minutiae of battle hardware which can cause "the tail to wag the dog" if not subordinated to basic purpose. They relied heavily on American industry to refine the internal combustion engine to meet the Army's needs and to mass produce the vehicles required. For those who were to "Forge the Thunderbolt," first things had to come first. So, Armor's pioneers began by grappling with the task of enunciating clear-cut combat roles and spelling out derived doctrine and organization. They made first-hand visits to North African battlefields and incorporated lessons learned by our Allies in our

Armor training literature. As the machine guns on our tanks were replaced by cannon, General Devers insisted that we place proper emphasis on tank gunnery, and we learned how to shoot.

These efforts paid off. For, though we experienced some problems in terms of the relative merits of our combat vehicles and those of the Germans, we fashioned in our armored divisions a tactical unity and effectiveness that set the standards for the rest of the Army. As Armor soldiers, we learned to separate the peripheral from the fundamental, and we trained on fundamentals. We developed sound doctrine and operational techniques as well as aggressive and imaginative leaders who were to become the epitome of success in battle. That matchless combination showed the practitioners of Blitzkrieg what modern war looked like on the receiving end!

In 1948, with the splendid heritage of World War II behind it, Armor became a branch. We took on the former Cavalry roles and added to them those associated with being the mobile striking force on the battlefield.

Today, two wars and several emergencies later, there appears to be some doubt and confusion, particularly among junior and mid-grade officers, as to the future of Armor Branch, at least partially because we have not tested the armored division in the crucible of combat since World War II.

General Desobry, in his article in the March-April issue of *ARMOR*, alluded to the fact that members of Armor Branch have developed the very bad habit of considering themselves as tankers, cavalrymen or aviators rather than as members of Armor. He's right; and, the fact that he's right is illustrative of the thought I want to leave with you this morning. It is divisive to Armor for its members to believe that they are distinguishable on the basis of the type or nature of vehicle from which they fight. I am convinced that everyone in Armor must have a broader vision than to think of himself as a particular breed of Armor man.

Even more, I am convinced that members of Armor Branch must not let themselves be hemmed in by Branch parochialism. While Armor has become a specific branch, its members are custodians and practitioners of the Armored Concept that is bigger than any branch. Recognition of this fact got the ball rolling in the 40s, and action based on continued awareness of it will keep Armor pointed in the proper direction for the future. Branch lines are becoming more and more diffused in today's Army, and no branch is self-sufficient in any sense.

I am convinced there is a clear and compelling continuing need for the tank on the battlefield of the future, although I am not wedded to the precise configuration of the tank today. Generally speaking, I still subscribe to the British evaluation of lessons learned during their 1942 campaign in Burma that, "tanks can be used in almost any country except swamps. In close country, they must always have Infantry with them to defend and reconnoiter for them. They should always be used in the maximum numbers available and capable of being employed. Whenever possible, 'penny packets must be avoided.' The more you use, the fewer you lose." I doubt that we used tanks in the numbers or with the effectiveness we should have in Korea or Vietnam.

At the same time, I feel that some Armor officers today have narrowed their perspective and are unnecessarily defensive about the tank or overly obsessed with hardware. There was a cartoon sequence in "Stars and Stripes" that I recall seeing during the early 40s that is relevant to my point. This series highlighted a column of tanks crossing a stretch of desert which was barren, except for a single palm tree way off on the horizon. In succeeding frames, one tank left the column, drove across the sand to that lone tree, ran over it, and then rejoined the column. The caption read, somewhat cryptically, "Medium tank mentality!" I trust that none of you can be categorized to have such a mentality.

As I see it, Gentlemen, I think that it's past time that we looked inward for the solutions to most of our present problems. We must re-establish the primacy of doctrine within the Combined Arms-Armored Concept. Qualitatively superior equipment didn't help the Germans much once they parceled out their new tanks into specialized units and allowed their Panzer divisions to waste away for want of adequate replacement tank strength, and we will do not better by chasing technological "will-o'-the-wisps." It's true that we need adequate gear, but it's more important to success on tomorrow's battlefields that we have a solid doctrinal base that insures the best possible application of all our combat power to a given situation.

I believe strongly that we seek too often to find the perfect weapon or piece of equipment, regardless of the cost—and pay far too much for the last 10 per cent improvement in its capabilities. Instead of attempting to reach perfection, we would do well to develop our capabilities to operate effectively with necessary compromises in the make-up of our equipment. We need to weigh trade-offs on a realistic basis. I am convinced that, in many cases, we still put the Army Materiel Command and industry in a straight jacket with our materiel need documents, thereby contributing significantly to the lengthening of our equipment development cycle and escalating costs. I say this with no lack of confidence in the capabilities of our colleagues from the Fighting Vehicle Section of the American Ordnance Association to meet valid requirements.

In terms of doctrine, Armor officers have yet to convince all concerned, and perhaps even themselves, that theirs is not primarily an antitank force. Illustrative of this point is a letter I received from a distinguished retired general officer, in which he said, "from my observation, there is a considerable anti-armor sentiment in Congress and in certain areas within the Army. The tank destroyer philosophy is being revived, because of the highly publicized effectiveness of the *TOW* Missile System. This defense-mindedness was costly in World War II and will be again."

All of you should resolve to use every opportunity to state and restate the fact that Armor is designed, equipped and trained to destroy the enemy—not just to defeat the enemy's armor! You should welcome the efforts of other branches to become more self-sufficient in their defense against enemy armor so that Armor can be concentrated to fulfill the offensive role for which it was originally designed in such areas as breakthroughs, flank envelopments, and destruction of enemy vital rear installations.

In our self-assessment, we must admit that our Armor units haven't consistently done the best they could with the equipment they've had on hand. As a case in point, I cite the

gunnery of Israeli tankers during the 1967 war, when entire formations of Egyptian tanks, in hull defilade, were knocked out at ranges of 1,500 meters or more. I doubt that many US units could do that today, with improved materiel. In most cases, we are not even training to standards as high as that. Vietnam didn't help us to maintain our competence in tank gunnery, with its heavy emphasis on firing of canister ammunition.

But gunnery is not the only area in which we must improve our training. Our unit training suffers, for example, in the area of air defense. We have never devoted the efforts that we should to camouflage, and we don't know much about how to engage hostile aircraft. Let's just ask ourselves how well trained our vehicle commanders are in engaging aerial targets, and what we're doing to train them. There is also some homework to be done on the ways and means of combining tanks with attack helicopters, in both the offense and the defense. These problems should be grappled with today, by everyone in the Branch, rather than adopting a "let George do it" attitude in hopes that the Air Cavalry Combat Brigade and TRICAP experiments will solve everything.

Everyone was aghast at the suddenness with which Soviet and satellite forces overwhelmed Czechoslovakia several years ago. This was certainly a tour de force of mobility, command and control and organization. In contrast, we saw very few instances in Vietnam in which even brigade headquarters routinely lived outside of elaborate base camps. Higher headquarters were dug so deeply into the ground and so heavily encumbered with equipment that it became virtually unthinkable to try moving them. The mobile, hard-hitting operations into the Cambodian sanctuaries in 1970 were conducted without the displacement of a single division command post. In fact, only the older officers in this audience have witnessed the full tactical displacement of a division or higher headquarters in an active combat situation. The last one I know of occurred over 20 years ago in the early days of the Korean Conflict.

Being candid, as well as to spike thoughts that all the bad things stem from Vietnam, we don't even have the mobility we should with command and control echelons above battalion level in Europe. Many of you, I am sure, have seen the several days consumed in prepositioning field command posts prior to CPX play at corps and higher levels in Germany. We perhaps are only a little better in CONARC—although we are reviewing seriously the composition of our headquarters from the brigade up in MASSTER and in other on-going studies.

These experiments and studies lead us to see the relationship between mobility and organization. We are all justly proud of the fact that Armor pioneered the development of the modern divisional organization. Yet, I believe that Armor may have waxed complacent in recent years. Illustrative of the point that I wish to make is the following quotation from Field Marshal Slim's memoirs: "In many theaters of World War II, the complexity of equipment, the growth of specialized organizations, the expansion of staffs, and the elaboration of communications still further increased the ratio of administrative to fighting strengths and swelled the amount of transport required."

There is a clearly prophetic note in these words—one that we should, on the basis of our past achievement, be sensitive to. Armor, as much as other branches, must become more critical of its increasingly overloaded tables of organization and the bulk and weight of its equipment. Strategic mobility means, both air and sea, are in short supply and Armor cannot afford to price itself out of the market. Prepositioning of equipment is expensive and is not the complete answer. Further, I believe it's past time for us to ask ourselves to define the limit at which multiple channels of communication cease to serve as tools to abet flexibility and become, instead, overwhelming aids to oversupervision. Correspondingly, if we insist that we retain and further improve our communications, shouldn't we also be able to reduce, by a substantial proportion, the size of our staffs at battalion and higher echelons?

Another factor that must affect the makeup of our units grows out of a major lesson learned in Vietnam that the helicopter will have a big part to play even on a sophisticated battlefield. As I suggested earlier, Armor has its work cut out for it in the armed helicopter/air cavalry field in developing employment doctrine for mid-intensity conflict.

However, things in rear areas are equally significant. In fact, the requirements for the mobility that helicopters provide are greater in the area behind the FEBA than they are forward of it. To my mind, this suggests that we may well consider trading off some of our fully mobile combat support or combat service support units within divisions or corps for semimobile units that can be massed or displaced by helicopter to meet mission requirements in a fraction of the time formerly allowed for such operations. By restructuring their means and methods of mobility, we may solve some of the problems relating to the organization, equipment and employment of support elements that normally back up mobile forces. Unless we can do this sort of thinning out and shifting about, we are likely to find that we have so vast, elaborate and expensive a support echelon, that we will lose our mobility through "tripping over our own entrails." As a considerable side benefit, such a rethinking of our methods and organization for support may well ease some of our difficulties in the field of rear area security.

Some students of World War II feel that the *C47 "Gooney Bird"* transport aircraft and the "Deuce and a Half" truck were the decisive weapons of Allied victory; in comparable fashion, the helicopter clearly demonstrated in Vietnam that it can significantly enhance the internal mobility of our forces. We must study its record of past uses and devote our best efforts to realizing its full potential before we face the challenge of our next conflict. Whole wars are neither fought nor won exclusively along the FEBA.

I do not mean to suggest that we consider only the mobility aspects of our organization as we challenge our past and present systems to find the answers for the future. I continue to believe that we need to get back the fourth line company in our maneuver battalions to optimize our combat power and cross-reinforcing capabilities. We may usefully consider the organization of smaller tank and mechanized companies and platoons. In all of our organizations studies, we must consider the feasibility and desirability of augmenting Active Army units with associated Reserve Compo-

nent units on short notice. We are currently conducting tests of such augmentation, or Roundout, at various levels at the direction of the Secretary of Defense.

I have been very gratified to note the provocative flavor of the articles and letters recently published in *ARMOR* Magazine. Whatever the editorial intention may have been in selecting "The Death of the Tank" for publication, the wisdom of including so stimulating an article is clearly borne out by reader reaction to it. Colonel Filaseta's article in the January-February issue clearly points up the problems involved in the fielding of the missile-firing *M60A2* tank with its complex electronic turret and suggests that we may not have weighed fully the trade-offs in reliability and maintainability. Colonel Moreau's article in the March-April issue discusses the tank/antitank spectrum of mobile warfare, and poses some interesting questions about the overall direction of efforts in this broad field. All three of these articles deal with fundamental issues of great interest to Armor officers and are a great credit to their authors. *ARMOR* has the potential of being an outstanding professional journal and an integrating force among students of mobile warfare.

In contrast to the unrestrained expanding Army during the 1940s that gave rise to the birth of Armor, our Army must look toward meeting its responsibilities during the 1970s with a sustained awareness of the limitations within which it is required to operate. As is normal when the Army readjusts to a post war situation, leadership emerges as the pivotal point of such adjustment.

We find today, as we did after World War II and Korea, that we must retrain our leaders to cope with the problems of peacetime service. General Westmoreland took a dramatic step in this direction last June by eliminating almost all mandatory training requirements. This move places in the unit commander's hands both the responsibility for training his organization and the authority and resources needed to meet the responsibility. In short, it was a mission-type order, to which Armor has always been wedded, in the best sense! It must, in no sense, however, change the primacy of interest in and support for training in our peacetime Army.

In order to better prepare our officers and NCOs to cope with the challenge of decentralized unit training, we have expanded the Army's efforts in the field of leadership training. To cope with immediate problems among our most junior leaders, we have instituted a one-week basic leadership course, conducted at post or brigade level, for all E4s and E5s. We have also increased our CONARC NCO academies from four to thirteen, consolidating them with drill sergeants schools, and have reduced the length of the course from six to four weeks to increase the output.

To meet our long-range requirements for increased professionalism in our NCO/specialist corps, we have inaugurated a Noncommissioned Officer Education System of basic, advanced and senior courses. Basic and advanced courses in various career fields are already in operation at most of our service schools. The senior course, which will be a 23-week PCS course for E8s to prepare them to be command sergeants major, was approved in its final form by the Chief of Staff two days ago.

These increased NCO schooling opportunities, together with appropriate curriculum changes in the officer courses, to focus more attention in such fields as training management and problems in the racial, drug and dissent areas, should provide us with the enlightened and effective Army leadership we will need in the years ahead.

Well, it's not my intent to play Dutch Uncle at these festivities nor to accentuate the negative. Actually, I don't feel that there's anything depressing in the difficulties the Army faces today. We can accept them as challenges that summon forth our best efforts. As General Harold K. Johnson, our former Chief of Staff, used to say: "Yes, we have problems; if we didn't, we'd all be grossly overpaid."

Irrespective of whether Armor may, in some areas, have wandered somewhat afield from its proper and fundamental course, its role as the Army's Mobile Arm has not diminished in importance. I suggest that each of you rededicate yourselves to the advancement of the Armored Concept, bearing in mind that your Branch exists as an entity subordinate to that concept. We must all, throughout the Army, reaffirm our commitment to doing the best we can with what we have today in terms of units, structure and equipment. For the future, Armor, in concert with the other elements of mobile warfare, must continue to produce flexible, innovative and decisive leaders.

Like the slogan I quoted at the beginning of my talk, let's leave here determined to "get better, not just older." The challenges posed by our nation's actual and potential enemies grow daily. Our fellow citizens must be able to look to us, with confidence, as men who can and will provide the level of military leadership necessary for success on all future battlefields.

The Tank on Tomorrow's Battlefield

by The US Army Combat Developments Command, Armor Agency

The battlefield environment has changed, and changed profoundly as this great nation unsheathed her battlesword time and again during the last century. Let us reflect now upon some of these historic battlefields and particularly at how Armor met with unparalleled professionalism the challenge of the battlefield environment.

Yes, Armor was thrust piecemeal into The War To End All Wars, and how superbly it met the challenge. More than two decades later, Armor was leaving its trackprints in the sands of Tunisia and on the beaches of Normandy, Iwo Jima and the Phillipines—punching a hole in the Siegfried Line. Less than a decade later, names changed, but the results were the same: Guadalcanal became Inchon, Paris became Seoul and the Rhine became the Han. The American tanker fought a costly and frustrating police action. And once again, in the steaming jungles, the arid highlands, the muddy ricelands and the crowded cities of Vietnam, Armor has answered the call.

Without regressing to the nuclear paranoia of the late 1950s, we must still recognize the threat of high-intensity warfare as one of the many considerations of tomorrow's battlefield environment, an environment which might

affect the development of our next main battle tank.

The threat alone, however, can no longer be our sole criteria for the design of a new weapon system. The basic principles to be followed, the planning of the developmental cycle, and the specific design approach for the next MBT must be dictated by the total environmental effects on tomorrow's battlefield. These effects, which must be closely examined, include an assessment of the policy of this nation and its Allies, the postulated threat, the topography, demography, and considerations such as budgetary constraints and production feasibility.

For the next few minutes, place yourselves in what you envision to be tomorrow's battlefield environment. As you do this, we will begin to discuss those considerations which must be recognized in the design of a tank which can survive on this complex battlefield.

The most important basic principle to be considered as we design this tank must be reliability. Regardless of how effective a tank may be when placed into battle, if it fails to function, it becomes nothing more than a battlefield liability. I'm certain that each of you, as you envision tomorrow's battlefield, see a maze of highly sophisticated equipment. We must be ready to accept technological advances, but must avoid unnecessary oversophistication. Our next MBT must be reasonably simple to fight and maintain and be qualitatively superior.

Before we begin to tackle some of the specific design considerations for our tank, let's consider very closely one last factor, and one which is playing a more important role in our design approach for combat vehicles—cost. A super tank incorporating everything everyone wants could no doubt be built if price were no object. We need only to look at the *XM803*, however, to see that cost must be one of the initial considerations upon which many subsequent decisions are based.

Firepower, mobility and protection must be the primary considerations in our design approach. These three areas are not independent, but are so related as to cause trade-offs for the most effective system. For example, providing additional protection might result in an undesirable design characteristic, that of added weight, which reduces its cross-country mobility.

The *Shillelagh* Missile System has proven to be an acceptable and effective armament for the *M551 Sheridan* and is, at present, the primary armament for the *M60A2*. The missile/gun launcher, as a tank armament system, has achieved a long-range, accurate antitank capability. It provides a conventional ammunition complement for engagement of other targets as well. Use of the lightweight gun/launcher with relatively low recoil forces packs a bigger punch into the *Sheridan*, while adaptation of the system to the *M60* chassis provides a system of higher survivability to complement mechanized infantry and tank forces.

Today, improved fire control systems and improved penetrators for kinetic energy rounds will provide acceptable hit/kill accuracies. The advantages accruing to the gun solution are: lower costs, higher rates of fire, larger stowed ammunition loads and easier maintenance with higher reliability. The high rate-of-fire cannon, together with complementary weapons, provides an excellent armament to accomplish the tank's mission. If an effective missile system can be externally or coaxially mounted at low cost, then the option should be considered. The concept of a pure gun/launcher for our next MBT must be closely examined if the accuracy and penetration capability of its kinetic energy round is degraded or is found not to be cost-effective.

One of the primary design considerations should be to recognize that the purpose of the tank gun is to permit the tank to advance to the point where it can use its complementary weapons system. Low risk technological advances in the areas of recoil softening and target acquisition aids must be closely evaluated. As the tank is the only weapon used in the antitank role which is not dependent solely on the HEAT warhead, we must insure that our tank provides the balance by giving it a kinetic energy and a chemical energy capability. Complementary or secondary armament should provide for a coaxial weapon of medium-range capabilities to engage enemy personnel and light materiel targets. The requirement exists for a weapon to engage aircraft, specifically of the slow, low-flying type such as helicopters. In addition, an improved close-in defensive capability must be provided.

What design approach, then, are we advocating to satisfy the user's firepower requirement? Our tank should be looking to a high energy gun with complementary armament systems. This tank weapons system must be optimized to provide for direct, rapid fire, kinetic energy attack against armor, direct rapid fire attack against enemy troops and materiel, and antiaircraft fire against slow, low-flying aircraft.

On tomorrow's battlefield, we can certainly anticipate the expanded use of airmobile forces for lightning quick response to the changing situations. The rapid mobility of these airmobile forces, however, is of doubtful value unless they can be supported and reinforced by highly mobile, all-weather ground forces. Our tank must possess an on-and-off road mobility that will permit it to rapidly spearhead link-up forces in conjunction with other combat formations. It must be able to move cross-country in the face of hostile fire. It must, therefore, be capable of maneuvering with speed, agility and acceleration while possessing the capacity to rapidly cross minor terrain obstacles.

In all probability, each one of you, as you envision tomorrow's battlefield, would include an increased involvement in and around cities. We must resist the temptation to design equipment and to develop our doctrine around an imaginary battlefield of rolling hills or barren wasteland. The growing megalopolis of southern Germany is a good indication that we must closely consider the tank's role in city engagements. These requirements tell us that in our design approach, we must consider smaller size, less weight, a greater horsepower-per-ton ratio, improved tractive effort, lower ground pressure, greater ability to climb vertical obstacles, and improved ability to cross water and dry gaps.

Over the past two decades, technological advances in antiarmor weaponry have exceeded advances in armor protective plating. The result has been a decrease in the net protection afforded by a given weight of armor plate. Survivability of our tank will not be measured by the sheer thickness of armor. The true determinants of tank survivability are mobility, vehicle size, firepower, missile countermeasures and design details which limit damage. Examples of these design details are crew compartment isolation, fuel storage

arrangements and ammunition rack design. This is not to say that we can do away with armor protection. In order for our tank to operate on the battlefield in its intended role, it must have adequate protection from everything except direct hits from the enemy's antitank weapons at close range.

Vietnam has been a hallmark in reinforcing the requirement for a level of protection against mines. The MBT must also protect the crew and machinery from the effects of nuclear weapons. Under conditions in which the tank receives less than moderate damage from the initial effects of a nuclear blast, the crew must be able to continue their fighting mission in the vehicle for up to 24 hours.

Overall, levels of protection can be achieved, even with a reduction in weight, if we increase the use of obliquities, and incorporate some of the modern armor techniques, such as spaced concepts, appliqué techniques, and newer, lighter materials. The most effective protection method, however, continues to be keeping the tank from being hit. This brings us back to a reduced size, to include a lower silhouette, and the previously mentioned need for significantly greater mobility.

As each of you think of tomorrow's battlefield, there is another idea on which we are in near harmonious agreement. That is, regardless of the physical characteristics of the battlefield, we must be capable of getting there swiftly and in a battle-ready condition. The need for our MBT to be designed to minimized deployability problems must receive major attention. Total weight, along with length, width and height must be planned with thought given to the requirement for rapid deployability.

If we could predict the exact terrain which we might encounter on the future battlefield, we could design a tank which would be optimized for use on that particular terrain. We must, however, be prepared to operate in widely varying settings. Rocky hills, rolling plains, frozen tundra, dense jungles—each could be our stage. We should therefore look closely at a multiple armament capability, wherein our MBT could be optimized for Europe, or with changed turret and fire control systems, be employed to full effectiveness against some other contingency. One of the outstanding advantages of this weapons approach is the relative ease in which we can improve the components or subsystems of our tank.

Also fundamental to the design of our MBT is the requirement for its proper integration on the battlefield with other ground and air weapons systems. Not only is this critical in the determination of its mobility and firepower characteristics, but it is essential that this concept be carried forward in consideration of communications integration and logistical compatability. We cannot develop this tank in a vacuum, disregarding its compatability with other battlefield systems.

Now that we've gotten a good idea as to what kind of a tank we want, how do we go about actually putting this tank into our inventory? Before we can initiate a developmental cycle, we must determine when we actually want our MBT to be fielded. This determination must be based upon a number of factors—how long will our present tanks remain competitive on the battlefield against the postulated threat force? And can our present tanks continue to successfully integrate with other combat systems to achieve their maximum in-force effectiveness?

The normal developmental cycle for a new tank takes at least a decade. In addition to the stating of the detailed user requirements, such time is consumed in developing the new armament, power train, fire control and suspension system, and testing them in a new vehicle for production. If our desire is to produce a tank in less than 10 years, we must use technology of low or medium risk, rather than becoming involved in longer-range developmental efforts. We can and should certainly apply much of the technology developed in the *XM803* effort. We should look closely at the proven advancements, not only in our current tanks, but also in those of our Allies.

As most of you are aware, an organization was formed here at Fort Knox in February of this year to study this challenge, which we touched on briefly today. The Main Battle Tank Task Force co-located with the Armor Agency, is a force made up of 33 officers and civilians representing Combat Developments Command, Army Materiel Command, Continental Army Command, and Department of the Army staff.

Colonel Charles K. Heiden, Deputy Director of the Task Force explains, "The Main Battle Tank Task Force was formed to develop the concept for the new main battle tank. Our mission includes the preparation of the draft proposed materiel need, and an integrated Army tank program which provides for the production, improvement and disposition of all of our tanks.

"We have compiled a catalog of feasible tank components, US and foreign. Using the results of combat simulations and military judgement, we are selecting the most effective configurations of these components. These configurations assist in determining the performance bands to be used in the materiel need document.

"We have on the Task Force experienced Armor officers from several commands, who are being assisted by Weapons Command, Tank-Automotive Command, the Armor Agency and others to determine the best, most feasible tank concept. In addition, we have asked tankers worldwide for their opinions on desirable tank characteristics.

"Our ultimate goal is to produce a tank that is reliable, simple to operate and maintain, and both faster and more deadly than our present tanks. We plan to include the kinetic energy gun and provide increased mobility with adequate protection. We believe that this concept will result in a tank which will maintain the supremacy of Armor as the key combat element on the battlefield for many years."

The battlefield of tomorrow is challenging us today. It's a new battlefield: one made up of far more than a dedicated enemy and some hazardous terrain—but one on which technology is perhaps the most dominant factor. Armor has been given its mission and must meet the challenge.

The AH1G versus Enemy Tanks at An Loc

by Major Jerome R. Daley
Project Manager's Office, Picatinney Arsenal

I am very happy to speak about some of the activities that attack helicopters are presently engaged in in Vietnam, particularly in the antiarmor role.

By way of introduction and to let you know how I got to Vietnam, on what I call my two-week R&R from Picatinney Arsenal, New Jersey, where I am stationed: Last year in Lam Song 719, it became evident that the only HEAT round which we had for the 2.75-inch rocket system was rather antiquated. The round had been developed during the Korean War, stored since, and was over shelf life. We had a high dud rate with them. At that time, the development work went forward with a dual-purpose antitank, antipersonnel round. This single round has the same armor-defeating capability as the *M72* LAW and also possesses the antipersonnel or soft target capability of our 10-pound HE warhead for the rocket system.

On 30 March of this year, it became evident that armor was a real threat on the battlefields of Vietnam. Department of the Army asked our project manager how many rounds of the dual-purpose warhead we could quickly produce. Through an extraordinary in-house effort on the part of Picatinney Arsenal, a production line was set up and in four days over 1,000 were produced and ready for shipment to Vietnam.

My job as the aviation liaison officer with the Office of the Project Manager was to accompany these rounds to make sure they got where they were going, and to evaluate them since they were not classified Standard A. As a result, I arrived in Saigon on 15 April. Looking around to determine where the maximum armor activity was at that time, it appeared to be in Military Region 3, and specifically in the An Loc area.

Those of you who are familiar with the area remember that it is fairly well covered with rubber plantations. An Loc is the major city. The NVA Forces had crossed the border on 30 March and overran Loc Nihn. They were accompanied by what was later described as the 72d NVA Tank Battalion, a part of the larger armor regiment which was sitting across the Cambodian border. They were initially equipped with *T54* tanks.

The NVA Forces generally paralleled Highway 13 which runs from Loc Nihn, through An Loc and into the Saigon area. After pushing through Loc Nihn, they encircled the city of An Loc. The infantry initially gained the northern portion of the town forcing the ARVN Forces into the southern area.

The airfield fell as did all of the surrounding fire support bases with the exception of one in the southwest. The NVA moved in at the same time with an antiaircraft capability of .51-caliber, 37mm and 23mm. It appeared that they had no radar guidance capability for the antiaircraft weapons.

Subsequently, ARVN fell back into their compound area, the American advisors were left in the area, and the NVA occupied the area north of the main east-west road. The NVA infantry came in separately. About two days later, the first tanks appeared in An Loc. At this point, no tactical air had been put in the northern portion of the city for two reasons—civilian population, and pockets of ARVN Forces still were within that area. However, when six tanks started coming down the north-south streets towards the ARVN compounds, the ARVN commander gave permission to the *AH1Gs* to engage the tanks. These *AH1Gs* came from the 3d Brigade of the First Cavalry and were part of their F Battery, 79th AFA. At this time, there were three *AH1Gs* on station. On their outboard stores, they were carrying the old HEAT warheads of Korean War vintage, the *Mark V*; and inboard, they were carrying 17-pound HE warheads.

The first tank destroyed by the *Cobras* was early on the morning of 13 April. It was hit and declared a kill inasmuch as they got a fireball and a high column of black smoke. The tank was hit in the deck area at a fairly high angle of attack of 30 to 35 degrees.

It is interesting to note that these six tanks came to town at a rather leisurely clip and with their hatches open. They probably assumed that they already owned An Loc. Of course, they could see the air overhead and knew they

didn't own that dimension. But they were also aware, I believe, that there had been no tactical air put on An Loc proper, and once they gained that position, they probably felt relatively secure.

The remaining five tanks found out they were not in a safe sanctuary and that the *Cobras* did have a tank-killing capability aboard. A second tank on the same street which tried to evade the *Cobras* ended up under a building. It later became a mobility kill with 17-pounders.

Another tank was hit on 13 April with a 17-pound HE warhead. The tank, according to the pilot, started spinning and finally came to rest. The only visual contact the *Cobra* crews had with any of the NVA tank crews occurred with this tank. The tank commander waved a white flag out of the hatch at the *Cobras*.

When the American advisors who were left in An Loc got up to these tanks, they verified the rumor that everyone, with the exception of the tank commanders, was chained to the tanks. I also might add that this lead to rumors that the men in the *Cobras* were being chained in and I can tell you that this was not the case.

Another kill was struck from a high angle of fire on the order of 30 to 35 degrees. Again, the traditional ball of flame and black smoke emitted from the tank immediately after being hit. As I mentioned, the main maneuvering of these six tanks continued from the 13th through the 15th at An Loc. They never committed more than those six tanks after they saw what happened. The remainder of the battalion re-

mained in the rubber on the periphery of town as was reported periodically by the American advisors who could hear them shifting around at night. However, they did not make any attempt to gain access to the town or come up on a frontal assault of the ARVN position in the compound to the south until 10 May.

The last tank that was killed in An Loc by the *Cobras* was under an overhanging roof where the crew saw the front end sticking out. This kill was at a high angle of fire up on the deck area.

The remainder of the tanks stayed pretty well out in the rubber and no more operated in the town for almost a month.

At this stage, inasmuch as the tank was relatively diminished as far as direct threat, the ARVN started getting up and moving. The *AH1Gs* were committed to providing very close support to an ARVN ranger battalion which was assigned the mission of clearing the northern quadron and the city itself.

The houses and shops were pretty much reduced to rubble. It became a house-to-house operation reminiscent of Saigon in 1968. The ARVN battalion commander was in direct communication with the *Cobras*, and had obviously worked with attack helicopters previously. He had them deliver fire within 10 meters of his position and was shifting it by 10 degrees going from house-to-house. We never got a check fire, nor did we ever get a cease fire or anything that ever sounded as though we were endangering his troops.

When I left An Loc on 25 April, some area had been regained. It was a slow and tedious process.

Farther to the south, the 21st ARVN Division was pressing up the road slowly. However, they were meeting flank resistance just about all the way. The antiaircraft fire around An Loc was continual and very impressive. Having been at Lam Song 719 last year, I can say that the fire was as high, and a bit higher around An Loc, as it was around some of the fire bases established by ARVN in Laos.

There was no friendly terrain and no traditional FEBA. If there was a FEBA, it was 360 degrees and had a very small diameter. Hence, the *Cobras* in this particular unit learned fairly early that their survival probably was going to be at altitude. They initially attempted to use low-level tactics, but because the enemy owned everything, with the exception of the very small area they were trying to support, they chose to go to altitude. They were receiving .51-caliber fire consistently. The enemy seemed to reserve the 23mm and 37mm for the larger aircraft, specifically *C130* gunships and *C123* resupply aircraft.

During the six days that I flew with F Battery, none of their ships sustained even a hit, which is somewhat of a remarkable record despite the fact that the fire was intense. You could hear it in the *Cobra*, and those of you who are *Cobra* pilots know they're fairly close when you can hear it.

One of our major problems in Vietnam is the gathering of data. They are in the throes now of trying to realign the data bank in Vietnam to reflect what exactly is taking place in relation to tank activity. However, from what we have been able to verify, *Cobras* equipped with only the 2.75-inch rocket system have destroyed ten *T54s*, three *PT76s* and damaged six *T54s* for the period of 30 March through 11 May. That's a fairly significant figure inasmuch as the tanks have taken to the bush and have started moving at night, not showing themselves in the open, and are certainly not making frontal attacks where they expose large numbers.

I think that this is a significant activity that people here at the Armor School, at Fort Hood, over in Europe and those who are doing evaluations need to take a long hard look at.

Highlights of Armor Activities

by Captains Charles R. Scott and Michael J. Sivigny
US Army Armor School

This morning we will discuss the latest developments in Armor, armored cavalry, air cavalry and attack helicopters with respect to doctrine, materiel and training.

Captain Michael J. Sivigny

The M60A1 Product Improvement Program

With the demise of the *XM803*, the *M60A1* Tank Product Improvement Program is now the Army's number one tank development effort. This program provides for a series of retrofit kits for the *M60* and *M60A1* tanks to upgrade the current tank fleet in terms of mobility and firepower. The program is divided into two major categories: production of new product improved tanks at the Tank-Automotive Plant, and modification of in-service equipment.

The major improvements with respect to firepower are: the add-on stabilization system, which provides the tank crew with the capability to observe, acquire and effectively engage targets while on-the-move; and the new solid-state computer and laser rangefinder will greatly improve our first-round hit capability.

Turning to mobility improvements,

Captain Charles R. Scott

the tube-over-bar suspension system will replace the current single torsion bar system, and the present track will be replaced by the *T142* track, which is a steel track with rubber grousers and has demonstrated a life expectancy twice that of the current track.

These two systems will cause some minor loss in range; however, when coupled with a new, more reliable engine, it will enhance cross-country speed.

A new solid-state regulator, oil-cooled alternator, and wiring harness will be applied which provide for improved durability, reliability and maintainability of the electrical system. New top-loaded air cleaners will contribute to improved reliability.

Current plans call for completely product improved *M60A1* tanks from FY75 production.

Stabilized Gunnery

Of all the new systems and components under development, the one which will have the most immediate impact on tank crew performance and training is the gun stabilization system to be applied to *M60A1* tanks. The system will provide stabilization in both the horizontal and vertical planes, and will be integrated into the existing Cadillac Gage system, thereby allowing the current elevating and traversing mechanisms to remain intact.

The value of the stabilization system is realized in engagement of area-type targets, with the main gun and/or coax machine gun while on-the-move. Using this system, a well-trained gunner can deliver accurate, neutralizing fire on area targets while an assaulting force closes to killing range. At the same time he can use the coax in the stabilized mode to deliver accurate fire while over-running objectives.

In order for the full value of the system to be realized, a sound training program consisting of mechanical training, system capabilities and techniques of employment is required. The most difficult problem in training a gunner to use the system is in developing the dexterity required to coordinate movement of the gun controls and lay on the desired aiming point. Although the stabilization system provides a stable gun, it does not retain an absolute fix on the target. Therefore, the gunner must constantly refine the lay of the gun during movement.

The M60A2

The *M60A2* tank was developed to provide the Army with a tank capable of employing the *Shillelagh* Missile System. Based upon recent studies, it has been determined that it will not replace the current main battle tank on a one-for-one basis. Rather it will be used to complement the current fleet, adding a long-range, highly accurate, armored, direct fire weapons system to our inventory.

The automotive subsystem and armor protection provided by the hull is similar to that of the *M60A1*. The important differences between the *M60A2* and the *M60A1* are in the weapon subsystems and turret design.

The main weapon of the *M60A2* is a 152mm gun/launcher mounted to an elongated tunnel-type compact turret, capable of firing combustible case ammunition or launching the *Shillelagh* Missile. A closed-breech scavenger system, which is automatically activated by the gun recoil, provides a source of compressed air to clear the gun/launcher of residue and gases after each round is fired. The coax and commander's weapons are the same as those on the current main battle tank.

Additionally, the tank commander has a target designation system which automatically aligns the main gun and gunner's sight on a target which the tank commander has acquired through his cupola sight.

The fully stabilized turret permits all weapons to be operated in any one of three modes.

In the power-with-stabilization mode, the gunner or tank commander's aim on the target is automatically retained, thus providing the crew the capability to observe, acquire and effectively engage targets while on-the-move. The power-with-stabilization-off mode eliminates needless exercise of the stabilization system while hunting for targets and provides a powered backup system. The manual mode provides the crew another system with which to aim and fire as a backup to the electrical and hydraulic subsystems.

First-round hit probability is enhanced by a laser rangefinder and ballistic computer which computes and compensates for range, gun cant, ammunition, gun jump, parallax and target lead, thus providing for the first time, a full solution fire control system.

Commencing this winter, the *M60A2* is scheduled to undergo an intensified confirmatory troop test. The test will be conducted at Fort Carson and Fort Knox to evaluate the training package, doctrinal concepts, organizational alternatives and engineering fixes.

Hit-Kill Indicator

There has long been a requirement in Armor training for combining tank gunnery crew procedures with small unit tactical exercises. Heretofore, tank gunnery exercises were conducted separately from field exercises. Even when crews were conscientious about simulating tank gunnery procedures, there was no way of assuring they had successfully engaged and destroyed an opposing tank during problem play. Over the past seven to ten years, several attempts at developing hit-kill indicators were made. However, most were unsuccessful due to stringent user requirements coupled with limited technology.

Recent developments in technology and changes in user requirements caused by updated tank fire control systems indicate that development of an economical and effective hit-kill indicator may be achievable. Such a device is available from a US firm and will undergo a military potential test by the Armor School in June and July of this year.

Ammunition

We are having success improving our 105mm and 152mm tank ammunition. The combustible cartridge case, common to the original 152mm rounds for the *Sheridan* and *M60A2*, was not type-classified Standard A. A new, hard, high density case which is classified Standard A has been developed that greatly reduces fragility of 152mm ammunition. However, this ammunition is still susceptible to moisture and requires the neoprene moisture-proof bag for in-vehicle storage.

In the area of the 152mm HEAT multiple purpose, new fuze concepts have undergone preliminary testing which indicate a much higher degree of fuze functioning reliability against all type targets.

Another area of concern is 105mm

armor-piercing, discarding SABOT (APDS) training ammunition. Armor has all but lost its capability to train crewmen in SABOT gunnery techniques due to range safety restrictions. For example, Fort Knox has only one range that will accommodate this higher-velocity ammunition, and firing at this range forces the closing of all other tank ranges. The British have developed a practice SABOT round—the *L45A1*—which ballistically matches our current 105mm APDS out to a range of 2,000 meters, and due to its lighter core, reduces maximum training range to less than half that required for the standard APDS.

TECOM has conducted a military potential test of this round and has recommended that it be considered as suitable for US Army use without further testing. We are hopeful of having this ammunition by this fall in order to validate revised tank gunnery tables.

Additionally, we are pursuing improvement for the standard 105mm SABOT round. The Munitions Command has received a technical data package for a United Kingdom round, which will be used to provide the Army with an improved 105mm SABOT round. This ammunition is part of the product improvement program for the *M60A1* and is scheduled for fielding in FY75.

The M551 Product Improvement Program

The Armor Community recently participated in establishing a milestone schedule for improving the *M551 Sheridan* vehicle. Field recommendations submitted to date and results of world-wide tests will establish the basis for improvement of the *Sheridan* vehicle. Some examples of these recommendations include the installation of the laser rangefinder, revised telescope/periscope reticles and fire control instruments, and a more reliable turret electrical system. These improvements are designed to provide reconnaissance units with an enhanced weapon system.

The Armored Reconnaissance Scout Vehicle

For many years, the 1/4-ton truck was the primary scout vehicle. However, due to its vulnerability and limited mobility, the Stilwell Board recommended the development of a highly mobile lightly armored scout vehicle. The first candidate accepted by the Army for this task was the *M114* which entered the Army's inventory in 1962.

The *M114* did offer its users increased mobility and armor protection as compared to its predecessor, the 1/4-ton truck. However, it did not fully meet the overall requirements of a balanced combination of mobility, agility and information-gathering capabilities. The scout mission requirements emphasize the need for a specially designed vehicle possessing these unique capabilities.

The proposed Armored Reconnaissance Scout Vehicle (ARSV) will provide armored cavalry and scout units with a vehicle which can be used in any area of the world and maintain a high degree of reliability, maintainability and availability under all climatic and environmental conditions.

In addition, the ARSV will be small, agile, air transportable, have a crew of three, and mount a stabilized primary weapon system with a passive, day/night fire control/observation system. The ARSV will provide increased armor protection and will be designed and developed to accept the Vehicle Rapid Fire Weapon System when it becomes available. Ancillary equipment designed to enhance the collection of information data by electrical and physical means will be mounted on selected vehicles to improve mission performance.

Presently there are six vehicles under consideration for the ARSV, three wheeled and three tracked. Contracts to develop prototype vehicles are scheduled to be released by 30 June of this year.

Armor and Armor Reconnaissance AIT Programs

Army Subject Schedules 17-11D10 (Armor Reconnaissance Specialist) and 17-11E10 (Armor Crewman) have been revised and are currently undergoing analysis and evaluation by AIT units in USATCA.

Both programs have been revised through systems engineering and are now directed primarily toward performance-oriented, hands-on-equipment type training.

Training eliminated from both AIT programs includes subjects repetitious of that received in Basic Combat Training, and the Character Guidance and Command Information Classes have been replaced by an eight-hour block on discipline, morality and traditions. Additionally, all geographical area-oriented training has been eliminated. Should the situation arise where students need indoctrination on a particular area, it may be added under the mobilization training concept. The physical training program for both courses have been redesigned to incorporate the Advanced Physical Fitness Test, and a major effort has been made to delete all hurry-up and wait time from the training schedules.

Additional changes peculiar to the 11E10 AIT program involve a tactical field training week which is scheduled concurrently with range firing week. Thus, when the student is not engaged in tank firing or formal classroom instruction, he will be required to live and operate under field conditions. The tank gunnery program has been revised and consists of firing Tables I through III using the new laser firing device. In addition, Tables IV through VI have been modified wherein the trainee fires familiarization tables as opposed to qualification tables, thereby providing for the annual reallocation of $3.6-million worth of ammunition to field commanders who can utilize it in their crew/tank gunnery training.

The primary reason for this adjustment is that the Training Center desires to produce a fully qualified Basic Armor Crewman capable of performing all the duties of a loader and who is familiar with the duties of the driver and gunner. This will fulfill the objective of qualifying a soldier in the grade of private to perform duties in the 11E10 MOS, plus give him a firm foundation for continuous and progressive development within his MOS.

We now progress into a discussion of cavalry-related programs.

The Bushmaster Development Program

The 1963-64 introduction of the 14.5mm machine gun on Soviet armored personnel carriers, the increase in the number of Soviet lightly armored vehicles, and recognition of the .50-caliber machine gun's inability to defeat these vehicles indicated a strong

need to upgrade the firepower of some US combat vehicles.

The primary objective of the Vehicle Rapid Fire Weapon System, known as the *Bushmaster*, is to obtain a weapon capable of defeating enemy lightly armored vehicles.

The *Bushmaster* will be a 20 to 30mm weapon system for primary armament on the Mechanized Infantry Combat Vehicle (MICV) and the Armored Reconnaissance Scout Vehicle (ARSV). The *Bushmaster* will have a dual-feed capability and will provide instantaneous remote selection between at least two types of ammunition (armor-piercing and high explosive). The *M139* 20mm will continue to be employed until such time as the *Bushmaster* is fielded.

The Laser Target Designator/Rangefinder

In February 1967, DA approved a requirement for a Laser Designator System to be used in the marking of targets, landing zones and drop zones. In concept, the Laser Target Designator System will consist of a source of laser energy that can be beamed at a particular area or target by either ground or aerial observers. The reflected laser energy is then detected by special trackers mounted in aircraft or ground vehicles and, in turn, provides steering direction to the target. The target designator system is used in conjunction with a laser seeker mounted in missiles or other ordnance projectiles for the purpose of guiding them along the laser beam reflected from the target.

Using this same basic principle, a lightweight, hand-held, laser designator is under development. The hand-held designator would be used by mortar, artillery and air observers, as well as reconnaissance personnel, to designate targets for weapons systems equipped with the seeker.

The Army is also developing a hand-held laser rangefinder for use by mortar observers and small unit leaders. This device will provide these personnel with the capability to more accurately range to a target, thus allowing first-round fire-for-effect which will increase enemy losses and reduce the amount of ammunition expended. Additionally, for the first time ever, commanders will be able to precisely locate themselves—a problem we've all faced at one time or another.

The Forward Looking Infrared System

A night-fighting capability for helicopters in Vietnam was a must and resulted in the development of the Forward Looking Infrared System (FLIR).

The FLIR sensor is mounted in the nose and provides an image presentation of targets and terrain both day and night. A scanned infrared detector is used to convert the target information to a visible display on a cathode ray tube similar to what you would view on a television set. The sensor is bore sighted with the aircraft weapon system, providing the crew with a dark-environment fire control capability and can also be used during daytime for acquisition of hot targets. The turret is movable in azimuth and elevation, and provides either a wide, or a magnified narrow field of view. Viewing screens can be mounted on board an aircraft for use by the pilot and co-pilot/gunner.

We will now move into a discussion of air cavalry and attack helicopter subjects.

Aerial Scout Programs

Looking to the future, we in Armor foresee an expanded use of air cavalry with our ground formations. Armor's missions remain unchanged, cavalry units are still charged to provide reconnaissance and security while our heavier armor formations must continue to close with and destroy enemy forces. Our Vietnam experience has more than proven that our equipment is adequate for the low-intensity environment; however, we recognize that to operate successfully in the mid-intensity environment, we must improve our equipment. Presently there are three programs in progress to provide the Army with an improved aerial scout aircraft.

The most immediate endeavor is the Scout Product Improvement Program, which will provide a scout aircraft that is compatible with the *Tow-Cobra*, thereby enhancing target acquisition and engagement during daylight operations. The product improved scout is expected to be in the inventory during FY75.

The objective of the New Initiatives Scout Program is to improve the scout so it will be compatible with the advanced attack helicopter in terms of navigation, survivability, target acquisition and reduced visibility operation. It will be capable of locating enemy forces day or night with a high degree of survivability against small arms fire. It will enable the crew to detect and designate targets at increased standoff ranges, thereby providing commanders with accurate and timely information which will allow them to more effectively engage the enemy and support ground combat elements down to the lowest level.

Though the product improved scout and new initiatives are necessary programs, the ideal solution is to build a helicopter designed from the skids up as a reconnaissance aircraft. The proposed Armored Aerial Reconnaissance System (AARS) is being designed in this manner and should be a true scout vehicle.

This system is planned to replace the current scout fleet in all air cavalry and attack helicopter units on a one-for-one basis. The AARS is presently scheduled for fielding during the 1980-1990 time frame.

Air Cavalry/Attack Helicopter Resident Training Programs

As many of you are aware, the Armor School presented a briefing at last year's meeting on a new course entitled, "The Aero Scout Observer Course." This course was initiated on 7 May 1971 and consists of two and one-half weeks of classroom and field instruction (to include in-flight training) at the end of which attendees are fully qualified to perform the duties of MOS 11D2F, Aero Scout Observer. To date, a total of 79 personnel have successfully completed the course, and there is one more class scheduled for this fiscal year. During the next fiscal year, five classes of 26 personnel each are scheduled.

As a companion program to the Aero Scout Observer Course, the Armor School has developed a new course, "The Air Cavalry/Attack Helicopter Commander's Training Course." It is tentatively scheduled to begin in October 1972, and will be attended by those personnel responsible

for the training of air cavalry or attack helicopter units.

The course will consist of three segments: training program development and management; air cavalry unit employment; and attack helicopter unit employment. Included will be subjects such as: nap-of-the-earth aero scouting; low-level indirect fire adjustment; attack helicopter platoon employment; and employment of the air cavalry troop and squadron, to include operation of their tactical operations centers.

In addition, attendees will see a demonstration of the new annual gunnery qualification tables for aero weapons. These tables are part of the Armor School's proposed Air Cavalry/Attack Helicopter Crew Qualification Course (ACQC) which will be to attack helicopter units what the annual Tank Crew Qualification Course is to Armor units.

The ACQC contains a preliminary gunner's examination and nine firing tables. The first seven tables involve the firing of separate weapons systems by individual crew members and provides for qualification of individuals. Table VIII provides for training and preliminary testing as a crew. Table IX is the crew qualification test which is fired once and evaluates the crew's ability to engage a target and their judgment in selecting the correct ordnance for type targets. It requires the crew to fire from mid altitude, the hover and nap-of-the-earth.

The intent of the course is to provide the unit commander with a guide whereby he may train and measure his unit's gunnery proficiency.

Recognizing that the factors of time, facilities, equipment and mission will vary from post to post and unit to unit, the course provides ample latitude for the unit commander to make modifications to fit almost any conceivable situation or facility. Furthermore, the proposed course is designed to accept new equipment and weaponry without requiring major modifications.

Both the commander's training course and the ACQC are applicable to National Guard and Reserve units, as well as Active Army units.

In order to insure that the ACQC is available to those who need it, the entire course will be placed as an appendix in FM 17-37, "The Air Cavalry Squadron," which is currently under revision (also published as TC 17-17 this summer and as Armor School ST 17-37-4).

Evaluation of the ACQC may establish a need for an Aero Scout Proficiency Course similar in purpose to the Ground Scout Proficiency Course.

The Aero Scout Simulator

Since commencement of the Aero Scout Observer Course at the Armor School, experience has shown that much of the flight time is used for orientation of the student rather than practicing the skills and techniques required of the Aero Scout Observer. Therefore, a training device which would allow the student transition from the classroom to the helicopter environment without loss of flight training time could greatly increase observer proficiency.

The Armor School has proposed the development of such a device with the following minimum physical simulation characteristics: intercom and radio communications; radio magnetic indicator instrumentation which corresponds to visual representation; simulated air speed and altitude changes; and targets of various types and in different situations. The trainer will also provide a recording device for student-instructor critique; audio device simulating engine and rotor noise; and a receiver for input which allows for sensor operation and night vision device training.

This device is presently in the conceptual stages, but will hopefully be approved and in our classrooms in the not too distant future.

The AH1G Ensure Program

The *AH1G Cobra* is the first helicopter built specifically for the attack role and it is the Army's standard attack helicopter. Its mission is the attack and destruction of enemy forces.

The *Cobra* is well suited for the field environment. It requires no special handling equipment to rearm and its simplicity provides for ease of maintenance and a high rate of availability. The *Cobra*'s slim silhouette, high speed and agility give it good survivability. The electronic stability and control system give it a steady platform from which to deliver its ordnance with accuracy.

The current attack helicopter is good, but it is not designed or equipped to perform in some of the situations in which we now intend to employ it. In order to improve on the *AH1G* capabilities in a mid-intensity environment, several developmental programs are in progress.

The purpose of the *AH1G* Ensure program is to improve the *AH1G* and 2.75-inch rockets as a coordinated weapons system. In this program, work will be done on the aircraft and rockets, to include the following improvements:

First, elimination or significant reduction of the nose-tuck effect, which results when large quantities of 2.75-inch rockets are fired simultaneously. This will permit heavier concentrations of rockets to be fired on a single attack run, without the pilot having to contend with the tendency of a salvo to push the aircraft off of the intended flight path.

Second, an improved fire control system which will permit selection of rate of fire and the designation of specific pods and/or rockets to be fired while the aircraft is in flight. This will mean assorted ammunition may be loaded and the gunner can engage different type targets with the proper ammunition without expending his entire load.

Third, a daylight weapons sight, to include four-power magnification which will enhance effectiveness through quicker, more accurate target location and identification.

Fourth, a laser ranging device which will be capable of determining ranges to 4,000 meters and will have a measurement accuracy of ±10 meters to allow for the more efficient and accurate placement of fires.

And fifth, a mounting system which allows for adjustment of 2.75-inch rocket launcher alignment with respect to the aircraft's longitudinal axis of up to 8 degrees in elevation while in flight.

Those points to be improved on the rocket include increased stability, range and warhead lethality. The first two will assist in obtaining a target hit and the last will improve on the killing power once that hit is achieved.

The product improved *AH1G* is intended to replace the current *AH1G* on a one-for-one basis. It will be better equipped to operate in a mid-intensity environment through improved weapons accuracy, speed of employment and target effect. It will not only be more capable against enemy forces, but will

also have an increased survivability.

The TOW-Cobra Program

To improve the *AH1G*'s ability against armored forces by increasing its antitank effectiveness, the existing antitank guided missile, the *TOW*, is being married up with the *Cobra* in what is known as The *TOW-Cobra* Program.

The *TOW* missile, which is capable of defeating any known armored vehicle at extended ranges, will be carried and launched from the wing stores of the *Cobra*. The missile will be guided to the target by the co-pilot/gunner using a system which provides a stabilized line-of-sight to enhance observation, tracking of point targets and accurate launching and guidance of the *TOW*. A contract was signed on 3 March to produce eight prototypes of the system for testing. A portion of the test will be conducted here at Fort Knox in late 1973.

This armor-defeating system will significantly enhance the capability of our attack helicopter units to deal with the tank threat. It is not, however, our ultimate goal. We continue to strive for a system with a fire-and-forget missile to free the aircraft from having to concentrate on a target throughout the flight of the missile, and permit it to proceed on and engage other targets. Research is currently in progress on a system of this type known as *Hell Fire*.

Advance Attack Helicopter Programs

Further development of The Advance Attack Helicopter Program has now resulted in three aircraft: Lockheed's *Cheyenne*, Sikorsky's *Blackhawk* and Bell's *KingCobra*.

The Advanced Attack Helicopter Development Program will provide an aerial weapons system with an all-weather navigation system, a computerized and laser fire control and a multi-weapon armament system capable of defeating any target. Armor plating for critical components and a slim silhouette will enhance survivability. We envision this weapons system will fill the gap between the tank and tactical air support aircraft. It will operate in a tactical environment from the ground to the tree tops, using available masking and ground cover, and will have fires coordinated by scout aircraft with complementary target acquisition systems.

As part of the Army's evaluation program for the advanced attack helicopter, Army aviators, specially trained as test pilots, will fly each of the three aircraft at the contractor's facility during this spring and summer. The flights will concentrate on performance stability and control handling, both with and without weapons mounted.

A task force, similar in scope to the Main Battle Tank Task Force, is now examining the materiel needs for the advanced attack helicopter.

The Air Cavalry Combat Brigade

Air cavalry units were first conceived as a means to defeat the armor threat posed by the Warsaw Pact nations in 1957. As a follow-on to this concept, the 11th Air Assault Division was organized in 1963, but before testing of this concept could be completed, the unit was redesignated the 1st Cavalry Division and deployed to Vietnam in 1965.

From that time until August 1971, when the Air Cavalry Combat Brigade (ACCB) testing began, there was a void in training and testing of Army aviation for mid-intensity warfare. Realizing that important issues such as nap-of-the-earth flight and antitank tactics needed to be exploited, the concept of ACCB was developed with the mission to destroy, disrupt or delay an enemy mechanized force or other enemy force by aerial mounted combat in conjunction with armored, mechanized or airmobile forces.

The principal elements of the brigade tested for ACCB II were an air cavalry squadron, an attack helicopter squadron, an airmobile infantry battalion, an aviation battalion and a support battalion.

Testing of this concept began in August 1971. The primary purpose of the ACCB I test was to determine the best mix of scout to attack helicopters within a platoon and to identify those tactics which appeared to be most successful.

Conclusions arrived at as a result of the ACCB I test were:

- The three light observation helicopter/five attack helicopter mix is an acceptable task organization for daytime operations.
- With proper training, the attack platoon can operate safely at night flying nap-of-the-earth altitudes.
- Equipment development is needed in order to: improve helicopter camouflage; permit rapid refueling at forward bases; assist in collision avoidance during low light level flights; and enable helicopters to deliver effective area fire.

With these conclusions as background, the ACCB II test was developed to investigate and compare various organizational and operational concepts of an attack helicopter troop and its applications to the attack helicopter squadron in a mid-intensity environment during continuous operations.

Key issues to be resolved by the test were:

- Do we need a separate ACCB in the force structure?
- Can any of the units effectively perform all the missions of offense, defense, reconnaissance and security?
- Is the concept of attack helicopters operating in a mid-intensity environment valid?
- Should Infantry be organic to attack helicopter units?
- What equipment appears most promising to provide combat aviation units with a continuous day/night near all-weather capability?

Some of the final recommendations are:

- R&D needs to be focused on:
  - ▶Camouflage
  - ▶Prepackaging of ammunition
  - ▶Forward area refueling system
  - ▶Low-level night operations
  - ▶Nap-of-the earth communications.
- Attack platoon with mix of four LOH and seven attack helicopters.
- Troops contain three similarly organized attack platoons.
- Squadrons contain three similarly organized troops.
- Support maintenance at squadron level.

In summary, it is anticipated that when the ACCB series of tests is completed, the Army will have found the answer to the question of how best to counter enemy forces by means of aerial mounted combat.

The British Tank Development Program

by Lieutenant Colonel G. M. Chirnside
British Army Liaison Officer, US Army Armor School

Tanks have come a long way since the Battle of Cambrai in 1916 but the reason for their existence is today unchanged. The function of the tank is still to produce firepower on the battlefield; to do this effectively, the tank must have firepower with mobility and protection.

Antiarmor weapons of the present and the future require the ability to destroy targets out to 4,000 meters. To achieve this we see two complementary, direct tank-launched weapons systems: high-velocity ammunition out to 3,000 meters; and missile systems going out to 4,000 meters. In the attack, the missile systems will overwatch the operations of the tanks, and in the defense, they will reach out to destroy enemy armor at long ranges.

In service today we have the *Chieftain*. This 56-ton tank embodies all the features required in the 70s: a 120mm gun of extreme accuracy with high-speed target engagement; an ability to accurately fire on-the-move; a high degree of immunity against enemy armor, nuclear and chemical attack; and mobility far better than its predecessor, the *Centurion*, which you may have seen in Korea or Vietnam.

The missile systems which we have developed and the system which is in service today, the *Swingfire*, have a range of 4,000 meters. Because the British user insists on separation between the launcher and the controller, the missile is manually guided through a wire command link. A 100-meter separation is possible, and the launching vehicle can be completely behind cover from the target being engaged.

We see these pieces of our armor lasting well into the 80s. *Chieftain* is to have a number of product improvements—the tank is to be up-engined, a laser sight is being fitted and its night-fighting capability is to be greatly improved.

Of *Chieftain's* successor, I can say little since it is very much on the drawing board. But one thing I am certain of is that it will have a high-velocity gun and better agility than the *Chieftain*.

Not only have we a main battle tank, but we have a new 8-ton tracked vehicle for our reconnaissance battalions—the *Scorpion*. This is our reconnaissance vehicle for the 1980s in service today.

We believe in the *Chieftain* for our tank battalions, the *Swingfire* with an overwatching antitank role, and the *Scorpion* for our reconnaissance.

The French Tank Development Program

by Major Jean R. Lambert
French Army Liaison Officer, US Army Armor School

I am pleased to have this opportunity to discuss the French main battle tank, the *AMX30*, and its latest developments. My purpose is not to be the marketing manager of the *AMX30*, but to briefly give you some appreciation of its capabilities.

The characteristics of the *AMX30* endeavor to achieve the optimum balance between three well-known contradictory requirements—firepower, mobility and protection.

In our view, the number one priority has been given to firepower. Indeed, we think a battle tank, to be efficient, must be able to: attack at a range greater than that of the enemy's gun; achieve a high first-round hit probability; and fire a projectile that will destroy any enemy tank at selected maximum range.

After a lengthy period of development, the French technical services succeeded in creating a gun antitank ammunition and fire control combination that provides excellent accuracy and efficiency up to 3,000 meters. Our 105mm gun fires two types of ammunition: the high explosive shell, with a muzzle velocity of 700 meters per second; and, the antitank shell, fitted with a non-rotating hollow charge, effective up to 3,000 meters. The antitank shell's muzzle velocity is 1,000 meters per second, and it can pierce the armor of all known enemy tanks. Therefore, we have only one type of antitank ammunition on board, which is very convenient.

Because some controversial ideas have been expressed against the shaped charge projectile, or hollow charge as we call it, I have to give you some additional information. The projectile is spin-stabilized, but the rotation of the shaped charge does not exceed 20 to 30 revolutions per second, thanks to its mounting on roller-bearings and to a turbine installed on the ballistic cap. Therefore, the shaped charge blast is completely efficient up to 3,000 meters. At this range, the hit probability is 75 per cent; at 2,500 meters, it is over 90 per cent. Its penetrating capability is quite good, too.

The shaped charge round can penetrate 400mm of armor plate at zero degrees of obliquity and 152mm at 64

degrees, at any range, and it will function up to an angle of incidence of 80 degrees. In 90 per cent of the cases, it will pierce the double NATO heavy tank target, and in 50 per cent of the cases, the triple NATO heavy tank target.

Turning to mobility, most experts agree that tank mobility is achieved by high horsepower-to-weight ratios and low ground pressures. The *AMX30* has a horsepower-to-weight ratio of 21, and its ground pressure is 11 pounds per square inch, which is better than most main battle tanks.

Good ballistics protection has been reached thanks to a successful compromise between the dimension of the tank, the thickness and obliquity of its armor, and its silhouette. Its CBR protection has been especially well studied. A filtration system and a light over pressure protect the crew against the effects of nuclear, biological and chemical agents.

Concerning the future improvements of our *AMX30* tank, in 1973, our tank will be equipped with a light intensifying, passive periscope for night driving. In 1974, it is anticipated to replace the 12.7mm coaxial machine gun with a 20mm gun, which is more effective against personnel, light armored vehicles and, by means of a supplementary device for laying from +20 degrees up to 40 degrees, against low-flying aircraft. Between 1975 and 1980, a new version of the *AMX30* will probably appear and be named the *AMX30-2*.

In addition to the previous improvements, this new main battle tank will include an electrohydraulic stabilization system for the main armament, a laser rangefinder, and a ballistic computer for a greater probability of a first-round hit.

From the *AMX30* tank, we have derived a family of vehicles with common automotive components, each with a specific use. I do not have time to discuss these in detail, but they are: the *AMX30* Recovery Tank, equipped with a 13-ton crane; the *AMX30* Bridge-Laying Tank, designed to permit battle tanks to cross 20-meter breeches; the *AMX30-S401A* Antiaircraft Weapons System, equipped with two Hispano-Suiza 30mm guns; and the *AMX30* with the nuclear missile *Pluton*.

In addition, we are working on two other types of vehicles which will be in use very soon.

I hope my perfect French accent did not prevent me from giving you an appreciation of our *AMX30*, the main battle tank which will permit French Armor to meet the challenges of the future battlefield.

The German Tank Development Program

by Lieutenant Colonel Wolfgang Hartelt
German Army Liaison Officer, US Army Armor School

It is a great honor for me to give a briefing to this distinguished group about the development of the German Armor Force.

Before I discuss the main battle tank of the German Bundeswehr, I would like to introduce the new fighting vehicle of our armored infantry—the *Marder*. The *Marder*, with a combat weight of 28 tons, is distinguished by its high road speed of 50 miles per hour maintained by a 600 horsepower engine.

It carries a crew of ten and is armed with 20mm automatic cannon and two 7.62mm machine guns.

This infantry fighting vehicle is equal to the *Leopard* with its cross-country and water mobility, capability for combat at night, and protection of the crew against nuclear, chemical and biological weapons.

Based on our tactics, this armored infantry combat vehicle allows the crew to fight mounted or dismounted. It therefore complements the main battle tank *Leopard* with its high mobility on the battlefield.

The main battle tank of the German Bundeswehr is the *Leopard*. This 40-ton tank, with its 105mm gun and its road speed of 40 miles per hour and approximate cross-country speed of 30 miles per hour, has been bought and adapted as the main battle tank by Belgium, The Netherlands, Norway, Italy and Denmark. It will be tested by Australia for possible introduction into their family of weapons.

The *Leopard* was introduced in the late 1960s and the following technical improvements have been made:

- A new track, the so-called *Diehl-Kette*, with a life up to 7,000 miles. This track has rubber pads which are easily replaced and has the capability for add-on devices for better snow and mud traction.
- An improved NBC compact filter has been installed, which filters the outside air.

The following improvements have been made to increase survivability on the battlefield:

- Add-on stabilization of the main gun.
- A thermal shroud for the main gun to prevent rapid temperature changes and thereby increase hit capability.
- Steel armor aprons to provide better ballistic protection for the hull sides.
- An improved commander's sight, the *Peri R12*, and an improved gunner's sight.

Starting in 1973, the *Leopard* will be equipped and delivered to our troops with a new welded turret in spaced armor. This turret will increase ballistic protection 100 per cent compared to the one used at the present time. It is also planned to install passive night vision devices, including thermal imaging.

In addition to these combat improvements, the *Leopard 2* is being developed and will be tested with 17 various prototypes beginning this year. The completely new tank has only the name *Leopard* in common with the present weapons system. It will have a weight of 47 metric tons, a 12-cylinder engine with 1,500 horsepower and an output ratio of 32 horsepower per ton,

compared to 22 horsepower per ton in the *Leopard 1*. The mobility will be increased compared to the present *Leopard*.

Two completely new main guns being tested are the 105mm and 120mm guns, both with smooth bore barrels. A completely new round of ammunition has improved the efficiency of the 120mm gun, and it meets the NATO requirement for penetration of the heavy NATO triple plate armor standard target. The tank will carry 41 rounds of 120mm ammunition with partly combustible cartridge, or 56 rounds of 105mm. The increase in weight in comparison with the *Leopard 1* results from a stronger armor plating in spaced armor, as well as from a heavier power train—the same as developed in the Joint *MBT70* Program.

Additionally, the weapons system will be fully stabilized and a ballistic computer, night vision devices and passive laser surveillance will be part of the improvement of the new battle tank of the German Armor Force.

Challenges of Armor Today

by US Army Armor School Faculty and AOAC Students

Major Thomas A. Horner

I am Major Horner, the primary instructor for the Armor Officer Advanced Course class entitled "The Four Dimensions of Armor."

I will attempt to explain to you why this class was developed and what transpired in the eight hours of classroom instruction. AOAC students will present their solutions to two of the challenging requirements with which they were faced in the classroom.

The unit of instruction was originally conceived as a result of our experience with Armor School students, which led us to believe that a key ingredient in the schooling and development of our young Armor leaders was missing. In the "Armor Center Commander's Update" which appeared in the March-April 1972 issue of *ARMOR* Magazine, Major General William R. Desobry, the School Commandant, expressed his opinion in this way: "... we have experts in air cavalry, armored cavalry, tanks and attack helicopters, but we have few who appreciate the potential of these four powerful forces when operating together."

In order to convey an appreciation and understanding of the full potential of Armor, a completely new unit of instruction was developed to challenge the students, draw upon their individual background and experience, and expose them to the real-world tactical concepts and problems that they may be called upon to face in any future battlefield.

On 3 May, the students received their introduction to the unit of instruction and were briefed on the most recent developments and future trends in the employment of the four types of Armor units. The introduction was presented by Brigadier General George S. Patton, the Assistant Commandant. General Patton set the stage for the busy hours that followed when he reminded the students: "Successful commanders and staff officers of the future must be familiar with all types of units and the increased potential derived when the units are employed in concert and the resulting problems from this employment."

The following day, the students employed the seminar method of problem-solving to arrive at solutions to eight thought-provoking requirements with which they were faced during special situations one and two.

The last portion of the classroom instruction was the student presentation phase. The entire class was reassembled and two seminars were selected to present their analyses and solutions to a requirement. Each presentation was followed by comments from another seminar and a general class discussion.

The field training exercise which you will see this afternoon is the conclusion of the class. You will be briefed shortly on the situation portrayed in the exercise.

As a result of their outstanding contributions to their seminar discussions, six of the student officers from AOAC 2 have been asked to acquaint you with the tactical situation used in the class, and brief you on the solutions which their seminars presented. As you listen to the briefers, keep in mind that there has been no attempt made to channel their thinking towards any "school solutions to the requirements."

At this time, I would like to present Captain Blackshear and Captain Ferrara.

Good morning, Captain Ferrara and I will brief you on the tactical situation.

In the beginning of the year, aggressor control over its satellite nations began to weaken as a result of economic upheavals and political discontent. In January, peasants, students and factory workers in several of the satellite capitals demonstrated their grievances through a series of violent demonstrations.

In February, in an apparent attempt to strengthen their dominance over the satellite countries and to reaffirm their strength vis-a-vis the Western powers, the Circle Trigon Government ordered the blockade of Berlin.

Meanwhile, aggressor naval forces were strengthened both in the Baltic Sea and Mediterranean Sea and minor harrassing engagements occurred between NATO and aggressor naval forces in these areas.

In April, numerous aggressor maneuver divisions were redeployed from the Eastern Border Regions to unknown locations within the satellite countries. Aggressor forces have been reported operating with satellite military and police forces in repressing the demonstrations. The aggressor government, on 17 April, called for large scale joint training maneuvers between aggressor and satellite forces in the near future.

In addition, tensions between the US and aggressor government increased, harrassment of US convoys into Berlin reached a peak, and US Naval Forces recently apprehended an aggressor electronic surveillance trawler in the Mediterranean. High level sources re-

Captain William B. Blackshear

Captain Ralph J. Ferrara

vealed that the Circle Trigon Government is secretly mobilizing its category III units. Further, it has been reported that four members of the aggressor presidium, who were known for their peaceful coexistence policy, have been replaced by party members who have urged confrontation with the West.

To guard against the possibility of surprise aggressor attack, NATO Forces were ordered to conduct training exercises in the field in order to increase military preparedness. On 20 April, our corps, under the code name Armageddon, commenced maneuvers and exercises designed to position combat forces at or very near locations to be defended.

The corps contingency plan was executed on 29 April in response to intelligence which indicated an impending aggressor attack. This plan placed the corps divisions abreast from north to south. Our division, the 25th Armored, and other units of the corps were defending in sector. Security elements included the 201st Armored Cavalry Regiment as the corps covering force, and each division used their organic cavalry squadrons on the general outpost line. An armored brigade and an attack helicopter battalion, as corps reserve, are assembled approximately 10 kilometers south of Darmstadt. Additionally, the corps commander has tasked an air cavalry squadron minus one air cavalry troop, to screen the corps north flank. The 25th Armored Division, in turn, executed their plan on 29 April.

On 3 and 4 May 1972, AOAC 2 participated in an eight-hour exercise to examine the role of tanks, armored cavalry, air cavalry and attack helicopters operating on the mid-intensity battlefield. The Armor School hoped we would assist in developing solutions to some complex problems associated with this kind of battlefield environment. The thrust of our effort was to draw upon group experience and thinking to help shape a realistic solution to a combat problem through analysis of The Four Dimensions of Armor.

Basically, we addressed eight requirements during this seminar; we will discuss two of these.

In the first special situation, the enemy launched massive attacks against NATO Forces. A major enemy attack by two mechanized divisions followed by a tank division was directed along an axis from Erfurt, north of Eisenach, to north of Bad Hersfeld against the 15th Panzer Division, and secondary enemy attacks of regimental size have been directed along the corps front.

Let's take a moment to orient you on the terrain. Within the area of operations lie the Fulda and Thuringer Gap. Frankfurt lies 120 kilometers to the southwest. Berlin lies 240 kilometers to the northeast. The main attack against the German 15th Panzer Division has succeeded in penetrating that sector to a depth of 25 kilometers, causing a bow in the 15th Panzer line and exposing the northern flank of the 25th Armored Division. Other enemy attacks in the corps sector have forced the withdrawal of all security forces. However, these attacks have been stopped by the forward defense forces.

Recognizing the seriousness of the situation, the corps commander has attached the air cavalry squadron minus one air cavalry troop, and an attack helicopter company to the 25th Armored Division to protect the exposed flank. In addition, one tank company from the 1st Brigade has been allocated to assist in this mission, due to the limited ground-holding capability of the air cavalry squadron.

Based on this tactical development, we were required to plan for and develop our solution to this situation. Our first four requirements were: develop a plan to protect the exposed portion of the corps flank; determine which type tank company should be provided to the force protecting the flank; determine the coordination required for this operation with all four types of Armor units in the same area; and determine the most effective method of employing the attack helicopter company. Of the four requirements, Captain Giusti and Captain Shiles will discuss our class solutions to the second requirement.

Captain Shiles and I will address the situation which required us to determine which type of tank company should be provided to the force protecting the flank. We were also asked three specific questions: Is a pure tank company of product improved *M60A1s* or pure *M60A2s* preferable for the flank protection mission? Would a tank company task organized to contain both *M60A1* and *M60A2* tanks be preferable for the flank protection mission? And if *M60A1* and *M60A2* tanks are mixed to complement each other's capabilities and characteristics, at what level and in what proportion should they be mixed—platoon, company or battalion level?

In answer to the general requirement which asked what type of tank company should be assigned the mission of flank protection, there is no doctrinal answer, nor should there be. The answer, the group felt, would be in an analysis of the factors of mission, enemy, terrain, troops available, and the characteristics and limitations of each vehicle. This analysis, as all of us realize, is standard in any military operation; however, it is worth mentioning in this situation because of the change in emphasis. In this case, the flank protection mission does not dictate the type of vehicle. Instead the terrain, friendly troops available, and enemy situation determine the vehicles to be used.

The terrain in this area of operations is characterized by rugged forested ridges alternating with open, moderately sloping hills and a narrow flood plain of meadow grassland and local marshes. Roads are generally bordered by trees. Fields of fire for main gun engagements range from excellent to poor from our map analysis of the ground in the battle area. We determined that the longest anticipated

Captain Anthony Giusti

Captain Richard L. Shiles

main gun engagement would be 1,500 meters. In wooded areas, fields of fire for flat trajectory weapons are restricted to trails and roads. The terrain affords partial cover and concealment from ground observation for defending forces.

Available friendly troops are one air cavalry squadron minus one air cavalry troop, one attack helicopter company of advanced gunships, and one tank company of either *M60A1s* or *M60A2s* from the 25th Armored Division. The enemy facing the flank protection force is estimated to consist of elements of three motorized rifle divisions and one tank division.

An analysis of the characteristics and limitations of the product improved *M60A1* and *M60A2* tanks in a combat engagement reveals the following factors that have to be considered. A primary consideration must be weapon systems capabilities. The *M60A1* has an excellent first-round hit capability at ranges from 0 to 1,800 meters. After 1,800 meters, the first-round hit capability begins to diminish. One reason for this excellent capability is the flat trajectory of the kinetic energy round. The projectile travels in excess of 4,800 feet per second. The *M60A1* also has a chemical energy high-velocity antitank round.

The *M60A2* however, has a better first-round hit capability at ranges above 1,800 meters because of the *Shillelagh* Missile System. Also, the *M60A2's* conventional HEAT multipurpose round compares with *M60A1* rounds up to 1,200 meters. However, tests have shown that the *M60A1's* high-velocity flat trajectory rounds such as HEAT and SABOT seem to be better up to 1,800 meters than the slower 2,400 feet per second rounds fired by the *M60A2* in the conventional mode of operation.

Vehicle load is another consideration. The *M60A1* holds 63 rounds on board, while the *M60A2* holds 33 conventional rounds and 13 missiles.

Rate of fire in a protect posture is another consideration. The *M60A1* can put the initial round on target faster from the time of target acquisition than the *M60A2*. This is caused by the longer time-of-flight of the missile used by the *A2*, and the relatively slower velocity of the conventional *M60A2* round.

The possibility of the use of a battlesight is a final consideration. In the *M60A1*, a battlesight of HEAT, with a range of 1,000 meters indexed into the computer, has varied capabilities of ±400 meters in range. In the *M60A2*, however, we should address the procedure of carrying a round in the tube. If a standard operating procedure were developed, which type of ammunition would we use—conventional or missile? Using conventional ammunition, we would be sacrificing the excellent long-range capability. If the missile were used, any target acquired under 800 meters would possibly require firing of the missile followed by a change to conventional ammunition for subsequent engagements. It requires 800 meters for the average gunner to reestablish his lay on target with the *Shillelagh* Missile.

Our seminar was asked to address the basic question of what type tank company would be most suited for the flank protection mission discussed in this situation. In general, our seminar felt that a need for the excellent long-range fires of the *M60A2 Shillelagh* Missile was not present in this tactical situation, primarily because of the terrain restrictions. In addition, a task-organized company of mixed *M60A1s* and *M60A2s* would, in our opinion, create other problems that would in the balance be unfavorable for this battlefield situation. Therefore, we chose a pure *M60A1* tank company.

The *M60A2* will soon be in the inventory and presents significant advantages to US Armor Forces under certain combat conditions. We are talking of a battle tank with a deadly capability for extremely high first-round kill probabilities at extended ranges. Therefore, our seminar was also asked to address a more general question which is not specifically related to the tactical situation we have discussed today. The question is simple but the solution is hedged with some complicated parameters. In what proportion and at what level should product improved *M60A1* and *M60A2* tanks be combined. In analyzing the level at which this mix should be employed, we consider the platoon, company, battalion and brigade organizations. Comparing the characteristics of the *M60A1* and *M60A2*, the following positive and negative factors were extracted for a mixed TOE unit at battalion level or below.

On the positive side, the group felt that a mix would provide the commander with two critical advantages. The unit would be more flexible in performing its combat missions because of the differing capabilities of its main armament systems. Second, the unit would be able to engage targets at far greater ranges giving it a crushing long-range punch.

On the negative side, the group felt that a TOE mix at battalion levels or below would produce several major problem areas. The complex missile system of the *M60A2* would require additional specially trained maintenance personnel in small units with an already limited maintenance capability. There would be problems in cross-training of crews which would lead to difficulty in shifting personnel from the *M60A1* to the *M60A2* in a combat environment. In addition, a mixed unit which included both *M60A1s* and *M60A2s* would present the commander with a more complex on-the-job training requirement. There would be a lack of a kinetic energy round for a certain percentage of the units fighting vehicles. There would be reduced vehicle load of ammunition immediately available, plus a reduction in the rate of fire placed on target. Finally, there would be a lack of interchangeability of parts within the turrets and a complete difference in main gun ammunition. These factors would ne-

cessitate an increase in logistical support at lower unit levels.

Our seminar also felt that history can provide us with some valuable lessons. The normal tank-to-target engagement in combat in World War II and Korea occurred at ranges less than 1,000 meters. An interesting side note is that engagements during the Arab-Israeli Conflict of 1967 were generally at ranges less than 1,500 meters. While these statistics undoubtedly reflect the lower level of technology of the period, they also seem to ask us to carefully consider the real-life combat conditions under which we will face our future enemies. Many of us would be interested in a statistical analysis of the current fighting between ARVN and NVA tank forces in the open terrain between Hue and Dong Ha in Vietnam.

Considering many of these factors, our seminar felt that a mix of *M60A1s* and *M60A2s*, at both the platoon and company levels, would present problems in personnel, training, logistics and maintenance that would outweigh the advantages. Moving up to the battalion and brigade levels, we start to find the experience, organization, equipment and personnel necessary to overcome many of these inherent limitations and to take advantage of the flexibility of the *M60A2* tank.

In analyzing the optimum proportion in which they should be mixed, we considered three possible choices. The first was a battalion organization consisting of two tank companies of *M60A1s* and one tank company of *M60A2s*. Our seminar felt that this mix, while being adequate in most aspects, would lessen the offensive capabilities of the battalion.

The second choice was a battalion organization consisting of three tank companies of *M60A1s* and one tank company of *M60A2s*. While this mix solved the problem of retaining the battalion's offensive capability, it produced a large unit causing command and control problems.

The third possibility considered was a pure *M60A2* battalion. We recommended that *M60A2* battalions be assigned to each armored division. This would give the division commander the option of task organizing this type combat brigade.

In conclusion, the answer to the question, at what level and in what proportion should the *M60A2* be integrated with our Armor organizations, was to assign these pure *M60A2* battalions to the current armored division. These battalions could then be rapidly task organized as the mission and need indicated.

Now that we've heard one seminar's proposed solution to the preceding requirement, let us turn our attention to the following special situation. The aggressor attack continued unabated, but with significant advances only in the 15th Panzer Division's sector north of the 25th Armored Division. The 15th Panzer has withdrawn to positions from which they can contain the enemy penetration. This withdrawal has exposed the northern flank of our corps to a depth of 30 kilometers. Subsequently, our corps has been directed to hold its original frontline while the German corps to the north prepares to counterattack.

The 25th Armored Division has been successful in protecting the corps northern flank, using the air cavalry squadron, the attack helicopter company and the tank company from its 1st Brigade. The attack helicopters employing fires deep into the enemy formations destroyed or damaged the bulk of the enemy lead elements, and reduced the enemy tank threat to a level that could be blocked by the armored cavalry troop and tank company.

On the mid-intensity battlefield, these attack helicopters would, of course, be employing nap-of-the-earth flying techniques.

Due to the extension of the exposed northern flank, and reports from the corps surveillance airplane company that an additional enemy mechanized regiment is approaching this exposed flank, the commanding general, 25th Armored Division, has decided to commit his reserve brigade to the threatened flank. The corps commander responded by attaching the remainder of the attack helicopter battalion to the 25th Armored Division. Coordination with the German corps to the north has been effected to permit our division elements to maneuver and fire north of the present boundary.

Based on the development, we were directed to address four requirements: determine the scheme of maneuver for the reserve brigade attack helicopter battalion, air cavalry squadron; determine the best techniques of employing the attack helicopter battalion; assess helicopter survivability in this situation; and determine the air space control requirement for the northern flank of the 25th Armored Division. The latter requirement will be presented by Captain Bonasso and Captain Ferguson for your consideration.

Captain Russell P. Bonasso Jr.

Captain Frederick E. Ferguson

Our seminar addressed these questions in the final requirement: Who has the primary responsibility for the air space within this area, and how will it generally be controlled? How far forward of friendly ground elements should air space be controlled? How will air cavalry and attack helicopter movement be coordinated with artillery and air defense fires? And how will close air support provided by Army aviation be coordinated with Air Force close air support?

We grouped these questions into three areas: responsibility for air space control; specific ways to implement for this control; and a graphic representation of the control measures to be used. Approaching the requirement in this manner answers several questions simultaneously.

Doctrine dictates that the ground commander is responsible for controlling the air space above his area of responsibility. Our seminar agrees with current doctrine on this question. The users of Army air space include Army aviation, Field Artillery, Air Defense

Artillery, and tactical Air Force support. An armored or mechanized division currently has one air cavalry troop organic to the divisional armored cavalry squadron. The brigade headquarters, with its fire support coordinator, tactical air control party, *Chaparral/Vulcan* battery commander, aviation section leader and S3 air now possess the capability of handling matters of air space coordination and control relating to the one air cavalry troop.

However, in the situation which we are now discussing, vast amounts of air assets have been committed. In the same air space, 54 air cavalry helicopters, 6 helicopters organic to the armored brigade and 88 helicopters from the attack helicopter battalion are operating. The current armor brigade headquarters is ill-equipped to provide coordination of such extensive assets, as well as tactical Air Force support, Field Artillery support and Air Defense Artillery support. Execution of air space coordination at division and corps level is supervised by the G3, and the required coordination service is provided during operations by the air space control element (ACE). This element is composed of air defense and Army aviation personnel. At division, the ACE consists of air defense personnel from the division's *Chaparral/Vulcan* battalion, plus Army aviation personnel from organic resources.

These air space control elements have five basic functions: coordinating air defense; compiling air defense intelligence; coordinating Army air space; providing information and advice concerning the status, allocation and reallocation of Army aviation assets; and coordinating Army air traffic.

Although the purpose of the ACE is to coordinate all air space requirements among users of Army air throughout the division or corps, it does not control the minute-by-minute on-going air operations within the area. As previously shown, the air space control elements lack sufficient personnel to handle situations in which large amounts of air assets are involved. Thus, there appears to be a requirement for additional air space coordination assistance, particularly at brigade level.

Although agreeing that a need for additional air space control assistance at brigade level exists, our seminar was divided on how to provide this additional help. Two alternate solutions were developed. First, obtain additional assistance from higher headquarters on an as-needed basis, and second, make the additional assistance organic to lower level headquarters.

The assistance in either solution would include an Army aviation representative, an Air Defense Artillery representative, and radio operators colocated with the fire support coordination center in the brigade command post. They would have the effect of centralizing the broad air space control function now fragmented among the brigade staff, the FSCOORD and the tactical air control party. Centralizing the air space control function is necessary whether Army aviation and Air Defense Artillery is attached or in support of the brigade.

The first alternative called for enlarging higher headquarters air space control elements to provide ACE teams to brigade headquarters on an as-needed basis. The number of teams would be determined by the number of combat support aviation units each higher headquarters had available. For example, when corps commits its attack helicopter battalion, one corps air space control team would be sent to the brigade headquarters in that sector.

Our seminar discussed certain advantages and disadvantages of this solution. Because of the limited air assets organic to an armored division, seldom would all the brigades simultaneously face the kind of situation we have depicted. Therefore, providing air space control assistance on an as-needed basis minimizes the ineffective use of the highly trained personnel. On the other hand, it was argued that higher headquarters would be unable to provide timely augmentation in many situations. An example would be when a brigade previously in reserve is immediately committed.

Our second alternative provided for an air space control element which would be organic to the maneuver brigades. This solution has the advantage of continuous close working relationships between the ACE and the brigade staff, as well as providing air space control assistance that can be immediately available. Furthermore, because aviation personnel are already present at brigade headquarters, the only additional personnel needed would be air defense personnel.

However, as we mentioned previously, an organic ACE with each maneuver brigade poses the possibility of underutilizing these highly trained personnel. In addition, there is a very real danger that if air space control elements were in continuous operation throughout the battle area, many aviators (both Army and Air Force) would spend more time coordinating with maneuver elements than performing their primary mission.

Some students felt that the organic air space control element should be placed with the separate air cavalry squadron. This solution would require the addition of only one organic element, rather than three for each division. However, the air cavalry squadron is usually employed across the entire division front and must be immediately available to perform other missions. This distance factor tends to make an ACE organic to the separate air cavalry squadron ineffective.

A restrictive fire plan is designed to establish air space that is reasonably safe from friendly surface-delivered non-nuclear fires. All surface fires between prescribed maximum and minimum altitudes within a specified rectangular area are prohibited during a stated time period. In our solution, this restrictive fire plan would be coordinated with the division ACE, but would be controlled by the ACE team at brigade.

We appreciate the opportunity to present some of our thoughts on The Four Dimensions of Armor. We, as students, share the concern of the Armor School that the combat commander of this decade must be prepared to efficiently utilize his combat assets in the fluid situation of the mid-intensity battlefield. It is unfortunate that we were only able to show you a very small representation of our students' analyses and ideas about the tremendously challenging issues facing Armor leaders today.

The tank is, and will continue to be, Armor's "Sunday Punch." However, armored cavalry, air cavalry and attack helicopters are integral to the Armor Family and are designed to complement the tremendous firepower, mobility and shock effect of the tank formation. When operating together, the potential of these four types of Armor units is limited only by the imagination and aggressiveness of the commander. The challenge to Armor leaders today is to possess the knowledge that will enable them to fully employ this formidable, four dimensional force.

The Patton Museum Ground-Breaking Ceremony

Turning the first spade of dirt at the Patton Museum Ground-Breaking Ceremony is General James H. Polk; Major General William R. Desobry; and the foundation's president, Mr Jim Cooke.

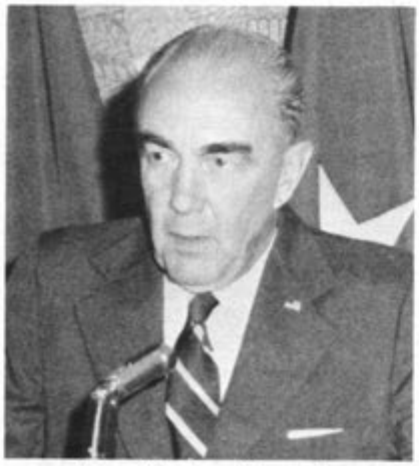
Many distinguished visitors were on hand to witness the May 19 ground-breaking ceremony. The new building will be constructed in four phases on a site a short distance from the post's main entrance. The first section, consisting of about 10,000 square feet, is expected to be completed by October 1972 and will replace the museum's present facility. It will house the growing reservoir of historical equipment, documents and other reference material as well as artifacts of the late General George S. Patton Jr.

Introduction of the Banquet Speaker

by General James H. Polk, USA-Retired

Our guest speaker tonight is an Army child with a rather distinguished career at West Point as he was both a star man and a cadet private for all four years, as well as captain of the polo team. His first assignment was with the 8th Cavalry at Fort Bliss, Texas, as a troop officer. When he came aboard, Ralph Haines and I did our best to counsel him as a young officer and I think we succeeded beyond our greatest expectations. He served in the horse and mechanized cavalry units for six years and then was tapped for OPD in Washington—always a great honor—and at that point switched to Infantry. He was successively chief of staff and regimental commander in the 6th Infantry Division, an outfit which did extremely well in the Pacific, and he had a great part in its record.

He then had a number of important command and staff assignments and increased his Infantry affiliation by going Airborne about 1965. He came to the attention of the American Public and the Administration because of the



tremendous job he did as the commander of the Dominican Task Force, where he remained for a year and solved a very tough military-political situation. He served his full stint in Vietnam as commander of the Second Field Force and later as Deputy Commanding General to "Westy" for an extended period.

For the past four years, he has had the dubious honor of holding down about the toughest job in the Army—Vice Chief of Staff of the Army.

I speak with great feeling about this man because when I had some real problems in Europe, I would send a telegram headed "From Polk to Palmer" and could count on a good answer. You name it and he's done it. Let me add that there is one item of his life that doesn't appear on his biography. In the 8th Cavalry, we young officers held a 150-mile endurance ride. Using one horse, we raced across the desert in about 28 hours. Our guest speaker and your new President whipped over the finish line 5 yards apart, and I hate to admit it, he beat me!

We rescued him from the Infantry about four years ago when he was elected Vice President of the Armor Association—one of the smartest things we ever did. He is a great fellow and a great soldier. He is speaking to his Armor friends and it gives me great pleasure to present to this assembled company, our Vice Chief of Staff, General Bruce Palmer.

The Banquet Address

by General Bruce Palmer
Vice Chief of Staff

It is wonderful to be back here. I am more than an Army brat. I am proudest of being a Cavalry brat. Some of my early days were right here at Fort Knox.

At the outset, let me say that I think this is really and truly an exciting time to be in the Army. This is not just my view. I get this from all ranks, all grades—officers and noncommissioned officers. It is really heartening to have a young lieutenant or captain come up and say, "I mean it, I am glad to be in the Army." I wish that I could relive my service all over again in today's exciting and challenging environment.

We are in a tremendous period of change—such sweeping change and transition that none of us can really foresee exactly what lies down the road. This has been particularly tough on the Armed Forces, especially the Army. As you know, we are readjusting our commitments—trying to balance our means with our ends as we adapt to the post-Vietnam world. And, this is difficult.

The nation has already reordered certain priorities. Defense only gets—I say only, but it is still a heck of a lot of money—around 30 per cent of the Federal Budget. This has reversed in the last ten years. Now, nondefense items—the social programs, welfare and so on—currently receive by far the lion's share of our taxpayers' money.

In addition, there are many other areas that are changing . . . for example, this All-Volunteer Force concept. We don't know what that means yet to the Armed Forces. All I can tell you is that the road ahead will not be easy. Right now, we are still not meeting our enlistment objectives. Neither is the Navy nor the Marines. Only the Air Force is doing so. We are also concerned that we are not meeting our quality objectives.

At any rate, adjusting to this post-Vietnam period has been extremely trying.

One of the pillars of this country's strength and continuing well-being is the United States Army. Our stability is absolutely essential. We have been torn by seven years of war to such an extent that I am not sure everybody in this room understands how tough it was. General Polk knows what I mean, though, because he had Seventh Army in this period when it was literally getting torn up. However, we are now rebuilding. What we have accomplished is a great tribute to our leaders during that period—not only to General Westmoreland, our Chief of Staff, but to people like Jimmy Polk who held Europe together in the most difficult of times. It is easy to be in the battle zone where you are getting all the priorities and the assets, but just try to be in the second priority front sometime. However, the priorities are now reversed and Europe is number one again in terms of Army effort.

I want to say something about our Chief because "Westy" has not, in my opinion, gotten the credit he has earned. He commanded our forces in Vietnam through some of the worst fighting of the war. He has led the Army through our most difficult period.

Today, I believe we just couldn't be more fortunate, though, than having the man we do in Vietnam. General Abrams is starting his sixth year there, and the country, the Army and Armor ought to be terribly proud of him.

Speaking of talent, we have got it "out the gazoo" in this Army. We have tremendous talent in both the officer and noncommissioned ranks. As we have come down in strength, we have been able to improve our quality. We have been separating the sheep from the goats. Now, we have got hard core men that can carry us through.

I also think we are lucky right now in our new civilian leadership. I am talking now specifically of Robert Froehlke and Kenneth BeLieu, our Secretary and Under Secretary. These are the men that have to face the civilian public and talk about the Army in a way we can't. They are making great headway with Congress and the public in improving the attitude toward our Armed Forces.

I know you have heard much about the latest developments in Armor in terms of conceptual innovations and hardware. Of all the branches of the Army which have shaped our destiny, that have led the way with boldness, leadership and innovative tactics, it has been the United States Cavalry, and now Armor, which has literally led the way.

Yet, we really can't tell what lies ahead technologically. There is a lot where we are just scratching the surface, particularly in combining The Four Dimensions of Armor talked about by General Desobry, General Patton and the whole Armor Center.

You have been hammered at pretty much on the hardware side. So, with some trepidation, I would like to say something about the tank. It is by no means dead—it is not even moribund. It is the most formidable ground-fighting system today, and it will be the most formidable in the future. I don't know of anybody that can tell you what can possibly replace it. The only question is to restate its mission . . . and you know and I know, its mission is to hit anything that is on the battlefield. And Task Force Desobry is approaching it exactly in that way.

What I am talking about in terms of firepower is not just one big gun, but anything you can hang on that tank. For example, look at the Air Force and the way they approach an aircraft. They see it as a platform, and put everything they can on it. Of course, they have got a little different problem than we do.

Let me make just one other statement about the tank, and I am sure this point has been made. I understand Ralph Haines emphasized it—that in many ways, the loss of the *XM803* was our own doing. One reason was that we were split within the Army. We didn't speak with one voice. I personally think that although this tank was the best

tank of its kind in the world, it simply cost too much. However, looking back on it, the *XM803* wasn't exactly what we really wanted despite the fact it was a great tank.

Bill Desobry's task force may be our last chance, gentlemen. When Congress canceled our tank program, it was the first time in the history of Congress that they had canceled a major program of any Service. I don't think we can be very proud of that first. This may be our last chance to get ourselves a new tank.

In the meantime, we have in our present inventory the best tank in the world. There is no question that the *M60A1* is the best tank; and the *M60A2* is in a class by itself.

I must say that the way the Armor Community has come forward and gotten behind Bill Desobry is tremendous. The retired people—like I.D. White, Bruce Clarke, Jack Ryan and so on—have also gotten behind this program, letting us know what their views are in a very helpful, constructive way.

For the first time we have got the users really stating what it is all about. I hope the AMC and developer types here don't take offense at this, but if you can't satisfy that user, you are in trouble. If you can't satisfy the buyer—Congress and the men working in the Pentagon—you are also in trouble.

I might mention, too, that we have a similar problem in our air cavalry system—specifically, the attack helicopter. Again, the *Cheyenne* is unique. Without question, it is the most advanced aerial fire system in the world. The Air Force doesn't have anything that comes near it. But, it is big, heavy and expensive. That's why we have been forced to evaluate the *Cheyenne* against the *KingCobra* and the *Blackhawk*. Not because these other aircraft can come close to the *Cheyenne*, but rather, it is a question of what can we afford and what performance can we settle for in terms of what we can buy. So we are in the same boat here as with the tank. A companion task force is looking at the attack helicopter just as we are doing with the tank.

I thought you might be interested if I said something about Vietnam. This war has again shown that Armor can go anywhere, on any kind of mission, in any kind of territory, and against any kind of enemy. For the first time in Vietnam, enemy armor has become a real threat—particularly in Military Region 1 up north and in the Highlands. We have confirmed the presence of *T34s* and *T54s*, although most of the tanks they have are still of the light variety. And, although our leaders in Vietnam tell us that the heavy artillery is doing the real damage to the South Vietnamese troops, it is clear that the enemy tank has hurt them psychologically, particularly in the Highlands north of Kontum. And what are we doing about it?

First, let me say a word about South Vietnamese Armor. They have several armored cavalry squadrons along with some other squadrons which are really sort of APC outfits. At the start of this offensive, they had one medium tank battalion, which completed its training two days before the main offensive started.

These outfits have fought well. There have been a few spotty performances, but, by and large, the cavalry squadrons and this medium tank battalion fought extremely well. The tank battalion literally ran out of gas since they could not support themselves logistically and had resupply and maintenance difficulties. These problems hurt them far more than the enemy's actions. To my knowledge, we have not lost an *M48A3*—the tank they are equipped with—from an enemy tank.

On the other hand, we know that the *M41* light tank has knocked out *T34s* and *T54s*, and that the *T54* is absolutely no match for the *M48A3*.

The enemy also has deployed a wire-guided missile somewhat like our *TOW*. This was a psychological surprise to the South Vietnamese, and that hurt. But they have gotten over that now and things are going to be different.

On the enemy's side, it appears that roughly 200 of his tanks have been destroyed so far. Of that 200, US Tac Air—Air Force and Navy—has probably gotten a little less than half. And, this may well be a conservative estimate as they are very careful how they claim and confirm their figures. For example, they only claim about 12 to 15 per cent of the tanks they hit as being destroyed and this is quite a reasonable figure. We figure the South Vietnamese Air Force has destroyed maybe 25 tanks and the South Vietnamese Army almost 100. We estimate that the remaining 12 to 15 have been destroyed by US Army attack helicopters.

On our side, South Vietnamese losses have been heavy in terms of medium tanks, light tanks, APCs and artillery. On the antitank side, *LAW* had done extremely well in the hands of the South Vietnamese soldier, especially at An Loc where it has played a crucial role. We have deployed the *TOW* in Vietnam, with trained US crews now in the 3d Brigade, 1st Cavalry Division and the 196th Brigade. We have trained *TOW* teams in the 1st ARVN Division and the Vietnamese Marine Division up in Military Region 1. They are deployed and ready to go. To my knowledge, the ground *TOW* has not been in action yet. But this could happen any day in the Hue area or in Kontum.

We have also deployed some *Hueys*—the *HU1B* model with *TOW*. They have been in quite a bit of action. It is interesting to note that these are really not much more than R&D models since we took them out of Hunter-Liggett before completion of developmental tests. They are now in combat in the Highlands and doing quite well. I should mention, too, we have also deployed *Hueys* with the *SS11*, but these have not been in combat as yet.

The *Huey-TOW* has been remarkable in its training and operational firing so far. Reliability and accuracy has been very good. Targets destroyed include *T54s*, *PT76s*, quite a few APCs, *POL* and ammo dumps, and bridges.

As to the method of engagement, I am sure Major Daley, in his talk to you about air cavalry engagements around An Loc, pointed out that they were using helicopter gunships like dive bombers. This is a real problem. It was so hot on the deck and at medium altitudes that they had to come in high. I don't know what the answer to this is. You have a situation in Vietnam different than in Europe where you were meeting a penetration. When you are fighting in a place like An Loc—a place completely surrounded, beseiged and with the enemy using all the air defenses he can lay his hands on—aerial fire support missions are penetrating a heavily defended area, which in the European context would be an Air Force mission. Anyway, a situation like that at An Loc presents quite a different problem.

In another area, I think Major Daley told you about the *Cobra* mounting the 2.75 rockets with the *LAW* warhead. This was a new idea and has been quite

successful in combat.

Our air cavalry units have been doing very well. Unfortunately, we have no Vietnamese air cavalry units. I personally think this was a mistake. The decision, however, was made for many good reasons. We still have seven US air cavalry squadrons in Vietnam and they are worth their weight in gold. For example, when the Vietnamese Marines recently made that air assault east of Quang Tri, an air cavalry troop saved the day. At the last minute, they located some air defense which the Marines did not know about, and were able to show them a safe route into their LZs.

As I said earlier, air defense is getting pretty rough over there. The enemy has many machine guns, automatic weapons, and just recently-confirmed tracked 57mm dual guns. He has employed these as far south as An Loc. Along the DMZ, the enemy owns that area from the point of view of air defense. He also has quite a few SAMs south of the DMZ.

As to the overall situation there, the psychological tide is changing. This is terribly important because this is a contest of wills with a very basic question: Will the South Vietnamese Army fight for survival? Many of their units have fought extremely well. Some others, not so well. However, the enemy is hurting badly. In the South, he has had enormous losses, far more than he has ever had before. These have even dwarfed the awful losses of the TET 1968 fighting. He has also taken heavy materiel losses, but he continues to fight. And most surprisingly, he continues to hit us with heavy artillery, mortars and rocket barrages; so it is obvious he has been stockpiling for possibly three years despite our heavy air interdiction.

The war is at a crucial point. Hue, most of us think, will decide the issue. General Truong, their best combat leader, is there now. Abe thinks he is the best they have ever had. Truong has moved into Hue with his US counterpart, and they are determined to stay. They say: "If we go out of here, it will be in a box." South Vietnam's best troops are there: the 1st ARVN, the Airborne and the Marines. And, they are working to reconstitute their Armor. The battle and the issue, may be decided there.

In the Highlands, the situation at Kontum appears to be better, but the outcome there is not clear. It does appear, however, that the ARVN has made a similar decision to hold and fight.

The brightest picture, though, is An Loc. The Vietnamese held there. They held against three NVA divisions. The 9th VC Division, which has always been the pride and joy of the enemy, got an official reprimand for failing to take An Loc. The 5th NVA Division is now trying to do so, with the 7th Division waiting in the wings. The fight there is far from over.

Psychologically, our air offensive and the mining operations have done wonders for the South Vietnamese because they see the North getting the kind of treatment they have been getting. It has no immediate effect on the battlefield in the South because the enemy has enough stockpiled to continued the offensive anywhere from three to six months. We believe there are indications now, for the first time, that it is beginning to hit the North Vietnamese people just how great their casualties and losses have been. Before now, this had not been clear to them.

On our side, the die is cast in terms of the US effort. It is clear we are not going to go back with US ground troops. The South Vietnamese have got to do it—now or never. At the same time, though, we have told them anything you want or need that we can possibly give you, we will give you. We have made that very clear to them. Our advisors are magnificent. Abe calls them the glue that is helping to hold that country together.

We have got to make this one and I think we will. If anybody can do it, it is Abe and General Truong. I know you share my view that our hopes and prayers are with these men—US and Allies—because, if they don't make it, this country is in trouble. The other day somebody asked me, why an army? I said, "Ask South Vietnam." No army—no country. It is just that simple.

Let me finish by telling you how bright I think Armor's future is. I might tell you a little bit about what appears to be the trend in terms of larger formations. You are all aware of what is going on at Fort Hood, where the 1st Cavalry Division is the first testbed of any size we have ever really had in the Army. As you know, it is working with the 2d Armored Division in trying to develop new techniques, new organizations and new ways of putting together The Four Dimensions that the Armor Center has developed.

The sky is the limit. Armor can do anything you men want it to do. You have got the talent, you got the courage—the teamwork is up to you. I, for one, am ready to hang up my suit any day because I know you men have what it takes. The future of the Army is in your hands—it is up to you. I predict only one thing—outstanding success!

The Business Meeting—Presidential Observations

by Brigadier General Hal C. Pattison, USA-Retired
24th President, The United States Armor Association

I will formally call the 83d Annual Meeting of the US Armor Association to order. Before we get into our own agenda, I would like to publicly thank General Desobry, as representative of all the agencies of the Armor Center, for the excellent presentation we witnessed this morning. It's reassuring to see and hear some of the steps which are being taken to meet these difficult problems of organization, armament and military application.

I'd also be remiss if I failed to acknowledge the outstanding talk that General Haines gave us. I know it was an inspiration to everyone. I heard many people comment on the excellence of the presentation. Thank you General Haines.

Shortly, in making his annual report to the membership, the Secretary-Treasurer/Editor will give you the details of last year's operations of the Association. I'd be lax in my duty to you, however, if I failed to inform you that the transition from the highly successful four-year tenure of Colonel

Sonny Martin to Major Robert E. Kelso has been all that anyone could ask. As an example, in spite of the 15.5 per cent officer decrease in Armor Branch since last year, he has been able to achieve a 7.5 per cent increase in Association membership among Active Duty Armor officers. A similar increase has been achieved among the Reserve components and senior noncommissioned officers. However, we need far more members in all categories to keep the Association going ahead full steam.

For the past two years, First Lieutenant Jim Durkott has served as Managing Editor of the magazine. He leaves the staff soon to return to civilian life. His business talents—he's a CPA—as well as his superior judgment and outstanding personality will be sorely missed. It's also significant that we will have an almost complete turnover in the very fine enlisted staff of the magazine this summer.

I cannot end my tenure as President of the Association without paying tribute to the excellent support of the National Guard units, particularly the 30th and 50th Armored Divisions. The 30th Armored Division is well-represented here today. The 50th Armored Division, although it moved to summer training today, sent a delegation of 20 people.

[The Secretary-Treasurer reported that the Constitution requires that five per cent of the membership, present in person or by proxy, shall constitute a quorum for the transaction of business. The active membership on 10 May 1972 was 4,452, and therefore 223 active members constitutes a quorum. A total of 432 members were present in person and 871 by valid proxy for a total of 1,303. Therefore there was a quorum. It was then moved, seconded and voted unanimously to dispense with the reading of the minutes of the 82d Annual Meeting since the proceedings had been published in *ARMOR*.]

Report of the Secretary-Treasurer and Editor

by Major Robert E. Kelso

One year ago at this time my predecessor, Colonel O.W. Martin Jr., in his remarks to you indicated that he was soon to turn over to me a priceless part of our Armor heritage and future. I can report to you that through his efforts, the patient assistance of General Pattison and the outstanding daily performance of young men who compose our staff, the transition in the dual office of Secretary-Treasurer and Editor was achieved with as little disruption to the flow of Association operations as possible.

That such was accomplished enabled us to direct our efforts toward the continued growth of the Association and the expansion of the quality of our journal. As to the former, I believe we are making a slow but marked progress. As to the latter, you must be the judges of the final results of our efforts.

I would be remiss if I did not take this opportunity to thank those of you who have helped us by the writing of timely articles, book reviews and other items of common interest to all of us. I personally am particularly pleased by the increased use of the "Letters to the Editor" column. This is an expression of your views on a given subject or on the course we in Armor, in general, are traveling.

The words of encouragement received have been much appreciated. That we have not printed them in all cases is not to be interpreted as disinterest on our part. For indeed, we have no more meaningful gauge of the success of our efforts than the response or lack thereof by the membership.

Our journal, *ARMOR*, is the primary vehicle by which we seek to achieve the goals of the Association. 1971, therefore, was an important year in determining the near-term direction we, as an Association, would be taking.

Paid circulation of *ARMOR*, after reaching an all-time high of 9,837 with the March-April 1970 issue, declined with each successive issue until reaching a two-year low of 8,180 in March 1971. Of this decrease, 700 was a result of the expiration of a bulk order from the US Army Vietnam Special Services. This information was reported to you at last year's meeting. Since then we are pleased to report a slight but sustained increase throughout the remaining months of the year reaching a total of 8,550 at 31 December for a 1971 average of 8,464.

While encouraging, this still represents a drop of 832 or 9 per cent from the 1970 average of 9,296.

For the four months completed in this year, we have an average paid circulation of 8,516. Last week's mailing of the May-June issue revealed a drop in paid circulation to a figure of 8,200.

It is our hope, however, that the combination of new members and renewals received subsequent to the mailing during this two-month period will ultimately reflect continued growth.

The reasons underlying this fluctuation over the past two years are many. However, we can and must not satisfy ourselves by reliance on the reduction in the Army's strength as the cause of decreased membership and therefore a factor beyond our control.

General Pattison has partially dismissed that by showing that while we have experienced a decrease in the Active Duty Armor strength, we have, at the same time, had a real number increase in the number of members of our Branch who have joined the Association.

The fact remains that we have had a decrease in membership, and as such, should not be complacent in our efforts. One point I wish to make in this regard and which is not reflected in the aforementioned figures is the volatile composition of this drop and slight recovery. During the calendar year 1971, we received 3,039 new members and subscribers. During the same period, however, 3,938 memberships and subscriptions were not renewed. Some of these can be explained for various legitimate reasons; however, the majority cannot be so simply rationalized.

For this reason, our summary concern for our membership picture is an expressed request for continued support not only in securing new members but assuring retention of those already among the ranks.

The financial position of the Association at year-end continued to evidence strength. Operating revenue for 1971 was $76,620, up $357 from 1970. Operating expenses for the same period

was $72,892 compared to the previous year's total of $66,854. Total income after expenses was $7,200. Of this figure, $3,700 was derived from operations and $3,500 was a realized gain from the sale of certain of our investments. This compares reasonably well with the 1969 total income of almost $8,000 and that of $7,600 for 1970.

An analysis of the major components of revenue shows that while all other sources registered gains, dues and subscriptions were down over $3,400 from last year. At the same time, the cost of producing the magazine increased by a net of $1,360.

The Book Department continued to play a vital role in the financial performance of the Association. Total receipts for books and other items increased 19 per cent, while corresponding costs increased 16 per cent. The resulting income from the Book Department was $5,336 as compared to $4,341 last year, a previous high in the history of the Association. During the first four months of this year, Book Department receipts have increased at an annualized rate of 33 per cent.

While the journal is our primary activity and shall remain so, the financial figures for this year point to the needed continuance and expansion of our Book Department operation. Before inclusion of the Book Department income, the Association's operational loss was $1,648. We will, therefore, within the limitations of time and personnel, work to expand the Book Department to its fullest potential—the intended result being the insured strengthing of our financial base and the provision of a viable service to the membership, either as individuals or entire units.

The deferred revenue of the Association continues to be invested in a strong portfolio consisting of common shares of 13 companies. At 12 May, the book value of these was $39,317. The astute financial management by the investment committee, formerly chaired by General Holbrook and presently by General Newton, resulted in 1971 investment income of $2,473. This, in addition to the previously mentioned $3,500 gain from the sale of two stocks, amounts to a good investment performance for the year.

Our balance position as of 31 December shows cash of $11,586 and total assets of $88,123.

Association equity is currently $47,836. This is quite good when you consider that four years ago, our equity was $22,155.

Again, we can state that we are operating from a position of financial strength. You have heard and will continue to hear the many challenges facing the Army and Armor. As the Association is a reflection of the Branch we represent, so too, therefore, are these challenges facing it. The success we have in meeting these will be determined by the action or inaction of the membership. Certainly, the Association and *ARMOR* exist to serve you, but how well it is able to do so is affected by the degree of support in turn given it by you. You have my personal thanks and that of the entire staff for your continued cooperation.

I extend to you the always open invitation to visit the office of the Association whenever the opportunity presents itself. Thank you. [The foregoing report was accepted.]

(General Pattison) There is only one item of old business to bring up before you. Most of you will remember that for the past two years, the Executive Council has been considering an Awards Program to encourage membership in the Association. I am glad to announce to you that a new program was approved at the January meeting of the Executive Council. You will find the details of this program on page 17 of the May-June issue of *ARMOR*. In addition, I have written letters announcing the program to unit commanders of all Active Duty battalion-sized units. The commanders of Guard and Reserve battalions will receive letters from the new President in the near future.

For the past two years, Major General Bud Schlanser has been a great help to me and to the staff of *ARMOR* Magazine. This year we imposed on him to serve as the President of the Nominating Committee for the election of new officers for the coming year. I turn the meeting over to General Schlanser, who will conduct the election of officers.

Elections of Officers

by Major General Lawrence E. Schlanser
Chairman of the Nominating Committee

The Constitution of our Association prescribes that its officers shall consist of a President, 3 Vice Presidents and 14 members to be elected by the membership at the Annual Meeting. They shall constitute the Executive Council of the Association and be assisted by the Secretary-Treasurer who is appointed by the Executive Council.

For President, your committee recommends General James H. Polk, US Army-Retired. General Polk was born into an Army family. He graduated from the US Military Academy in 1933 and was commissioned in the Cavalry. During his 38 years of distinguished active service with the Cavalry and Armor, General Polk has led a most interesting and impressive life as most of us are already aware. He has had numerous combat leader assignments and staff duties at the highest level. General Polk culminated his career by being promoted to the rank of general on 1 June 1967, and assumed the duties of Commander in Chief of the US Army Europe and Commanding General of the 7th Army. He has already served our Association with distinction for seven years in grades ranging from lieutenant colonel to lieutenant general.

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 H. Wehenmeyer Jr., Commanding General, 50th Armored Division, which contains Army National Guard units in New York, New Jersey and Vermont, and Major General William R. Desobry, Commanding General of Fort Knox.

These men have distinguished themselves with the Armor Association by supporting it diligently. We are happy that they are again available to serve the Association.

In selecting nominees for the other Executive Council positions, your

committee has taken into account the established guidelines in the Constitution and the By-laws. We have sought to have diversification and reasonable geographic dispersion. Those selected are able, conscientious men who will actively participate in our affairs. For continuity, 10 of those proposed have served this past year. All 14 are in important Army positions representing key assignments for their ranks. We recommend these 14 men to you without reservation.

They are: Brigadier General George S. Patton, Assistant Commandant, US Army Armor School; Colonel Julius Becton Jr., Chief of Armor Branch; Colonel Philip C. Bolte, Staff and Faculty of the Army War College; Colonel Bruce Jacobs, Chief of Information, National Guard Bureau; Lieutenant Colonel William D. Ray, US Army Aviation School; Lieutenant Colonel Louis C. Taylor, G3 of the 30th Armored Division; Major George D. Fuller, 1st Air Cavalry Division; Major Ralph B. Garretson Jr., US Military Academy; Captain William L. Nash, 82d Airborne Division; Captain James H. Lee Jr., US Army Armor Center; Captain Todd R. Starbuck, 3d Armored Cavalry Regiment; Captain Clinton M. Williams, US Army Armor School; Command Sergeant Major Lorenzo DeLeon, 6th Armored Cavalry Regiment; Command Sergeant Major Dwight M. James of the 2d Armored Division; and last but by no means least, we would recommend General Hal C. Pattison as an Honorary Vice President.

[General Schlanser then called for nominations from the floor. There being none, upon motion and by unanimous vote, nominations were closed. Again, upon motion and by unanimous vote, the slate as presented was elected.]

Acceptance Remarks

by General James H. Polk, USA-Retired
25th President, The United States Armor Association

Thank you very much, General Schlanser. On behalf of the new slate of officers, we accept with pleasure. It is, indeed, a great honor and privilege to be elected President of the US Armor Association. I can't tell you how much I value the confidence reposed in me by this nomination and by the support of my many friends and compatriots here at the head table who have taught me so much over the years. The new Council will, I assure you, do its best to live up to the precepts set by so many of our predecessors like Ernie Harmon, Crittenburger, Pee Wee Collier, Willie Palmer, Bruce Clarke, Ted Brown, Johnny Waters, Sterling Wright and a whole host of distinguished soldiers.

I do want to mention at this time what a great debt the Association owes to Hal Pattison, our retiring President. He has engendered the whole Association with many innovative ideas and has shown courage and leadership and a great deal of skill in exercising this leadership. He is turning over to us an Association that is financially sound, aggressive and forward looking. It hasn't always been so and the Association has been in difficulty before. We are, in fact, under fire to some extent right now. The US Army Audit Agency has been reviewing over 300 Department of Army periodicals, some published entirely by appropriated funds and some by subscription and TDA personnel, similar to *ARMOR*. We have come out of that audit rather well, far better than some magazines, and I think we can protect the journal and the Association.

It is important to remember that the basis of our winning this battle on other occasions has been that we do not depend on advertising for revenue. We, as an Association, wish to be free to print without fear or favor the articles of our members, and particularly the peer group represented in this room as well as our younger officers. We certainly plan to maintain this policy in the future.

Let me conclude by observing very briefly that we are now entering a period of thoughts and ideas. We can look backward and we can look forward and we can learn from the past. We are coming out of a period of very vicious fighting and such times are for introspection. It is time to review what we've learned, refine our ideas and publish them. *ARMOR* Magazine can play a very important role in the process.

Traditionally, in peacetime, the circulation of *ARMOR* goes down and the ideas get considerably better. We are entering a new phase, a new dimension, and we can look forward with great interest to the coming years of new developments with the Armor Association, the Armor School and the great body of Armor officers represented here today. We, the members of the Executive Council, will do our best to represent you in a forward looking and positive way in the year ahead. Thank you.

[There being no new business, the business meeting was adjourned.]

LETTERS TO THE EDITOR

(continued from page 4)

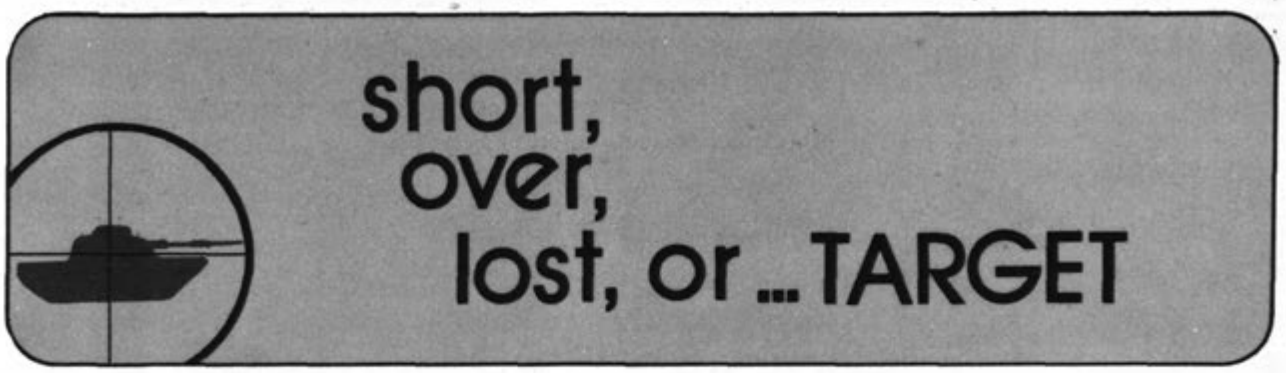
students are in residence, can reach perhaps one out of five. This illustration of a career interest problem among Armor aviators should concern all members of Armor. Let's get together on this one.

STEPHEN G. BEARDSLEY JR.
Lieutenant Colonel, Armor
JAMES W. BRADIN
Major, Armor
USAARMS, Fort Knox, Kentucky, 40121

Armor Selections
For Brigadier General—AUS

Beckner, Richard G.	55
Becton, Julius W. Jr.	13
Faith, John C.	33
Jones, John G.	57
McEnery, John A.	2
Whitehead, Ennis, C. Jr.	27

Numerals are sequence numbers.



This department is a range for firing novel ideas which the readers of ARMOR *can sense and adjust. It seeks new and untried thoughts 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 TANK IS ALIVE AND WELL. . .

by Edward Luttwak

And it will remain so until its combination of tactical mobility, firepower and shock effect is reproduced by some cheaper weapon.

The central error of the light tank enthusiasts, such as Lieutenant Colonel Warren W. Lennon ("The Death of the Tank," *ARMOR*, January-February 1972), and the speed enthusiasts, such as Richard M. Ogorkiewicz, is rooted in a persistent confusion between mere mechanical speed and actual mobility in the presence of the enemy—in other words, *battlefield mobility*. They argue that since the battle tank is not invulnerable, protection should be given a lower priority than speed or agility.

In reality, as every system analyst knows, no defense system, whether it is an antiballistic missile or tank armor, is supposed to be invulnerable. Its mission is rather to absorb and deflect the enemy's attack. The value of the tank's armor plate and design protection features cannot be determined by whether or not an antitank weapon can defeat it. What matters is the survivability of the tank formation as a whole.

A battalion of 50-ton MBTs, such as *Chieftains* or *M60s*, advancing in the two most likely battlefield terrains—Sinai and the North German Plain—would form a broad wedge moving at 20 to 25mph. The edges of the formation would be marginally vulnerable to concealed light antitank weapons and rather more vulnerable to heavy missiles, such as *TOWs*, fired at long ranges.

Even in Vietnam, where the US forces were unable to use their tanks in formations, the battle tank was not driven from the field. In fact, this rebounds to the considerable credit of American tankers since the MBT is not meant to be used as an individual weapon but rather as a single component in a multi-MBT phalanx. This being so, the main antitank threat will remain the air-delivered bomb, rocket or missile.

With helicopters inevitably vulnerable and battlefield air defense steadily improving, the MBT formation (with antiaircraft tanks too) should do well under air attack—unless the enemy wins the battle for air superiority and does so totally. Even in Sinai in 1967, only a minority of the Egyptian tanks destroyed were hit by aircraft, although Egyptian armor had no air cover at all.

The heavy, well-protected battle tank can survive mines, nearby shell burst splinters and a wide range of projectiles, including outranged APDS shot, tangential HEAT warheads and pre-detonated HESH. Formations of heavyweight MBTs will be able to

advance even in the presence of all these threats—the main variable in its battlefield mobility being the degree of protection and not the horsepower/ton ratio.

Mr. Ogorkiewicz praises the speed of the light MBTs, such as the *AMX30* and *T62*, and condemns the *Chieftain* as slow and the *M60* as too heavy. Actually, even the old 20mph *Centurion* will advance more rapidly than the ultrafast *AMX30* in the presence of the enemy. On the road, on parade and even on exercises, the *AMX30* and the *T62* will do very well indeed; on the battlefield, they would soon stop and seek shelter while the old *Centurion* travels on.

The Swedish *IKV91*, *Goer*, *Twister*, British *Scorpion*, and even the *AMX13* are all fine weapons for light reconnaissance; however, they should not be confused with the heavyweight MBTs. Travelling in mutually-supporting formations, MBTs can advance through fortified lines and penetrate in depth, while mechanized infantry follow in their wake to open a path for supply and recovery teams.

Mr. Ogorkiewicz is fond of commending the *AML* series of vehicles ("New French Armored Vehicles," *ARMOR*, November-December 1972). For the record, I should point out that these French-built armored cars are not military weapons at all. They are not survivable in the face of machine gun fire and confer no more real battlefield mobility than jeeps. Jeeps are cheaper and will not delude their occupants into thinking that they are under protection when they are not.

The French use the concept of building the lightest possible vehicle in each class and then fitting it with the most powerful possible weapon. The *AML90* would be abandoned by its crew as soon as they realize that their limited visibility is not compensated by any real protection. The *AMX30* sacrifices the real protection of armor for the chimera of mere mechanical speed. Travelling cross-country, its 65mph top speed will be useless in any case. The *AMX30* will actually travel no faster than an *M60*, but its crew will have 20 tons less steel between them and the enemy.

It should not be forgotten that the shock effect of massed tank formations ultimately derives from the willingness of their crews to advance against the enemy. This, in turn, depends (other things being equal) on their confidence in the survivability of their tanks. For example, shortly before the 1967 war, an Israeli *Centurion* of General Tal's division hit a mine. The crew was unharmed and the tank was quickly recovered and repaired. General Tal issued an announcement to his troops detailing the facts of the case. A few days later, his lead brigade, with *Pattons* and *Centurions*, launched its swift advance through successive Egyptian fortified perimeters.

In contrast, Israeli crews knew that their fast *AMX13s* could not protect them against mines or much less. The advance of the *AMX13* units was, therefore, more cautious; and it turned out that on the *real battlefield*, the slow 20mph *Centurions* could advance much faster than the 40mph *AMX13s*.

As for the stay-behind tank-killer teams, one may conjure up visions of dedicated riflemen ambushing slow and cumbersome tanks with their rockets and missiles. In reality, the well-handled formation of heavyweight MBTs will drive through the area and leave the teams where they belong—behind. Dispersed and quite static, these teams will have no effect on the course of the battle, except for temporarily disabling a few MBTs travelling on the edges of their formations. Eventually, the mechanized and motorized infantry will deal with the teams, now totally cutoff, while the disabled MBTs are repaired and sent on to rejoin their formations.

Israeli tank commanders were categorical in stating that the main disadvantage of the *T54* and *T55* was their lack of armor protection. The French *AMX30* is of the same breed. The Israelis, who tried very hard to obtain *Chieftains* from Britain, have never expressed the slightest interest in the fast *AMX30*.

The heavyweight MBT is not perfect, however. Far from it, in fact. One obvious shortcoming is their poor secondary armament. The heavyweight MBT badly needs an effective weapon besides the main gun or gun/missle system and the coaxial machine gun. This secondary weapon should be able to penetrate armored personnel carriers and shoot down helicopters, and it must not be operated by the tank commander. A remote-control 20-33mm dual-purpose cannon, located outside the turret and fired by the loader through flexible optics, could be the answer.

Another possibility would be a single-shot cannon for APCs on the turret, a self-loading grenade launcher for the infantry on the frontal hull plate, and a *Redeye*-type missile or two on the rear hull, all operable by the gunner and/or loader. None of these weapons would carry many rounds of ammunition, none would be operable with very great efficiency, but all would be very useful for their task, which is, after all, secondary.

Visibility is another shortcoming. In 1967, Israeli tank commanders had to ride high in the turret with

their heads exposed. With closed hatches, the limited optics of their *Pattons* and *Centurions* dangerously restricted their field of vision. Richer armies have more modern MBTs with far better optics. However, in the absence of a CBR environment, dedicated tank commanders would still prefer to travel exposed on top in their tanks. This should be remedied by high, all-around commander's vision blocs giving plenty of visibility in all directions. These would be very vulnerable but much less so than either riding closed down and near blind, or with open hatches—as must still be done with current MBTs.

In this connection, the low silhouette obsession of many critics should be exposed for what it is. The very low *T54, T55, T62*, and *AMX30* restrict their commander's field of vision. To pick off targets at long ranges, the commander has to spot them first, and the higher he stands (within limits) the better it is. (The Israelis praise their ancient *Shermans* for their height.)

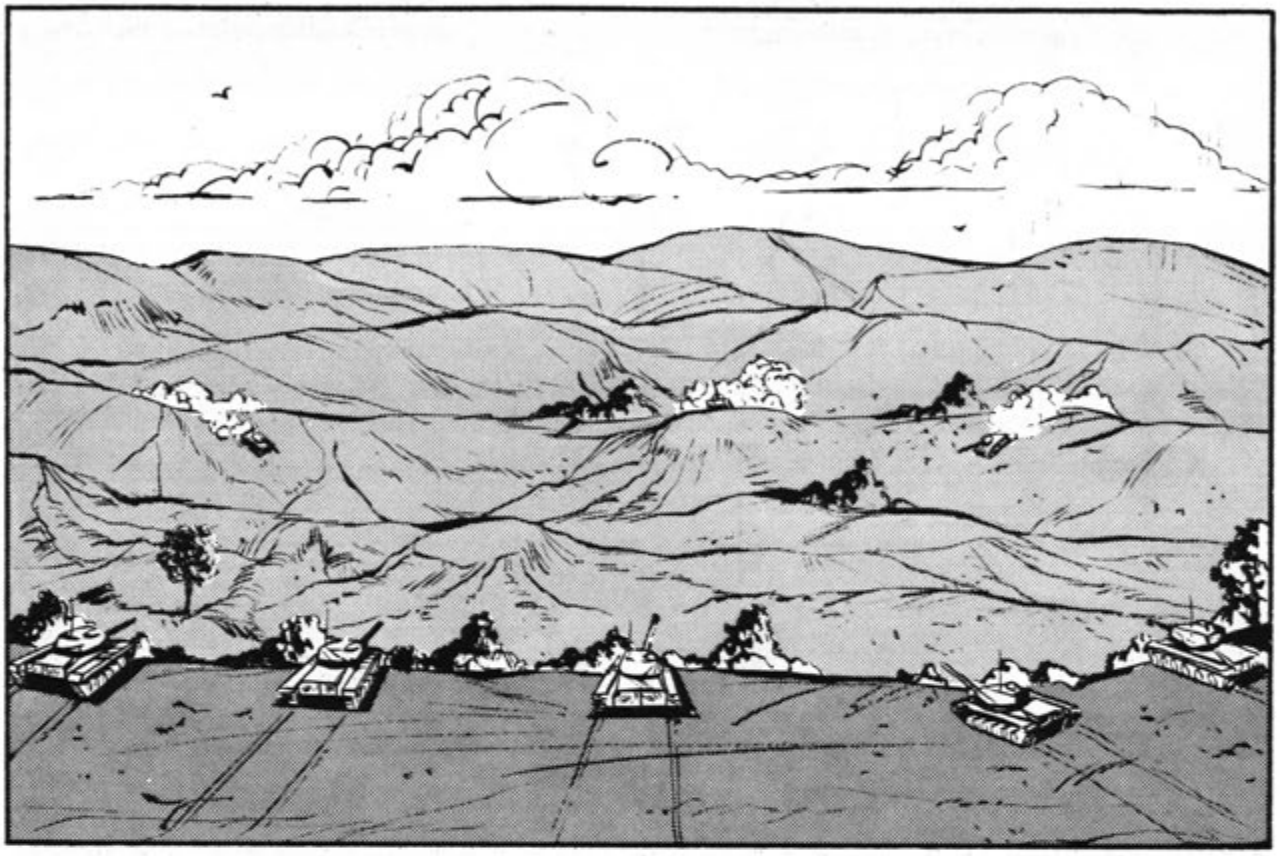
In their attempt to attain the lowest possible cupola height, the Russians have squashed the crew quarters of their tanks to the point where any normal crew cannot operate them for more than a few hours at a stretch. This being so, the long road ranges of these tanks are less useful than they would seem at first sight.

To conclude, it is worth restating that the MBT should be built around the weapon/armor combination. Agility is very important, but speed (beyond 25mph or so) is of very little use. Light MBTs, exemplified by the *AMX30*, represent a bastard breed like the ill-fated battle cruisers that lacked the armor of the battleship and the relative cheapness of the cruiser. High mobility combat vehicles and light tanks are all very useful but cannot attack the core of enemy resistance. Tin boxes, like the AML series, are police weapons only—to sell them for military purposes is misleading.

There is still a direct conflict between strategic and battlefield mobility. Attempts to bridge the gap, like the *Sheridan*, will continue to have their limitations. Useful as they are, in the presence of heavyweight MBTs, they should be swept off the battlefield.

EDWARD N. LUTTWAK is a military analyst at the Tevel Institute in Jerusalem, Israel. He is the author of *Coup D'etat*, (Knopf, New York, 1969) and *A Dictionary of Modern War* (Harper & Row, New York, 1971).

How Would You Do It?



US ARMY ARMOR SCHOOL PRESENTATION

SITUATION

As the 1st Platoon Leader of Company B, 1st Battalion, 67th Armor, you have successfully completed your attack on the objective. You consolidate and deploy your five M60A1 tanks in defensive positions since your orders state that you are to secure the objective. The enemy force you have just routed from the objective has assembled and is in the counterattack. You issue the following platoon fire command.

BEARCAT ONE, THIS IS BEARCAT ONE SIX
MAIN GUN
FIVE TANKS ADVANCING
DIRECT FIRE, TWO THOUSAND
FRONTAL
AT MY COMMAND . . . . .

The initial fire command issued to your crew is:

GUNNER
HEAT
TANK

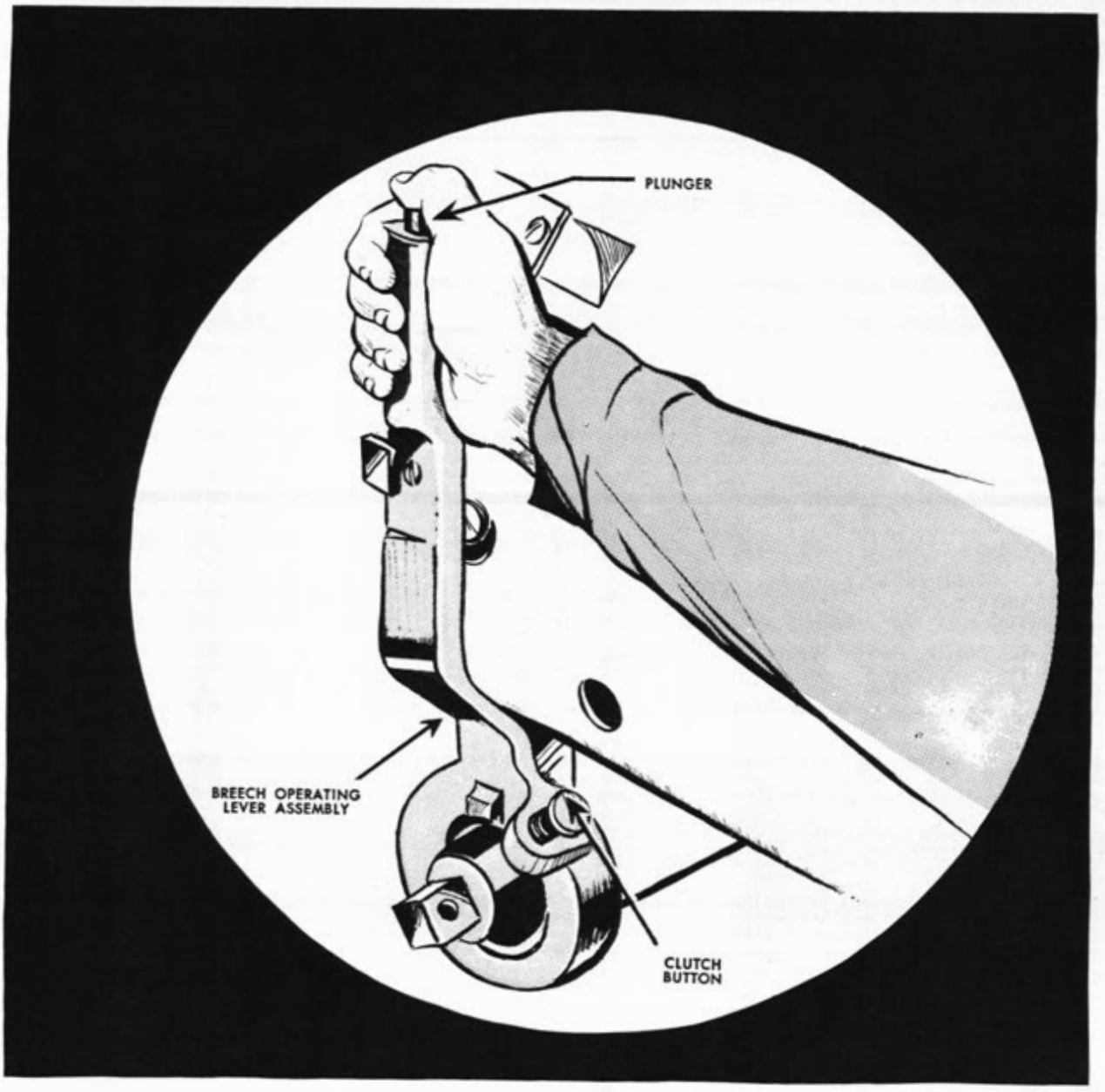
Your loader attempts to load the main gun. The round chambers but the breechblock fails to fully close.

PROBLEM

You remember from previous engagements that the breechblock was sluggish when closing and you had directed your loader to increase the tension on the breechblock closing spring. He informs you that he had turned the closing spring adjuster as far as it would go. You confirm this and conclude that the closing spring is weak or broken. How will you close the breech?

AUTHOR: LT JOHN R. PERRY

ILLUSTRATOR: ROBERT WILDER



SOLUTION

The remedy for this situation is simple but relatively unknown. The breech can be closed by use of the clutch. This device is built into the breech operating mechanism of the 105-mm tank gun. It is a spring-loaded button located on the operating handle collar. When pressed and held into position, it engages a notch in the breechblock operating shaft. The movement of the breechblock is then controlled by the operating handle. Your loader lowers the breechblock operating handle, depresses the clutch button, and rotates the handle upward until the clutch engages. He continues to raise the handle, moving the breechblock to its closed position.

DISCUSSION

Unlike other tank guns, the 105-mm, M68 gun uses a 24-leaf, torsion-type closing spring. The closing spring adjuster has three positions to increase or decrease tension. The first recess is the normal position. If additional tension is required, the closing spring adjuster is turned to the second or third recess. The closing spring adjuster in this situation is in the third recess, and the closing spring still lacks sufficient tension to close the breechblock. The only possible cause of this problem is that some of the 24 torsion-type springs are broken and the remainder are too weak to close the breech. If it were not for this clutch, valuable time would have been expended using a field expedient; time that you did not have.

from the Armor Branch Chief

DA Form 483: Dream or Reality

Each Armor assignment, regardless of grade, is made only after carefully weighing and evaluating three factors: the best development for the officer; the filling of a validated requirement for an officer to be assigned to a certain duty position; and the officer's stated assignment preference.

The third factor is the one over which you have the most control. It is most often transmitted to us through DA Form 483, the Officer Preference Statement. Through the years, this form has come to be known as the "dream sheet," and with good reason. Preference statements have very often reflected hopes and aspirations which have little contact with the reality of Armor requirements, or career development. Consider a few examples of preference statements received: An officer requested assignment to ROTC duty despite the fact that he had not yet commanded a company, attended the Advanced Course and had only a high school education. Another officer, acknowledging the fact that he needed company command, requested this duty in Spain, Italy or France. Still another requested an inter-theater transfer to American Somoa. Unfortunately, these or similar requests from Armor officers, of all grades, are far too often the rule, rather than the exception.

In order to really influence your next assignment, and also receive assignment satisfaction, you should consult DA Pamphlet 600-3, "Career Planning for Army Commissioned Officers," to determine the type of duty assignment which should be next in your career development. Having determined the type, or types, of duty that you feel are essential to your career development, you should then select posts or areas where this duty is available. Every officer has the privilege and responsibility of keeping Branch informed of his ideas regarding his duty assignment and career development. Each of us probably harbors the desire for assignment to Australia, the Bahamas, Denmark or some equally exotic area. There is nothing wrong in listing one or all on your preference statement, but only after you have first filled it out following the simple two-step operation outlined above. In so doing, you will be taking your preference statement out of the dream sheet category, and return it to the management tool category for which it was originally intended.

Keep Branch Informed of Off-duty Schooling

Armor Branch often learns that an officer is enrolled in off-duty civil schooling or the nonresident Command and General Staff College course through casual conversation or a remark made on an efficiency report. An officer who is availing himself of either of these opportunities is exhibiting a high degree of ambition and motivation, in addition to enhancing his overall professional qualifications as an Army officer.

Information of an officer participating in these programs is, therefore, of considerable significance in the management of his career. To assure that information is available for consideration when planning actions affecting an officer's career, it is important that each officer who is enrolled in off-duty civil schooling or the nonresident course inform his unit personnel officer of progress made so that changes may be made to DA Form 66.

Centralized Promotions To Temporary Captain

Since 1 July 1972, temporary promotions to captain will be based upon the recommendations of selection boards convened at DA. Selection boards are using the fully qualified method of selection as prescribed in AR 624-100. Promotions will be made to fill vacancies in the authorized grade structure and will not be based on attainment of a specified time in grade criterion.

Zones of consideration include all first lieutenants, AUS on active duty with date of rank of 31 October 1970 or earlier. This zone will provide for a promotion capability of about six months.

Aviation Quotas

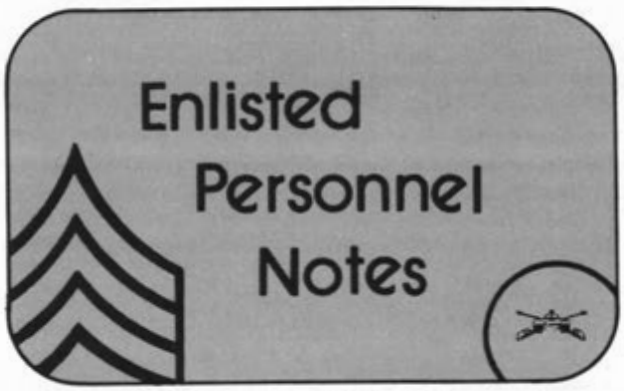
Branch is in need of applicants for Army aviator flight training. Applicants must be Regular Army or Voluntary Indefinite and meet all requirements as outlined in AR 611-110. No waivers are being granted at this time. The physical standards are those for Class 1A flight physicals. If you are interested, call Mrs. Carmichael at 693-1473.

Accuracy of Officer Qualification Record

The accuracy of your Officer Qualification Record, DA Form 66, should be a matter of personal interest. The information contained in the field copy of your DA Form 66 is transmitted to Branch where it is posted to your Branch copy. The Branch copy is used extensively by assignment and other action officers. Also, copies are furnished to DA selection boards and other agencies as required. Inaccuracies or omissions could, unwittingly, result in a disservice to you. Regulations require that you review the field copy annually. Detection and correction of errors will continue to be an individual responsibility.

Voluntary Indefinite Quotas

During FY72, it has become increasingly difficult for officers to obtain a Voluntary Indefinite service agreement. Only 9 quotas were available for FY71 and 15 for all earlier year groups. These quotas were filled with the most highly qualified officers, based upon manner of performance, duty assignments and education level. Although quotas have not been announced for FY73, those officers desiring to enter into a career status should submit their applications in accordance with AR 135-215, early in the fiscal year.



From the Director of Enlisted Personnel

THE COMPASSIONATE REASSIGNEE

There has been some misunderstanding Army-wide as to the duty status of the compassionate reassignee. First off, to set the record straight, a compassionate reassignee is a soldier who has been assigned to a particular location to assist in the resolution of a short term, severe, family problem.

Specifically, the problem is one which must be capable of resolution within a limited period of time, usually not to exceed one year; and, one which requires the presence of the soldier to resolve.

The duty status of the soldier while serving on a compassionate reassignment is not unlike any other assigned soldier except that he may be assigned regardless of an existing vacancy in his MOS and grade.

The compassionate reassignee is expected to be present during normal duty hours and to perform duty as the commander directs. Commanders should, where possible, place the soldier into a vacancy using his MOS and grade.

The thing to remember is that the compassionate reassignment has been granted in order to place the soldier in a reasonable proximity to the area where his family problem exists so that he can spend off duty time with his family and be readily accessible in terms of critical need.

A TANKER AT FORT HARRISON?

An article appeared in the January-February Enlisted Personnel Notes providing information on procedures to be followed by personnel stationed overseas prior to returning to CONUS. Particular attention was given to insure that the soldier's area of preference (Army area and station) was correctly recorded on his Advanced Oversea Returnee (AOR) card.

A recent study of soldiers' preferences in MOS 11D (Armor Reconnaissance Specialist) and 11E (Armor Crewman) on the AOR reveals that a large percentage of preferences are incompatible with MOS.

For example, a soldier with MOS 11E recently requested assignment to Ft. Benjamin Harrison, Indiana, because it is close to his home. Since there are no requirements for 11Ds or 11Es at Ft. Harrison, the soldier would have been better off selecting a station close to home but where his MOS is authorized. In this case Fort Knox, Kentucky, would have been a more realistic choice since it is fairly close to his original choice and his MOS is authorized.

Remember that every effort will be made at Headquarters, DA to honor your desired reassignment if the Army's needs do not require you elsewhere. JUST BE REALISTIC!

FIRST SERGEANT STABILIZATION INCREASED

Headquarters, DA, has increased the stabilization period for personnel performing duty as first sergeants to 24 months with a minimum assignment of 18 months. The stabilization increase was announced by DA Message 202118Z Mar 72.

The action is part of DA's continuing efforts to increase the stability in the assignment of key NCO personnel, and to provide a greater degree of continuity in the relationship of first sergeants to their soldiers and to the organization to which they are assigned.

NCO personnel who desire to be assigned as first sergeants are encouraged to volunteer for such duty by utilizing DA Form 2635. Preference for a first sergeant assignment must be indicated in item 15 of the form.

ENLISTED PREFERENCE STATEMENT

Attention all senior enlisted personnel serviced by the Senior Enlisted Control Division (SECD), Enlisted Personnel Directorate, Office of Personnel Operations. (Individuals controlled by SECD are identified in Table 1-1, AR 614-200.)

Does your OPO Military Personnel Management File contain an up-to-date Enlisted Preference Statement (DA Form 2635)?

It has been obvious through letters received by SECD that there is a credibility gap among the personnel serviced as to whether or not the Enlisted Preference Statements are actually utilized by assignment personnel of SECD. A review of the letters also indicates that there is a lack of understanding of the use, purpose and preparation of the form.

Here are a few helpful facts you should know:

- The DA Form 2635 is exactly what the title indicates, a preference statement. It is not an application for reassignment.
- It is reviewed every time an assignment is selected for the individual.
- Regulations do not require, nor does SECD acknowledge, receipt of the form.
- The latest form available to the assignment personnel is used. A new form supersedes previously submitted forms.
- To be of value, the Enlisted Preference Statement must be current. However, due to the lead time in selecting assignments, a new form must arrive in SECD no later than five months prior to DEROS if you are serving overseas.
- It is usually reviewed only when an individual's records are reviewed for reassignment. This normally is accomplished four or five months prior to oversea

DEROS or when the individual becomes eligible for reassignment for other reasons.

- Listing of only one Army area/station in item 5a limits the ability of assignment personnel in choosing a desirable assignment for the individual upon return from an oversea area. Too often there are no requirements for the one area/station indicated on the individual's form. SECD often receives complaints that the individual would have preferred any area in CONUS, other than the one selected for the individual. However, his preference statement did not give SECD any other station(s) of choice.
- Some individuals list the same area/station on all five lines of the CONUS and Oversea Assignment Preference block. Listing the post more than once does not increase the chances of the individual going to that particular post. If only one choice is listed, and if there are no requirements at that post, the individual is available for any assignment against any unfilled requirement.
- An individual who is overseas and desires an Inter-Theatre Transfer (ITT) upon completion of current oversea tour should complete item 7 by checking the block yes. This form is not to be used to request an ITT prior to completion of an normal foreign service tour. Request for ITTs prior to completion of normal foreign service tours must be submitted on a DF in accordance with Chapter 2, AR 614-30.

EXTENSIONS OF FOREIGN SERVICE TOURS

Planning to extend in an oversea area? The procedure is covered in Chapter 7, AR 614-30, but here are a few items worth knowing about on current DA thinking.

DA allows extensions in oversea areas to maintain strengths in particular grades and MOSs and to reduce personnel turnover whenever possible. Although the current trend is for longer tours, this does not mean your request will be automatically approved. This is because some degree of equity in the distribution of less desirable assignments must be observed. Major considerations in OPO, DA, when reviewing a request for extension are:

- Strength of the command in grade and MOS.
- Overall strength of the command.
- Priority of the command in comparison with other areas.
- Overall strength of MOS in which the extension is requested.
- Recommendation of commanders.

Major oversea commanders have the authority to disapprove requests for extensions within their commands. Please do not forward requests directly to DA, since they will be returned without action, requesting that you submit through channels.

Your request must arrive at DA prior to the processing of your stateside assignment. This means that you must submit in sufficient time for your request to clear through channels. The best time frame for submission is eight to ten months prior to DEROS. This will insure adequate time to process your request and receive an answer from DA.

Extensions will not be granted beyond your ETS, so make plans for reenlistment or extension of enlistment prior to submission.

Extensions for foreign service tours are granted for periods up to 12 months. With the exception of certain intelligence-related MOS, personnel may, subject to DA approval, voluntarily serve up to five years in an oversea command.

news notes

NEW ARMOR FACILITY AT FORT KNOX

A new $2.3-million complex, the Holder Armored Reconnaissance Instructional Facility, now combines instructional and support activities at Fort Knox in one centrally located area.

Three large buildings and a moving target laser system comprise the main physical plant. Two of the buildings are for maintenance instruction and turret training, while the third is a classroom area. Building A features five *M34* driver training bays, 13 tank instruction bays, seven *M114* bays and 20 tank firing bays. Building B has 25 turret training bays for both the *M40 Sheridan* turret trainer and the new *M60A2* turret trainer.

There are six classrooms and a weapons storage area in Building C. The rooms are equipped with educational TV so that the most recent video tapes, films and training aids can be used.

Located between Buildings A and B, there is a 14-foot high concrete partition on which is mounted a moveable target system. This range will be used to fire the subcaliber tables using a laser device which can be mounted in turret trainers or fitted into the machine gun bracket on the tanks themselves. The targets can be engaged by 20 tanks and 25 turret trainers simultaneously.

The new complex was dedicated in April in honor of Colonel Leonard D. Holder, former commander of the 11th Armored Cavalry Regiment, who was killed in Vietnam in March 1968.

THE FIFTH US AIR FORCE ACADEMY MILITARY HISTORY SYMPOSIUM

The theme for the Fifth Military History Symposium, to be held at the Air Force Academy on 5-6 October 1972, is "The Military and Society." Four working sessions and a banquet address have been planned: Session I, Keynote Address and Fifteenth Harmon Memorial Lecture to be delivered by Russell Weigley (Temple University). Session II—"Impact of the Military on Developing and Developed Societies." Session III—Banquet Address, "The Response of the Military to a Changing Society." Session IV—Panel Discussions: Panel A, "The Study of Military Affairs on College Campuses"; Panel B, "The Writing and Publication of Military History." Session V— "The Military as a Social Force in American Society."

Participants include Barbara Tuchman, Frank Vandiver (Rice), Cyril Black (Princeton), Alvin Coox (San Diego State), Edward Coffman (Wisconsin), W. Bruce White (Toronto), Morris MacGregor (Office of the Chief of Military History, USA), Charles Moskos (Northwestern), Lou Morton (Dartmouth), Gunther Rothenberg (New Mexico), Theodore Ropp (Duke), Robin Higham, John Loosbrock and James E. O'Neill (National Archives).

For further information about the Symposium, including motel reservations, write Major Ronald Fogleman, Department of History, USAF Academy, Colorado 80840.

VIETNAM CAMPAIGNS

The 14th and 15th campaigns have now been designated for service in Vietnam. The 14th, named "Counteroffensive Phase VII," extended from 1 July to 30 June 1971. The 15th commenced on 1 July 1971 with the termination date to be announced later and is yet unnamed.

The other 13 campaigns and inclusive dates are:

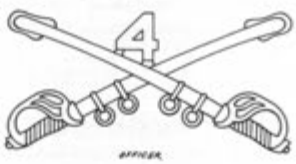
"Vietnam Advisor"	15 March 1962—7 March 1965
"Vietnam Defense"	8 March 1965—24 December 1965
"Vietnam Counteroffensive"	25 December 1965—30 June 1966
"Vietnam Counteroffensive Phase II"	1 July 1966—31 May 1967
"Vietnam Counteroffensive Phase III"	1 June 1967—29 January 1968
"Tet Counteroffensive"	30 January 1968—1 April 1968
"Vietnam Counteroffensive Phase IV"	2 April 1968—30 June 1968
"Vietnam Counteroffensive Phase V"	1 July 1968—1 November 1968
"Vietnam Counteroffensive Phase VI"	2 November 1968—22 February 1969
"Tet 69 Counteroffensive"	23 February 1969—8 June 1969
"Vietnam Summer-Fall"	9 June 1969—31 October 1969
"Vietnam Winter-Spring"	1 November 1969—30 April 1970
"Sanctuary Counteroffensive"	1 May 1970—30 June 1970

SWEDISH MILITARY MOTORCYCLE

This is a new motorcycle especially developed by Hägglunds for the Materiel Administration of the Swedish Armed Forces. Three companies have submitted prototypes which will be tested this year, and a contractor will be selected early next year.

WEARING OF FORMER CAVALRY BRANCH INSIGNIA

Department of the Army has approved the optional wear of cavalry branch insignia by commissioned officers and enlisted men *while* assigned to squadrons of CARS cavalry regiments, armored cavalry regiments and troops



of CARS cavalry regiments. The wearing of the insignia is subject to the approval of the field commander.

The insignia authorized for wear on an optional basis is not an item of issue, nor will it be stocked in Army clothing sales stores. Unit commanders will be authorized to purchase the insignia for enlisted men from unit fund monies.

AOB STUDENTS LEARN HOW TO DRIVE THE *M60A1*

The philosophy of hands-on instruction has been further developed and the results incorporated into the Armor Officer Basic Course. The Automotive Department has instituted several new units of instruction that emphasize the hands-on concept and they are now an integral part of the AOB students' program of instruction.

During the first week of the AOB Course, the class is organized into four-man crews and during the fifth training week, each student crew signs for a *M60A1*. This student crew assumes responsibility for the tank's operation and operator/crew maintenance.

Since the AOB student is now being trained in all aspects of a tank crew's responsibilities, he is being taught and licensed to drive the *M60A1*. A 13-hour block of instruction has been designed to qualify the students for the incidental driver's license. The instruction includes starting and stopping procedures, hand and arm signals, instruments and controls, before, during and after operation maintenance, and driving. Each student drives the *M60A1* cross-country, on unimproved roads, and on a 12-mile convoy route. The convoy route tests the student's ability to handle the tank under various terrain situations.

The last three hours of instruction are devoted to night driving during which the students are familiarized with the installation and operation of the *M24* infrared driver's periscope. After this orientation, each student drives the *M60A1* using the *M24* driver's periscope and blackout drive.

NEW TACOM TRACK AND SUSPENSION LAB

The US Army Tank-Automotive Command (TACOM) recently opened a new $2.5-million Track and Suspension Laboratory in Warren, Michigan.

The new facility, the first of its kind for the Army, has some 45,000 square feet of floor space. The equipment in the building will consist, for the most part, of hydraulically-actuated test fixtures. The fixtures, which are shaker-type platforms, will be used for testing frame, suspension and track components and systems under simulated dynamic field conditions. Test equipment will be capable of supporting entire military vehicles weighing as much as 60 tons.

MISS ALABAMA AIDS JACKSONVILLE STATE'S ROTC

Ceil Jenkins, the current Miss Alabama, recently helped the ROTC Department at Jacksonville State University in Alabama launch a program of displaying current Army equipment for viewing by students and townspeople. An estimated 800 persons came by to see and climb into the *M60* tank, the first of a series of vehicles that will be displayed.

the tarpaulin

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

TAKE COMMAND

COL Daniel W. French, 3d Bde, 3d Armd Div . . . **COL John R. Hendry,** Sch Bde, USAARMS . . . **COL Claude O. Shell Jr,** 3d Recruiting District, College Park, Ga . . . **COL James T. Tuberty,** 2d Bde, 1st Armd Div . . . **LTC William P. Boyle,** 2d Bn, Sch Bde, USAARMS . . . **LTC James R. Brokenshire,** 5th Bn, 33d Armor, 194th Armd Bde . . . **LTC Joe A. Brown,** 17th Bn, 5th Bde, USATCA . . . **LTC Loren M. Eberhart,** 2d Bn, 34th Armor, 4th Inf Div . . . **LTC Watha J. Eddins Jr,** Spt Bn, Sch Bde, Inf Sch . . . **LTC Jimmie T. Hughes,** 2d Sqdn, 17th Cav, 101st Abn Div . . . **LTC Xavia R. Lloyd,** 1st Bn, 33d Armor, 3d Armd Div . . . **LTC Danny L. Romig,** Inf, 2d Bn, 7th Cav, 1st Cav Div . . . **LTC John W. Swaren,** Inf, 1st Bn, 48th Inf, 3d Armd Div . . . **LTC James R. Warren,** 8th Bn, 4th Bde, USATCA . . . **LTC Phillip J. Zeller Jr,** 2d Bn, 89th Regt, 4th Bde (CST), 89th Div (USAR) . . . **MAJ Verne D. Campbell,** AG, USMA Band.

ASSIGNED

LTG George M. Seignious, Dir, Joint Staff, OJCS . . . **MG Donald H. Cowles,** DCSPER, DA . . . **MG Morgan G. Roseborough,** Chief of Staff, USARV . . . **MG Gilbert H. Woodward,** Chief of Staff, MACV . . . **BG Thomas W. Bowen,** ACSI, DA . . . **BG William B. Caldwell,** Chief of Staff, VII Corps . . . **BG Joseph P. Kingston,** ADC, 1st Armd Div . . . **COL Robert A. Arnet,** OSD . . . **COL John C. Faith,** G3, III Corps, Ft Hood . . . **COL Wilbur Green,** HQ, State Military Forces, Sacramento, Ca . . . **COL Sidney S. Haszard,** Chief of Staff, 3d Armd Div . . . **COL George C. Hoffmaster,** Colonels Division, OPO-OPD, DA . . . **COL Merritte W. Ireland,** ACSI, DA . . . **COL George E. Kimball,** Army Advisor, 31st Armd Bde, Tuscaloosa, Ala . . . **COL John W. McEnery,** Command and Staff Dept, USAARMS . . . **COL Guy K. Troy,** US Embassy, Vienna . . . **COL William Vail,** Bogota, Colombia . . . **LTC John C. Bahnsen,** USAARMS . . . **LTC William Bradberry,** DCSOPS, DA . . . **LTC Dale K. Brudvig,** DCSOPS, HQ USAREUR . . . **LTC Jack B. Cooper,** Mil Gp, Brazil . . . **LTC Jerry Davis,** USAARMS . . . **LTC Bart M. Filaseta,** CDC LO to STRATCOM, Ft Huachuca . . . **LTC Carl Henne Jr,** 3d ACR, Ft Bliss . . . **LTC Eugene M. Johnson,** PMS, Bishop College, Dallas . . . **LTC Harold E. Klingman,** DCSPER, DA . . . **LTC Warren J. Lodge,** HQ 7th Army CATC . . . **LTC Francis B. Martin,** CDCINCSG, Ft Belvoir . . . **LTC Francis W. McDonald,** HQ USAREUR and 7th Army . . . **LTC Robert F. Molinelli,** G3, 1st Cav Div . . . **LTC William R. Moser,** 3d Bde, 3d Inf Div . . . **LTC Walter E. Nader,** DCSOPS, TASCOM, USAREUR . . . **LTC Paul R. Schwartz,** DCSPER, DA . . . **LTC Don M. Stotser,** G3, 4th Inf Div . . . **LTC Richard A. Summers,** Dep IO, III Corps, Ft Hood . . . **LTC Clyde C. Tilly Jr,** MASSTER, Ft Hood . . . **LTC Thomas A. Tullar,** HQ Ft Hood . . . **LTC Louis C. Wagner Jr,** Tm 4, MACV . . . **MAJ James L. Abrahamson,** Stanford Univ . . . **MAJ Donald F. Borden,** Armor Branch, OPO-OPD, DA . . . **MAJ Oliver D. Brunton,** HQ Ft Gordon . . . **MAJ Dennis E. Firestone,** 9th/12th Royal Lancers (Prince of Wales), BAOR . . . **MAJ William A. Fitzgerald Jr,** Armor Branch, OPO-OPD, DA . . . **MAJ Clarke A. Hamon,** 4th Bn, 64th Armor, 3d Inf Div . . . **MAJ James R. Joy,** Tng Dir, MACV . . . **MAJ Nicholas S. Krawciw,** USDAD-UN . . . **MAJ Jack W. Liddle,** Graduate Program, Univ of Alabama . . . **MAJ James T. McWain,** Secretary of Armor, Ft Knox . . . **MAJ Kenneth J. Necessary,** USAARMS . . . **MAJ Andrew P. O'Meara Jr,** G3 Sec, 1st Armd Div . . . **MAJ Charles E. Oualline,** 2d Sqdn, 17th Cav, 101st Abn Div . . . **MAJ Farris D. Rose,** HHT, 11th ACR . . . **MAJ Marshall Sanger,** C&GSC, Ft Leavenworth . . . **MAJ William Swift,** 1st Sqdn, 10th Cav, 4th Inf Div . . . **MAJ Gerald S. Walker,** HQ MACV . . . **MAJ Rodney D. Wolfe,** Armor Branch, OPO-OPD, DA . . . **CSM William Corn,** HQ 1st Cav Div . . . **CSM Leonard P. Hedges,** 1st Bn, 68th Armor, 8th Inf Div . . . **CSM Bobbie McGuire,** TECOM, APG, Md.

VICTORIOUS

CPT Douglas J. Richardson, Armor, was the Distinguished Graduate of IOAC 70-9 . . . A German *Leopard* tank in Project Partnership training with C Co, 3d Bn,

32d Armor, shot a record-breaking 2,560 out of a possible 2,920 on Range 80 at Grafenwoehr. The four-man *Leopard* crew from the 64th Panzer Bn was composed of **SGT Reinhard Mihm, PFC Waldemar Baehar, PFC Helmut Grabein** and **PFC Michael Hergenhahn** . . . **CPT William E. Bolling,** 7th Sqdn, 1st Cav, was presented the Army Aviation Broken Wing Award for his skill in handling a severe emergency without damage to his *UH1H* . . . **Mrs Phillip Ahneman** was presented a certificate naming her the outstanding lady of AOAC 1-72 . . . **Dr William (Billy) F. Graham** received the 15th Annual Sylvanus Thayer Award . . . The **3d ACR** has won the Ft Lewis Reenlistment Achievement Award . . . The **8th Sqdn, 1st Cav, 194th Armd Bde,** commanded by **LTC Leslie Layne,** was the first unit to receive the US Armor Association Unit Award . . . The high tank battalion trophy for tank gunnery in the 3d Armd Div was won by the **3d Bn, 32d Armor,** commanded by **LTC Roger J. Price.** The high tank platoon award was given to the **3d Plt, B Co, 2d Bn, 32d Armor.** The Spearhead Tank Gunnery Flag Award was presented to the **3d Bn, 32d Armor** . . . The 2d Bde (ACCB), 1st Cav Div, under **COL John W. McEnery** and **CSM Homer C. Moss,** has compiled an impressive string of victories: Division, III Corps and Ft Hood Soldier of the Quarter competition for nine straight quarters; NCO of the Quarter for seven of the last nine quarters; **SGT David A. Jossely** (then SP4) won 5th Army Soldier of the Quarter; The Brigade won the FY71 Reenlistment Trophy for the Division; The Brigade HHC won the 1st Cav Div, III Corps and Ft Hood small bore pistol championship . . . Distinguished Graduate of AOAC 4-71 was **CPT Raymond F. Rees;** Honor Graduates were: **CPT William T. McCauley, CPT Daniel J. Kaufman, CPT Joseph V. Creeden, CPT James H. Saine** and **CPT Michael V. McClary** . . . Distinguished Graduate of AOAC 1-72 was **CPT James C. Barbara;** Honor Graduates were: **CPT Paul V. Baerman, CPT James Corbin, CPT Peter P. Wallace** and **CPT Terrance C. Ryan** . . . Distinguished Graduate of AOB 9-72 was Marine **2LT Charles R. Sherrill;** Honor Graduates were: **CPT Bruce V. Wyrwitzke, 2LT Thomas F. Zens, 2LT William H. Hollows** and **CPT Michael P. O'Connor** . . . Distinguished Graduate of AOB 10-72 was **2LT Jeffrey R. Hummel;** Honor Graduates were: **2LT Gary A. Rhodes, 2LT Gerard P. Kelly,** USMC, **2LT George E. Tom III** and **CPT John G. Preston** . . . Distinguished Graduate of AOB 11-72 was **2LT James T. Martin;** Honor Graduates were: **2LT James Hackedorn, 2LT Timothy K. Morris, 1LT James A. Niles** and **2LT John C. Goodman** . . . Distinguished Graduate of Motor Officer Course Number 9 was **1LT Joseph A. Bilicic;** Honor Graduates were: **CWO Ronnie L. Adams, 2LT Harry N. Ruck Jr** and **CPT James H. Springfield** . . . Distinguished Graduate of Motor Officer Course Number 10 was **1LT Donald E. Black;** Honor Graduates were: **CPT Stephen C. Raymond, 1LT Earl R. Winters Jr** and **CWO Jan P. Phillips** . . . Distinguished Graduate of Motor Officer Class Number 11 was **2LT Klaus Koch;** Honor Graduate was **CWO Erle D. Barto** . . . US Armor Association Writing Awards were presented to AOAC 1-72 students: **CPT L.W. Carter, CPT Michael S. Lancaster, CPT James E. Lutz** and **CPT Thomas L. Shanahan.**

AND SO FORTH

MG Laddie L. Stahl, CG, 98th Div (Tng) has been elected president of the Senior Reserve Commanders Association . . . **Henry B. Davis** is the new curator of the US Cavalry Museum at Ft Riley . . . **LTC Carl M. Putnam** presented the Patton Museum a mounted 7.62mm *Chicom* pistol in the name of the **1st Sqdn, 9th Cav** . . . The first branch professional journal to be published within the Brazilian Army is **CAVALARIA.** Three cavalry officers assigned as instructors at the Brazilian Military Academy are responsible for this excellent magazine: **LTC Jair Ruben Longhi** (1965 Armor Officer Advanced Course Graduate), **CPT Sergio Augusto da Silvas Zilio** and **CPT Jarbas Guimaraes Pontes.** Good luck! . . . The **749th Tk Bn** will hold its reunion at Stouffer's Inn, Cincinnati on 21-22 July . . . **CDC** celebrated their 10th Anniversary on 9 June . . . Reelected president of the Council on Abandoned Military Posts was former *ARMOR* editor **COL O.W. Martin Jr** . . . The **2d Bn, 7th Cav** colors were recently returned from RVN to Ft Hood . . . **SFC Jack R. Cornn** won top recruiting honors for the Louisville RMS . . . The **6th Bn, 32d Armor, 194th Armd Bde,** commanded by **LTC Charles Andy,** has moved to Ft Carson to become a part of the 4th Inf Div . . . **Stanley Poole,** of Main Road, Box 311, East Marion, NY 11939, has a large number of War Dept and Army TMs for sale or trade . . . A two-year contract was awarded to **Sikorsky Aircraft** to determine the feasibility of the fan-in-fin concept as a substitute for the tail rotor on rotary wing aircraft . . . Recent Branch transfers to Armor: **MAJ Calvin Waller,** DCSPER, DA; **CPT Dale Collie,** DDLP, USAARMS; **CPT Thomas A. Gunn,** 1st Sqdn, 9th Cav, 1st Cav Div; **CPT William D. Loftin,** 1st Sqdn, 9th Cav 1st Div; **CPT James W. O'Toole,** 2d Sqdn, 17th Cav, 101st Abn Div; **CPT Edward J. Scully,** HHC, 2d Bde, 2d Armd Div; **CPT Kenneth W. Smith,** S&F USAARMS; **1LT Leland C. Bowers,** 7th Sqdn, 17th Cav; **1LT Clyde L. Evans,** 1st Bn, 66th Armor, 2d Armd Div; **1LT Edwin Hopkins Jr,** 164th Cbt Avn Gp; and **1LT Paul D. Ritter,** USATCA. Welcome aboard! . . . In the last issue of *ARMOR,* USMA Cadet Stephen D. Presley was incorrectly stated as the first in the Order of Merit and of selecting Armor as his Branch. It should have read **Cadet Timothy T. Lupfer.**

from the bookshelf

SWORDS and PLOWSHARES

by General Maxwell D. Taylor. W.W. Norton. 434 pages. 1972. $10.00

Notwithstanding the extraordinarily interesting events of General Taylor's career from West Point to his first retirement from military service in 1959 as Chief of Staff of the Army, the part of his autobiography dealing with later events is probably the most interesting and fascinating because of its timeliness.

General Taylor retired in 1959 because of his opposition to the Eisenhower policy of "massive retaliation" and failure of that administration to adopt his own theory of "flexible response." This is chronicled in his first book, *The Uncertain Trumpet*. Recalled from retirement while head of the Lincoln Center by President Kennedy to try to determine the failure of the Bay of Pigs fiasco, he stayed on during the Cuban missile crisis and became military advisor to the President. Kennedy accepted the Taylor theory of flexible response as did President Lyndon Johnson when the latter succeeded to the presidency and appointed Taylor Chairman of the Joint Chiefs of Staff. Unfortunately, President Johnson altered the theory to *gradual* response when he decided to employ limited US combat forces in Vietnam.

It is interesting to note that General Taylor indicates his initial reluctance and opposition to the introduction of ground forces into combat in Vietnam. He felt they were only necessary on a limited basis for the protection of logistic bases and airfields. Instead of ground action he strongly advocated continuous and heavy bombing attacks against important military targets in North Vietnam, believing that this would be effective in demonstrating our determination and support of South Vietnam to Ho Chi Minh and his government.

While President Johnson approved some limited and selective bombing of the North, Taylor felt it was never carried out in sufficient strength or frequency to be effective. He considered the so-called bombing halt ordered by Johnson in 1968 to be a major mistake and a disaster as far as its effect on the North Vietnamese government was concerned. He describes the conduct of the war in the latter part of the Johnson administration as an effort to seek an agreement to negotiate rather than to carry out the original US objectives. It will be interesting to see if the Nixon policy of bombing in the North will result in meaningful negotiations in Paris as General Taylor believed and hoped it would earlier.

As a somewhat reluctant volunteer, General Taylor relinquished his position as Chairman of the Joint Chiefs of Staff and President Johnson appointed him ambassador to South Vietnam with the promise of limiting this to a one-year tour. He took over in the midst of the chaos following the coup and assasination of President Diem and his brother. This was probably one of Taylor's most difficult assignments but one filled with great accomplishment in spite of his modest recitation of his participation in the events of that year.

He has always felt that the part the US Government played in the Diem coup was a serious mistake and many others support this view. Diem was difficult and stubborn but certainly no more so than the subsequent parade of heads of government with whom Taylor was obliged to deal. It was important to try to establish a viable government in South Vietnam that could proceed with prosecution of the war, civil reforms and gain the support of the many diverse factions seeking some advantage of their own. This was a frustrating and difficult task that was never fully appreciated in Washington.

As the war dragged on inconclusively, the extent of the anti-war sentiment and the attitude of the American people when the going got rough came as something of a surprise to General Taylor and to others in the government. He was disappointed and probably discouraged to see the effect of this on the gradual will to prosecute the war by the Johnson administration.

Members of the cabinet and close White House advisors became disaffected and the attitude of these former supporters, Taylor believes, was the principal reason the President decided not to stand for re-election. Taylor believes all this was not lost on the North Vietnamese who viewed the American people's disgust with the war as a symptom of our eventual withdrawal and, of course, this hardened their position at the negotiating table.

In view of the present situation in Vietnam and the ever possibility of future Vietnam-type adventures, the most important and interesting chapters of the book are the final ones: "Lessons from Vietnam" and "Adjustments to Declining Power." General Taylor's conclusions will not please everyone. They will undoubtedly cause some resentment and surprise. This reaction will be most pronounced in those who will hate to admit the validity of his theories and predictions.

Much of the loss of public support for official policy in Vietnam can be attributed to the manner in which the information media reported events. Taylor makes many convincing points on the power of the press and other media to shape events by reporting only those which support their own convictions or editorial policy. He states that in Vietnam it was:

> . . . a sobering spectacle of the power of a relatively few young and inexperienced newsmen who were not satisfied to report the events of foreign policy but undertook to shape them.

According to Taylor, after American troops arrived in Vietnam, it was practically impossible to get reporters to visit South Vietnam combat units. Their editors wanted only news of Americans. Consequently, the impression grew at home that American troops were the only ones fighting and dying. He did not feel that censorship was desirable or feasible because of the difficulty of enforcement which would have been a responsibility of the South Vietnam government. The voluntary ground rules were far from satisfactory, but apparently were the only solution except the threat of loss of accreditation.

The conviction by the media that the American public had an insatiable lust for the sensational and the violent made objective reporting practically impossible. It is odd that the Vietnam conflict produced no Ernie Pyles, Hal Boyles or Wes Gallaghers.

The instant reporting of events without waiting to verify or interpret the facts often resulted in considerable difference between official versions and the press version. This tended to confuse the public and eventually created the well-publicized credibility gap. What caused the generally defeatist attitude of the press apparently cannot be explained. Combat actions which should have thrilled the American people with pride in their Armed Forces seemed always to appear in print and on the tube as an overwhelming disaster or disgraceful defeat.

In retrospect, General Taylor believes that the credibility gap was really caused by a communication gap. He feels there was not a vigorous and efficient official presentation of the facts. But if the press prefers its own version, how can the official one be made available to the public—even though it is accurate and factual?

What has built-up the public belief in the infallibility of the media? The obvious conclusion must be that the public has been brainwashed by the media to the detriment of official credibility.

In considering the lessons from Vietnam, General Taylor feels that there will be other limited wars in which our involvement will probably be inescapable. We will then be confronted again with the three-horned dilemma: whether to use military power decisively, and risk World War III; to use it incrementally and risk a Vietnam type war; or not use it at all and further erode our credibility to carry out our commitments.

We are learning right now, says Taylor that:

> . . . the high cost of fulfilling a foreign commitment is its sequel, the even higher cost of failure once the effort at fulfillment has begun. At home the humiliation of failure when once recognized as having been self-imposed, would deepen internal divisions and create irresistible demands for the punishment of those scapegoats thought responsible for the disaster. Abroad there would be yet another price to be paid—a decline of confidence in the United States on the part of our allies and thereby a loss of confidence in our Armed Forces in deterring war, particularly nuclear war. Deterrence depends upon a belief approaching certainty that our leaders and our people will risk war and even survival to aid an ally who is the victim of attack. A self-inflicted defeat in Vietnam, which carries with it the destruction of an Asian ally, would create understandable doubts everywhere as to our dependability in greater crises.

Before involvement in any future limited wars, General Taylor believes the President must make the following assessments:

- That the use of US military power is essential to the attainment of national objectives.
- That the national objectives are understood and acceptable to Congress and the American people.
- That the Armed Forces have the capability to achieve a military success in a reasonable time before the patience of the people is exhausted.
- That Congress will agree to a declaration of war to further insure unity and full national support of policy.

General Taylor already sees a decline in the ability of the United States to exert its power throughout the world. The future is bleak in this respect as the US will continue to decline unless:

> . . . we can learn to exercise some degree of self discipline, to accept and enforce some reasonable standard of responsible civil conduct and to remove the many self-created obstacles to the use of our power, we will be unable to meet the hard competition awaiting us in the decade of the 1970s.

Very few professional soldiers have had the opportunity to serve their country so well and in so many different fields as General Taylor. President Kennedy found that Taylor could advise him competently in many ways other than the strictly military aspects. The President even went so far as to urge the Joint Chiefs of Staff to consider all the many facets of foreign and domestic policy when suggesting proposed actions. This was something out of the ordinary and probably was not greatly appreciated by some State Department and other civilian advisors. Taylor's qualities and capabilities undoubtedly inspired President Kennedy when he told a graduating class at West Point:

> The non-military problems you will face will also be most demanding—diplomatic, political and economic. You will need to know and understand not only the foreign policy of the US but the foreign policy of all countries scattered around the world. You will need to understand the importance of military power and also the limitations of military power. You will have the obligation to deter war as well as fight it.

This concept of the functions of a career military officer is in marked contrast to a passage in a speech made a month earlier to the Corps of Cadets by General MacArthur:

> Your mission remains fixed, determined, inviolable—it is to win our wars. Everything else in your professional career is but corollary to this vital dedication.

In 1969, General Taylor was asked to speak at West Point and to try and rationalize these differing philosophies. He succeeded in pointing out that MacArthur's actual career was more in keeping with Kennedy's philosophy than with MacArthur's own. In spite of this, however, there appear to be few oppor-

tunities for many career officers such as were presented to Maxwell Taylor. And most people who know him will agree that there are very few career officers who could have filled the demands of his responsibilities as he did. Not many officers' careers can be so developed as to provide the training and experience which prepared him. It is doubtful whether all career officers should be given such extensive and diversified training and experience in non-military fields, if for no other reason, than the unlikelihood that their careers will ever require it.

In the Army today, there is a shortage of senior officers qualified to train and command mobile forces of the combined arms. The splendid Army school system is oriented more to producing highly qualified staff officers than commanders who can also train. Too many officers have been led to believe that command of troops is just a necessity, but fortunately only a brief diversion on the way to the bigger and better things of a military career. Certainly career officers of the combat arms must be given a broad education involving foreign and domestic affairs. But the emphasis for the majority must be on the training, ability and the motivation to fight and win battles *and even wars, if allowed to do so.*

It is hoped however, that when one is needed, a Max Taylor will somehow always be available!

General I.D. White
USA—Retired

HOW THE US CAVALRY SAVED OUR NATIONAL PARKS
by H. Duane Hampton. Indiana University Press. 246 pages. 1971. $8.95.

One hundred years ago, President Ulysses S. Grant signed into law legislation establishing Yellowstone National Park. It is significant that in this, the centennial year of Federal involvement in the preservation and protection of our natural and historic resources, that Indiana University Press published this well-written and researched volume.

Dr. H. Duane Hampton, a Western historian specializing in the conservation movement, writes of the mountain men who first saw the natural wonders in the mountains beyond the Great American Desert. In the years after the heyday of the fur trade, these mountain barriers were penetrated by surveying parties led by US Army officers. In 1859-60, Captain W.F. Raynolds' expedition, guided by Jim Bridger, skirted but failed to penetrate the thermal regions near Yellowstone Lake, first described by John Colter more than fifty years before. The Civil War absorbed the energy of the US government for the next five years, and it was 1868 before Captain Raynolds' report was published.

Gold strikes in the meantime had been made at Bannack and Alder Gulch, and thousands of prospectors and settlers had poured into the region. In 1864, Montana Territory was organized, and five years later, the Folsom-Cook-Peterson Expedition penetrated the Yellowstone country. Articles published by participants stimulated interest in the heretofore "rumored wonderland." In the spring of 1870, Henry D. Washburn and Nathaniel P. Langford, two of Montana's leaders, called upon Major General Winfield S. Hancock, a Civil War hero, for a military escort for a projected Yellowstone exploration party. Hancock detailed Lieutenant Gustavus C. Doane and six cavalrymen from Fort Ellis. Returning from the region, Langford left on a lecture tour describing the wonders they had seen, and Lieutenant Doane, veteran of the California Battalion and the Army of the Potomac, wrote an official report of the expedition "that for graphic descriptions and thrilling interest . . . has not been surpassed by any official report . . . since the time of Lewis and Clark."

This expedition, along with two which followed, focused attention on the region and led to the enactment of legislation establishing Yellowstone National Park.

For the next 14 years, the nation's first national park was administered by the Secretary of the Interior. As Professor Hampton has written, a succession of superintendents and their understrength and untrained staff, most of whom were political appointees with no experience in the West, faced an impossible situation. To ward off vandals, poachers and special interest groups, the superintendents had no Federal statute to fall back on in enforcing regulations for protection of the area, and had to rely on Montana and Wyoming territorial courts to punish transgressors.

By 1886, the situation had deteriorated to the point where drastic action was mandatory if Yellowstone Park was to survive. In August of that year, Secretary of the Interior L.Q.C. Lamar took advantage of an act of 3 March 1883, to call on the Secretary of War to detail troops "to prevent trespassers or intruders from entering the park for the purpose of destroying the game or objects of curiosity therein." Troop M, 1st US Cavalry, from Fort Custer, Montana Territory, was ordered to the area and Captain Moses Harris replaced the civilian superintendent.

For the next eight years, units from the Army administered, protected and preserved Yellowstone Park. Roads were constructed, Fort Yellowstone established, snowshoe cabins built and administrative policies developed. To cope with poachers and vandals, the military, in absence of punitive legislation, continued the expulsion policy of the civilian superintendents. Finally, in 1894, Congress was stung into action by public indignation at the wanton slaughter of buffalo by a Cooke City poacher, and enacted landmark legislation for protection of the park's wildlife and natural wonders.

The successful administration by the military of Yellowstone National Park led to the Army being placed in charge of California National Parks, which were established in the 1890s. Army officers continued to be responsible for Yellowstone Park until October 1916, when officials of the recently established National Park Service assumed responsibility for administration of the nation's first national park.

Professor Hampton's book is well researched and no one can argue with his conclusions. This reviewer is glad to see that the author recognizes Service Historian Aubrey Haines' work in exposing the campfire story of the origin of the national park idea as a myth. However, the failure to include human interest stories to enliven the narrative makes for wearisome reading. This is unfortunate because the protection of our natural, historical and archeological resources is vital and relevant, and the American public should be aware of the Army's significant role in protecting our nation's natural wonders.

Edwin C. Bearss
Historian, National Park Service

SOLDIERING IN SIOUX COUNTRY: 1865.
by Lieutenant Charles H. Springer. Edited by Benjamin Franklin Cooling III. Frontier Heritage Press. 82 pages. 1971. $7.50.

To the military reader with an interest in history, this diary is attractive for a number of reasons. Its setting is the least well chronicled of the three columns in

General Connor's ill-fated Powder River expedition. It describes faithfully the life of soldiers in the frequently hostile, but often invigorating, environment of the northern plains. Topically for today, the attitudes of combat veteran citizen soldiers serving beyond the end of *the* war are examined in some detail.

Springer, an immigrant from Germany to Missouri, served as an enlisted man in the 1st US Cavalry for a year before deserting. Next he was an officer in the 5th Missouri State Militia Cavalry from which he resigned in 1863. Enlisting in the 12th Missouri Volunteer Cavalry, he was soon commissioned and saw extensive Civil War service in Tennessee, Alabama and Mississippi.

Springer was a perceptive observer and careful writer. There is little in his prose of the bombast or rococo style which one finds all too frequently in the military accounts of the period. This detailed and interesting diary has been carefully honed and well annotated by Dr. Cooling of the Army's Military History Research Collection at Carlisle Barracks.

The publishers deserve mention for manufacturing a high quality book. The illustrations by western artist, John W. Hampton, are of a quality to be framed and hung. One sour note is the lack of good maps. This failing is all too common in military histories published nowadays.

Colonel O. W. Martin Jr.
Ft. Leavenworth

INDONESIA: THE POSSIBLE DREAM
by Howard Palfrey Jones. Harcourt Brace Jovanovich. 473 pages. 1971. $12.95.

Projecting his personal experiences against the background of history, Ambassador Jones produced a fascinating book for the general reader interested in contemporary Indonesia. His career makes him outstandingly qualified to treat this turbulent period in Indonesian affairs.

First posted to Djakarta in 1954, he served a year as chief of the US Economic Aid Mission before being recalled to Washington for three years as deputy secretary of state for the Far East. In 1958, he returned to Djakarta where, as ambassador for the seven subsequent years, he played a key role in Indonesian-American relations. That tour ended just five months before the "30 September movement" of 1965 launched the series of events which culminated in Sukarno's fall.

This book is at its best when Ambassador Jones is giving his own insights into the events and personalities which were part of his experience. His empathy with Sukarno results in a fresh view of that national leader; and his understanding of Indonesian attitudes casts new lights on problems and tentative solutions in that developing nation. Thus, it is Parts II and III of the work, where the tone is more that of a memoir, which will prove most stimulating to the reader.

The first few chapters, as well as a few quasi-parenthetical chapters later on, are less satisfying. They attempt to provide historical and cultural background which is never fully assimilated with the personal approach adopted elsewhere. To the specialist, they will appear superficial, and to the general reader tantalizing. This is a minor fault, however, in a work whose principal merit lies in sharing unique and vivid experiences in the areas where United States and Indonesian interests interact.

Ambassador Jones, despite the frustrations of experience, is an optimist. Admitting the blunders and misconceptions of the past, recognizing the "limits to power and intervention in the affairs of another country," he quotes President Roosevelt to express his hope in "the ability of all peoples, of all lands, to live together and work together in the same world, at peace."

His book is valuable both as a study of one of the world's major developing nations and as a personal expression of faith in that nation's future.

Colonel John E. Coon
USAWC

HANDBOOK OF MILITARY INSTITUTIONS
by Roger W. Little. Sage Publications. 607 pages. 1971. $25.00.

PUBLIC OPINION AND THE MILITARY ESTABLISHMENT
by Charles C. Moskos Jr. Sage Publications. 294 pages. 1971. $12.50.

The American military establishment has been caught up in what Edmund Spenser has so aptly called "the ever whirling wheels of change." The past decade has seen it grappling with the same manifold problems that have beset modern man everywhere. And like the society it was created to serve, it has been subjected to the jaundiced eye and barbed quill of a plethora of literary critics. Each of these writers has taken great pains to show the military establishment the evil of its way and that the only road to redemption can come through the immediate greening of the Army and the popular election of its officers. Fortunately for our side, however, there have been others who were also interested in the military establishment.

The Handbook of Military Institutions and *Public Opinion and the Military Establishment* are both excellent products of the latter genre. The two books bring together 24 first-rate scholars representing the disciplines of political science, government, sociology, economics, social psychology, history and social work. The result of this union is a potpourri of intelligently written treatises covering a wide sweep of military subject matter. From Morris Janowitz, discussing the technology of war and its impact on military organization; to Charles C. Moskos, examining the past and present role of minority groups in the military; to Martin Blumenson's article "On the Function of the Military in Civil Disorders;" to Peter Karsten looking at ROTC and the Service Academies, these two volumes prove to be extremely meaty books. But of more importance, they are quiet, objective and intelligent looks at something seldom examined in that manner.

Not everyone will want to read these books, and not everyone should. But everyone should know that they exist, and that they are not an aberration. Amid the raucous outpourings of the muckrakers, there has been a small silent minority who have been objectively studying the military. The Inter-University Seminar on Armed Forces and Society, who sponsored both of these books, is such a group.

Established in 1960 under an initial grant from the Russell Sage Foundation, the Inter-University Seminar brought together social scientists who were interested in the study of the military. Under the chairmanship of the noted sociologist, Morris Janowitz, the group has expanded its numbers and the scope of its interests. In the decade ahead, the Inter-University Seminar will:

> . . . seek to develop an emphasis on the impact of the military on US society, particularly the consequences of the Vietnam conflict, and the emerging trend toward a volunteer armed force. Studies are

under way on the role of black personnel in the armed forces and their adjustment to civilian society as veterans. Comparative studies will include not only those of military institutions in the new nations, but also those in the nations of Western Europe, where the decline in traditional roles is reproducing drastic transformations. The seminar members believe that greater collaboration with historians in the study of social recruitment and professionalism and civil-military relations will be fruitful. The interest on the socio-political aspects of arms control and peace-keeping activities, and the adaptation of the military to these requirements will continue to be central concerns.

The results of these and similar efforts will not be a series of best sellers or future Book-of-the-Month Club selections. But they will be important. For they will contain valuable new insights into the often discussed, but little understood problems of the military establishment. Both critics and advocates alike will profit from the additional information they will provide. Such information is currently available in the *Handbook of Military Institutions* and *Public Opinion and the Military Establishment*. One wonders who will read them.

Captain Terry A. Girdon

THE ROLE OF THE MILITARY PROFESSIONAL IN US FOREIGN POLICY

by Donald F. Bletz. Praeger Special Studies. 338 pages. 1972. $16.50.

This book is organized, printed and footnoted like the doctorial discourse it is. That's intimidating, but there are saving features. Many, in fact.

Donald Bletz is a professional officer, knowledgeable about the military and interested in it as a profession. His research is extensive and thorough. His perspective has been enriched by his doctorial studies at American University, the War College and a fellowship at the Harvard University Center for International Affairs. In addition, and most importantly, he writes a clear and interesting sentence.

The initial portion of the book covers a history of the development of professionalism in the US Army. This is followed by coverage of the military-political interrelationships at the national level. These are interesting topics for professional officers and represent a summation of some good scholarship.

The guts of Colonel Bletz' presentation is in the last half of the volume. Here he discusses whether or not military professionals are qualified for political involvement on the international scene and whether or not they ought to be involved. Then he ventures some views on the conundrum of "what is victory" and appeals for a better integrated and better informed approach to foreign policy.

Interesting reading. Few would agree with all his analysis or the courses he charts, but the book is worth reading if for no other reason than to profit from Bletz' research. He offers short courses in military history and in military-political organization and education; and some provocative concepts, particularly as regards the highly topical military professionalism.

Colonel John F. Forrest
DCSPER

FYFE, DRUM & BUGLE

by Fairfax Downey. The Old Army Press. 155 pages. 1971. $10.00.

Mr. Downey's book is an excellent piece of literature, both historically and for enjoyment. The battle scenes are very realistic and hold one's interest from beginning to end. The entire work embodies evidence of careful research into every pertinent detail.

The illustrations are excellent and to the finest detail. The battles, including the music that played an important part in each conflict, were carefully selected and show an excellent representation of the era concerned.

The importance of music, its influence on men in combat, and the effect it has on tired and worn out soldiers has never been exemplified more clearly and candidly than in *Fyfe, Drum & Bugle*. It deserves consideration by all individuals and foundations concerned with military music and its place in our history.

Chief Warrant Officer Walter R. Kinney
Bandmaster, Old Guard Fife and Drum Corps

THE VILLAGE

by F.J. West Jr. Harper & Row. 288 pages. 1972. $6.95.

One of the great weaknesses in the reporting of the Vietnam War has been the failure to convey to the American people and the rest of the world what the struggle is all about at the important rice-roots level. It is at this level that much of the real battle has been fought. It is at this level that one can see why the war is being fought. F.J. West has made a major contribution toward filling this gap in his fine, very readable book, *The Village*.

The Village is about Binh Nghia village in I Corps and a US Marine Corps combined action platoon. Although I have never been personally convinced that the concept of amalgamating Americans and Vietnamese into a single military unit can be effective in the long term in building up the Vietnamese capability to defend themselves, I am convinced of its short-term effectiveness. This book confirms the latter conclusion. However, its importance does not lie in these questions at all. It lies in its description of the war being fought at the village and hamlet levels.

West does a superb job in describing the terms in which the war has been fought in the villages and hamlets. The reader gets to understand the nature of both the enemy and friendly forces—their strengths and weaknesses. The pressures on the population are clearly seen. One can better comprehend the problems faced by the Vietnamese officials. *The Village* tells what insurgency and counter-insurgency really are.

Undoubtedly, West, a former Marine, is a bit parochial in his praise of the Marines and his criticism of the Army. However, these aspects do not play a big role in the book, and one can easily ignore them. Certainly, the book is enjoyable and interesting reading as one spends 17 months with this Marine combined action platoon. I found it hard to lay it down.

I strongly recommend *The Village* as a great piece of both professional and relaxation reading.

Colonel John J. McCuen
Faculty, US Army War College

PEAT MARWICK MITCHELL & CO.
CERTIFIED PUBLIC ACCOUNTANTS
1801 CONNECTICUT AVENUE, N.W.
WASHINGTON, D.C. 20009

The Executive Council
The United States Armor Association

We have examined the balance sheet of The United States Armor Association as of December 31, 1971 and the related statement of revenue 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 revenue and expenses and Association equity present fairly the financial position of The United States Armor Association at December 31, 1971 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 20, 1972

THE UNITED STATES ARMOR ASSOCIATION

Statement of Revenue and Expenses and Association Equity

Year ended December 31, 1971
with comparative figures for 1970

	1971	1970
Operating revenue:		
Dues and subscriptions	$ 54,627.94	58,082.29
Registration fees	1,089.50	636.00
Books, prints, and publication sales	18,091.85	15,262.39
Interest and dividends	2,473.02	2,274.01
Other	36.59	8.13
Royalties	281.75	-
Total operating revenue	76,600.65	76,262.81
Operating expenses:		
Armor magazine:		
Producing and delivering	36,410.24	34,371.10
Circulation	1,938.63	1,446.48
Promotion and advertising	401.15	496.10
Stationery and supplies	932.94	1,057.61
	39,682.96	37,921.29
Association:		
Annual meeting	843.58	543.37
Memorials and contributions	121.00	68.72
Awards	984.79	1,143.73
Cards, by-laws, and decals	580.08	179.23
Armor index	124.52	-
	2,653.97	1,936.05
Book department:		
Book, prints, and publications	11,625.06	9,378.40
Postage	636.29	560.66
Supplies	369.61	469.36
Promotions	61.80	112.70
Other	22.16	-
	12,714.90	10,921.12
General and administrative:		
Equipment rental and maintenance	579.96	1,041.34
Depreciation	3,684.84	3,531.74
Telephone	1,231.35	782.85
Staff travel and parking	2,940.15	2,331.10
Rent	4,142.20	4,101.26
Professional services	850.00	500.00
Other	4,371.72	3,588.18
	17,860.22	16,076.47
Total operating expenses	72,892.05	66,854.93
Excess of operating revenue over operating expenses	3,708.60	9,407.88
Other additions (deductions):		
Gain (loss) on sale of asset	(35.20)	146.37
Gain (loss) on sale of investments	3,507.36	(1,953.03)
Total other additions (deductions), net	3,472.16	(1,806.66)
Excess of revenue over expenses	7,200.74	7,601.22
Association equity at beginning of year	40,635.30	33,034.08
Association equity at end of year	$ 47,836.04	40,635.30

THE UNITED STATES ARMOR ASSOCIATION

Balance Sheet

December 31, 1971
with comparative figures for 1970

Assets	1971	1970
Cash:		
Demand deposits	$ 5,950.57	5,959.46
Savings accounts	5,890.71	3,372.83
Total cash	11,841.28	9,332.29
Marketable securities:		
U. S. Government securities, at cost which approximates market	14,286.56	13,842.19
Stock investments, at cost (quoted market, 1971 $37,083.46; 1970, $31,905.51)	38,778.65	31,215.97
Total marketable securities	52,965.21	45,058.16
Accounts receivable	4,386.65	2,625.84
Inventories, at average cost	4,942.29	5,156.07
Prepaid expenses	1,700.50	4,251.29
Office furniture and equipment, at cost (note)	22,263.76	21,658.74
Less accumulated depreciation	9,772.97	8,069.93
Net office furniture and equipment	12,490.11	13,588.81
	$ 88,323.84	82,217.49
Liabilities and Association Equity		
Accounts payable and accrued expenses	31.99	213.51
Deferred income - dues and subscriptions	40,456.21	41,328.68
Association equity	47,836.04	40,635.30
	$ 88,323.84	82,217.49

Note: Office furniture and equipment is being depreciated over their estimated useful life using the straight-line method.

FINANCIAL HIGHLIGHTS FOR 1971

1967 loss $1,066.21
1968 gain $2,985.21
1969 gain $7,892.92
1970 gain $7,601.22
1971 gain $7,200.74

Composition of Gains: (losses);

	1971	1970
ARMOR Magazine	($4,156.57)	$2,938.97
Investments	$5,980.36	$ 320.96
Book Department	$5,376.95	$4,341.27

ARMOR's Average Paid Circulation

1967—6,079
1968—7,073
1969—9,400
1970—9,296
1971—8,464

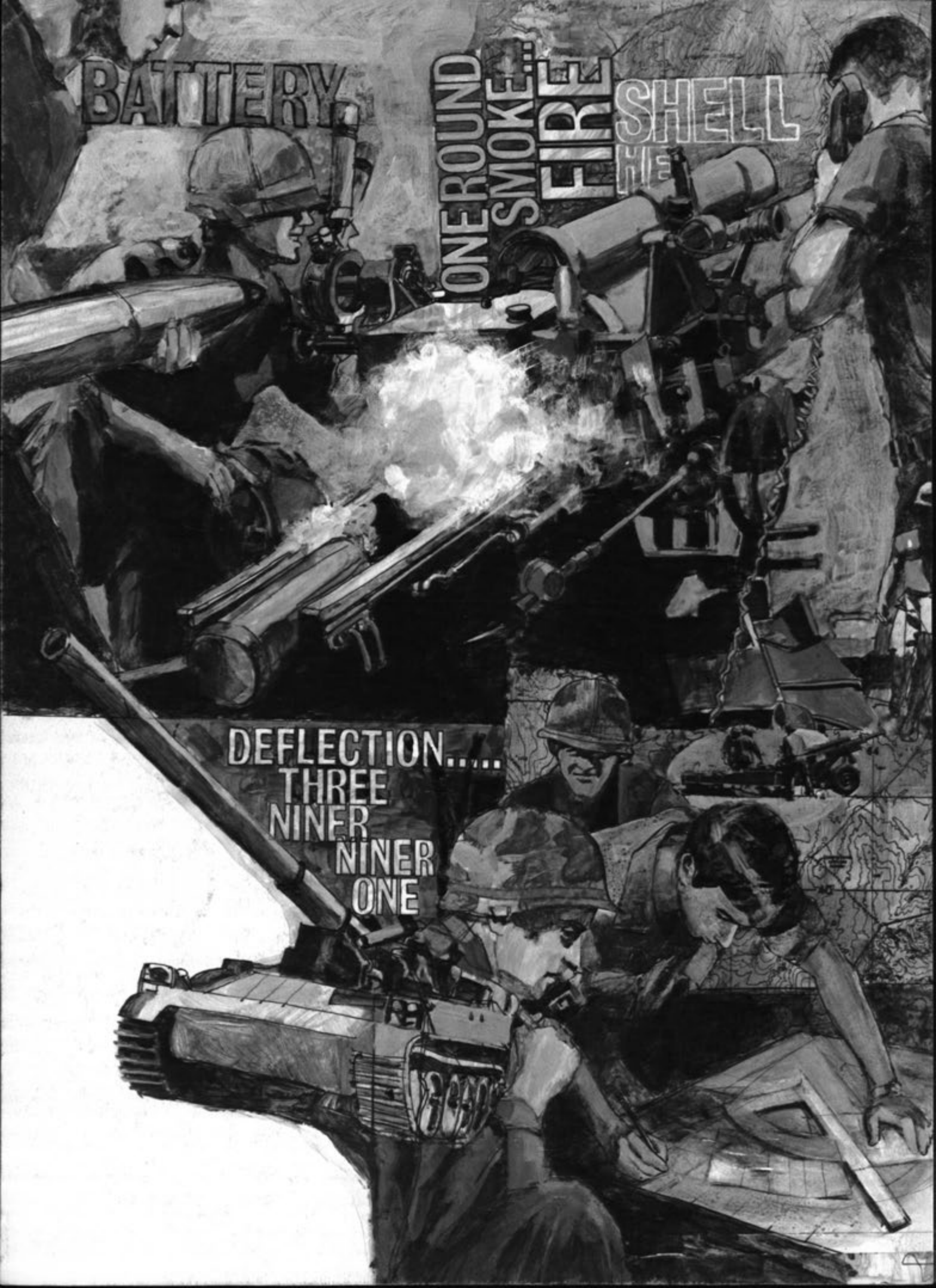
The financial strength of the Association and its Journal is dependent on our individual members and subscribers.

The 1971 cost to produce ARMOR *exceeded the revenues derived from dues and subscriptions.*

In 1972 we must work together to bring our Association to the attention of non-members and insure retention of existing members and subscribers. . .

Are you doing your part?

The Secretary Treasurer


BATTERY.
ONE ROUND SMOKE... FIRE
SHELL HE
DEFLECTION.....
THREE
NINER
NINER
ONE

ARMOR

september—october 1972

LINCOLN CAVALRY

Col. ANDREW T. McREYNOLDS, Commanding.

WANTED

A FEW GOOD MEN!

To be in the field by 4th of July, if possible, who can furnish their own horses and equipments.

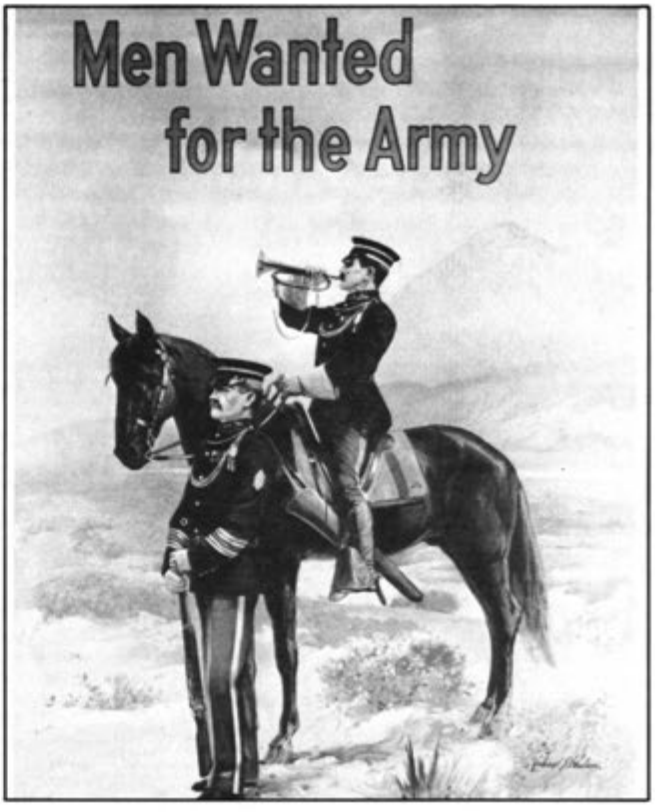
"EXTRACT FROM OFFICIAL ORDERS."

The allowances for Clothing for Cavalry, shall be $3 50 per month. Each Officer, Non-commisioned Officer, Private, and Musician, shall furnish his own Horse and Horse Equipments. [Equipments and Clothing can be furnished for $30.] In case the Horse is lost in action, the Government pays for same 50 Cents a day is allowed for use of Horse.

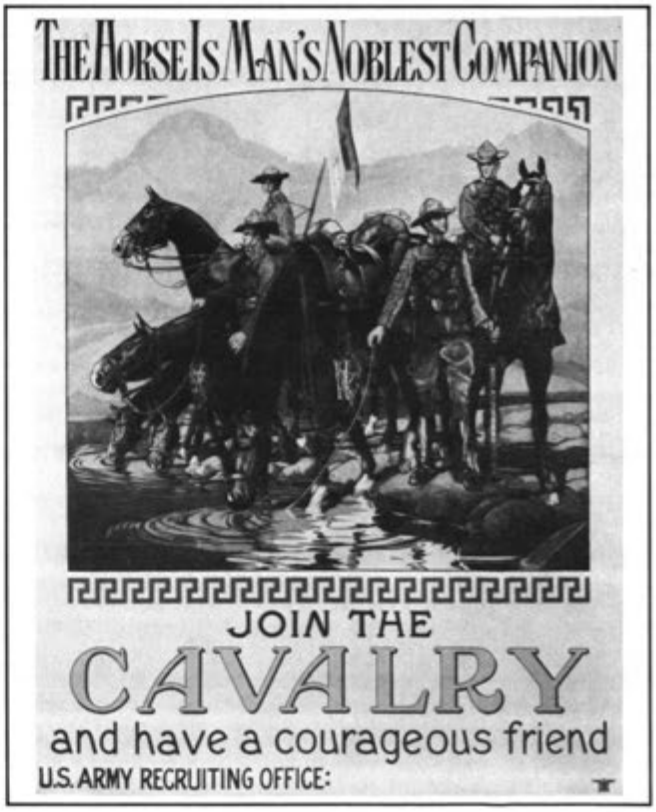
Some good FARRIERS and BLACKSMITHS, wanted for the above Regiment, PAY EXTRA.

This is the only Cavalry Regiment accepted by the United States Government for immediate Service, and to serve during the War.

☞Apply immediately to Head Quarters.



JOIN ARMY FOR PERIOD OF WAR.



ARMOR

the Magazine of Mobile Warfare

Volume LXXXI | September-October 1972 | No. 5

ARTICLES

FEATURES

DEPARTMENTS

ON THE COVER . . .

Throughout history, posters have served the Army well; not only as a means to enlist men, but also as a power supply of motivation and morale.

ARMOR Magazine is published bimonthly by the United States Armor Association, Suite 418, 1145 19th Street, N.W., Washington, D.C. 20036, to stimulate interest in, provoke thought on, and provide an open forum for decorous discussion of professional matters. Articles appearing herein represent the personal views of the contributors. Unless otherwise stated, they are neither expressions of official policy nor do they represent the position of the publisher. Unless credited, photographs are official Department of Defense releases.

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letters to the editor

The Tank is Alive and Well

Dear Sir:

As I clearly disagreed in my letter to you published in the March-April 1972 issue of *ARMOR* with the views expressed by Lieutenant Colonel Warren W. Lennon, the author of "The Death of the Tank," I was surprised to see myself bracketed with him by Mr. E. Luttwak in his article "The Tank is Alive and Well." I was even more surprised to find myself described as a "speed enthusiast," as I have never rated speed, as such, particularly important in battle tanks.

What I have done instead is to emphasize over the years the importance of mobility and to point out, among others, the adverse effect of heavy vehicle weight, which restricts the amount of armor that battle tanks can have if they are to operate without undue difficulty in many areas. None of this implies being a speed enthusiast and I can only assume that in calling me one, Mr. Luttwak has either misunderstood my arguments or has chosen to misinterpret them to suit his case.

Much of Mr. Luttwak's article amounts to saying that armor protection is valuable, which is neither a very original or unique viewpoint. In fact, if he had read some of my articles a little more carefully, he would have found that I recognize this fact also. However, there is no use pretending that one can have heavy armor protection without penalizing battle tanks in other respects—particularly if they are to operate in less favorable terrain than that of the Sinai. The crux of tank design is, therefore, to arrive at the best possible compromise between the conflicting requirements of protection and mobility and not to err toward either extreme.

Whatever I might have said about the French *AMX30* and the Soviet *T62*, I have never even suggested that they are in the same category so far as their armor protection is concerned, and if Mr. Luttwak thinks that they are, he must be misinformed. As for his statement that the low silhouette of these two tanks restricts their commanders' field of vision, it is sheer nonsense.

In pointing out that light tanks, such as the *AMX13*, cannot be used like battle tanks, Mr. Luttwak is merely stating the obvious. But because such tanks cannot be used for assaults, it does not follow that there is no place for them or for other vehicles less heavily armored than battle tanks, such as armored infantry carriers for instance.

As for my favorable comments on the Panhard *AML*, Mr. Luttwak may consider such armored cars no better than jeeps; but this is not the view of several armies. Thus, the French, British, Soviet and other armies have found light wheeled armored vehicles much more effective in a variety of reconnaissance and security roles than jeeps and other unarmored trucks and their experience is far more convincing than Mr. Luttwak's assertions.

RICHARD M. OGORKIEWICZ
London, England

Using BOT

Dear Sir:

Colonel Daniel W. French's letter in the May-June issue, concerning "To BOT or Not To BOT," left several important questions open to discussion. The use of tanks in pairs or sections on the battlefield is not theory, but sound doctrine and good sense, with the use of less than a platoon considered a poor choice. The Israelis in 1967 clearly showed that the use of one tank to sense rounds for another pays off, especially at longer ranges.

Second, there is no question that on Range 80, Grafenwoehr, Germany, which is run by the Combined Arms Training Center, there is a very high frequency of sensing errors and difficulties, due to the dust of the road kicked up by the muzzle blast. In fact, water trucks are maintained on that range from April on, to water the course road to lessen the dust. Even this watering does not prove totally effective, and it is certain that a tank crew would be better served by another tank crew trained to sense for them, than to count on the availability of watered roads in combat. Tankers who have fired on Range 80 during the spring or summer will verify that accurate sensing is extremely difficult due to target as well as road obscuration.

I feel that the training accomplished by my tank company (Co A, 1st Bn, 32d Armor) in the spring of 1971, could have been more realistic and beneficial if at least sections, or ideally platoons, could have negotiated Range 80 as a unit, alternating firing and sensing from tank to tank, and thus train the crews and the platoon leader in the direction and the adjustment of platoon firing. This is a variation from the single tank TCQC and would require greater training of crews and small units for the European battlefield, where we still rely upon long-range tank gunnery to offset the weight of numbers.

JAMES S. WHEELER
Captain, Armor
US Army Aviation School
Fort Rucker, Alabama 36360

Master's Degree Program in Military Art and Science

Dear Sir:

I have long felt that the Command and General Staff College (C&GSC) Degree Program required piecemeal Congressional legislation and was not what we wanted. Few bother with it now I am told. My son said that he went to Leavenworth to learn to be an Army professional. Being such a professional course of study, the C&GSC should be able to offer a Master's Degree in Military Art and Science. There are 440 master's degrees offered in other disciplines today in American colleges. Why should the military be left out? It plays a big role in our budget and in our national effort.

I believe we are hung-up by tying our master's degree request to just one year of post-graduate professional military study. The graduates of C&GSC and our war colleges all have at least two years of formal post-graduate work in a formal academic environment under high standards. Many colleges cannot approach these standards. I suggest such an amendment as this be tacked onto a Bill with DOD backing:

> Under such regulations as the Secretary of Defense may prescribe, the Secretaries of the Military Departments are authorized to grant a Master of Science Degree in Military (Air, Naval) Art and Science to those who hold a recognized bachelor's degree and who have fulfilled the requirements for graduation from any two of the following full-term residence courses:
>
> - Career courses of the various Armed Services
> - Command and General Staff course or its equivalent
> - Senior Service Colleges
>
> This authority is retroactive. Only one such degree will be awarded to any one individual.

This would give a boost to the entire military professional school system.

BRUCE C. CLARKE
General, USA-Retired
Arlington, Virginia 22207

The G Series TOE

Dear Sir:

My introduction to TOE 17-35G was in the North Carolina Army National Guard

tank battalion I recently joined as an advisor. Since it is that season again for the Army, I was prepared for an austere formation. However, the strange combination of unwise thrift in one area and outright waste in another was a real surprise.

At a time when the *GOER* is coming to the end of its over 15-year development period, I discerned that the G series TOE ignores recent experience and has unwisely gone back to the 5-ton truck as the principle resupply vehicle in the battalion. The whole point of the *GOER* development was to have a vehicle which could keep up with the support units. Even though the *GOER* isn't expected to be fielded until the end of 1973, we do have a respectable substitute available in the inventory. The *M548* 6-ton cargo carrier was the salvation of both US and ARVN armor and mechanized units in Vietnam. The 5-ton truck could not follow the tanks and APCs with fuel and ammunition. The *M548* could. This was especially important to mechanized and cavalry units which used their carriers' amphibious capability.

The waste in this TOE is the addition of the combat support company. It is nice to have, but totally unnecessary. I cannot imagine the battalion commander or S3 who would dilute his control by permitting the scout or mortar platoons to operate on a combat support company command net, rather than on the battalion command net, even though this is how it is now shown by USAARMS in *Communication for Armor.*

The combat support company grew out of the Vietnam experience where the headquarters company was often split between base camp (service support elements) and the field (combat support elements). Inexperienced company commanders and battalion operations officers had trouble with this arrangement. The span of control was too much for them and they needed an extra officer or two to help them. The combat support company was the answer.

Now that we seem to be returning to a period when officers will have the time to gain experience and develop before they assume the responsibilities of headquarters company commander, battalion operations officer or battalion commander, we can do away with expensive expedients. Trade me eight or ten *M548* cargo carriers for the combat support company commander, his executive officer, first sergeant and their vehicles, and I'll give you a tank battalion with increased combat capabilities.

RICHARD H. MERRITT JR.
Major, Armor

Army Advisor
Raeford, North Carolina 28376

Sportsmanship

Dear Sir:

In going over some old records, I have come across the program for the Transportation Show marking the completion of the competitive year of 1929 in the Panama Canal Department. In a foreword to the program, Major General Malin Craig, the department commander and former Chief of Cavalry, made some pertinent remarks concerning competition which deserve preservation in *ARMOR*. They are as follows:

> The year 1929 has been one of sound progress in departmental competition. Fine sportsmanship and team work, both so vital to the smooth, efficient functioning of all things military, whether it be in the garrison or in the field, have been exemplified in the firing of heavy ordnance; combat exercises for infantry, field artillery, anti-aircraft and aircraft on missions of pursuit, observation and bombing; small arms firing competitions for rifle, automatic rifle and pistol; baseball, basketball, boxing, swimming, track and field, tennis and golf; and in all classes of transportation, man-manipulated, animal, animal-drawn and motor. In all of these, competition has been keen and the margin between winner and loser close.
>
> I congratulate the competitors, the losers as well as the winners, upon the fine spirit they have shown. I feel that any man who is willing to risk defeat in honest competition with his comrades, whether it be in firing, running or the turn-out of a pack mule, is always of a high type and worthy of consideration. It is the man who never competes that we should keep an eye on and for whom we should try to find some form of self-expression. With this in view we should constantly strive to devise new forms of competition, remembering that even the great figures in the highly organized sports of America can be humbled by thousands of unsung men if they depart from their own special fields.

The program at the 83d Annual Meeting of the Armor Association was one of the very best and you and all the members at Fort Knox made this possible.

PAUL M. ROBINETT
Brigadier General, USA-Retired
Mountain Grove, Missouri 65711

Proposed Fort Patton

Dear Sir:

Anyone who has not visited Fort Hood in recent years would be truly amazed to see the tremendous changes that have taken place here. For instance, the 3d Brigade of the 1st Cavalry Division, just arrived from Vietnam, is moving into some of the most modern barracks facilities existing in the Army today. From the mess hall to the motor pool, the effects of the Modern Volunteer Army are to be seen.

Indeed, Fort Hood is receiving a total facelift. In keeping with this new image, perhaps Fort Hood could use a new name. Since this is the home of Hell On Wheels (General George S. Patton's famed 2d Armored Division), an obvious alternative to the Fort's present name would be Fort Patton.

It is a shame that no major military installation has been named to honor the memory of one of our country's greatest combat leaders. The recent surge of public interest surrounding the Patton name might well enhance the image of Fort Hood in both the military and civilian communities.

It would only be fitting if the largest Armor training center in the nation were named after the greatest Armor leader in our country's history, General George S. Patton Jr.

WILLIAM I. HANCOCK
Second Lieutenant, Armor

1st Cavalry Division
Fort Hood, Texas 76545

The M60 Tank Series: Guilty Without a Trial

Dear Sir:

I refer to the past, current and future deluge of articles you have or will have received before the new tank emerges.

There have been many published and unpublished comments regarding the *M60* tank and the ill-fated *XM803*. A great many of these comments rendered by supposedly knowledgeable individuals have not been too complimentary, especially as regards to the *M60A1* and its effectiveness against its Soviet counterpart. It is surprising that these judgments have been made against the *M60A1* that has never fired a single projectile on the field of battle, nor has any data been developed regarding its effectiveness and reliability in actual conflict.

The only real test of Armor since the Korean Conflict has been the Israeli Six-Day War in which the *M48, M47,* old *M4A3* and other free-world tanks gave a pretty good account of themselves against Soviet armor. I suggest that the final answer lies in tank crew training, reliability and battlefield intelligence. In summary, it appears that the *M60* tank series has been judged "guilty without a trial."

NED F. BAUGHMAN
Chief, Armor Systems Branch
US Army Foreign Science
and Technology Center
Charlottesville, Virginia 22901

Armor Center Commander's Update

MG William R. Desobry

The Armored Reconnaissance Scout Vehicle (ARSV) Program has progressed through several important phases of the equipment development cycle since my update in the January-February 72 issue of *ARMOR*. In the March-April issue, I stressed the importance of the combined arms concept in Armor operations. Since these reports, we have surpassed several milestones in the developmental cycle for the Armored Reconnaissance Scout Vehicle (ARSV), which will further enhance Armor's combined arms capability. This report provides the current status of this development and a description to include the basic characteristics of the proposed ARSV candidates.

As a result of a Request for Proposal (RFP) from industry, three wheel and three track concepts were received in January 1972. A Source Selection Evaluation Board and Source Selection Advisory Council were convened to evaluate each proposal and recommend two of the six concepts for development of prototype vehicles.

ARSV PROTOTYPE CHARACTERISTICS

	FMC (Track)	Lockheed (Wheel)
Weight	18,188 lbs	16,972 lbs
Length	178"	193.5"
Width	96"	96"
Speed:		
Forward	52mph	65mph
Reverse	25mph	35mph
Water	4.5mph	6.5mph
Range	450 miles	450 miles
HP/Ton	30.8	35.5
Ground Pressure	4.2psi	6.0psi
Ground Clearance	16"	16"
Engine	GM6V53 (280hp)	GM6V53 (300hp)
Transmission	Allison X200	Allison MT650
Tire Pressure	NA	7psi
Track Adjustment	Hydraulic	NA
Fan Belts	1	1
Secondary Weapon Mount	Skate	Pintle

These recommendations were briefed to the Source Selection Authority on 19 May 1972 and contracts were signed on 23 May 1972 for prototype development of one wheel vehicle and one track vehicle concept. Lockheed Missile and Space Company was awarded the contract for the wheel vehicle and Food Machinery Corporation (FMC) was awarded the track vehicle contract.

Initially, the primary and secondary armament for both concepts will be the *M139* (20mm) weapons system and the *M60D* machine gun with spade grips; both the track and wheel concept will be designed to accept the *Bushmaster* (20-30mm) system as a follow-on weapon system when developed. The vehicle basic load includes 500 rounds of 20mm ammunition and 2,000 rounds of 7.62 ammunition. Night vision devices for the above weapons will provide a 24-hour vehicle operational capability. Systems design will permit compact storage for the auxiliary equipment required for ARSV missions. Human engineered compartment doors permit engine and transmission servicing without crew members mounting the vehicle. Access doors for U-joints, radiators, turret floor and other maintenance areas are inherent in the design of both concepts.

The ARSV wheel concept is a highly mobile, six-wheel drive vehicle designed with limited slip differentials, roll articulated front steering and walking beam rear drive. Water propulsion and steering are derived from a hydrojet pump and wheel rotation. Personnel and cargo doors located in close proximity to the ground on each side facilitates easy loading and unloading of the crew and supplies.

The ARSV track vehicle concept is designed with pivot steering, an aggressive track, low ground pressure, high wheel travel, and removable track pads for greater mobility in all terrain and weather. Water mobility is increased through the use of idler wheels and track shoes with intrinsic water vanes. A personnel and cargo door for low level entry and resupply is located in the left sponson area. Lifting lugs and tie-up anchors are provided on each roadwheel arm to decrease the maintenance effort and improve the ARSV "return home" capability.

The two ARSV concepts are designed for maximum mobility, maintainability, reliability and aspects of human engineering commensurate with the current state of the art in combat vehicle development. In October 1973, Development Suitability Testing (DST) will commence at Fort Knox, Kentucky and Aberdeen Proving Ground, Maryland. Any improvements determined appropriate during the developmental cycle will be applied to insure the fielding of a combat vehicle capable of accomplishing the ground scout's mission on the modern battlefield.

As the ARSV progresses through developmental testing, I will continue to keep you posted.

THE ART OF ADVISORSHIP

by
brigadier general thomas w. bowen

The life of an advisor is not easy. Perhaps his trials and tribulations are best epitomized in this ditty:

ADVISOR'S LAMENT

Mine is not to run this train,
The whistle I can't blow.
Mine is not to say
How far this train can go.
I'm not allowed to blow off steam
Or even ring the bell;
But let this train run off the track
And see who catches hell.

The thought expressed in this ditty sounds too hopeless. Many recommendations boldly put forth by advisors world-wide are forthrightly acted upon by advisees. However, one should hasten to add that at least as many bits of advice are received in a sage manner and then not acted upon by the normally harried advisee. And unfortunately, whether the recommendations are acted upon or not, the acceptability of advice as a basis of action depends primarily on the art of advisorship.

The art of advisorship is a direct function of two power factors: the Power of Clout; and the Power of Persuasion. Clout is the simpler concept. What assets does the advisor have to contribute to the overall project? Money? Materiel? Manpower? The ear of the advisee's next higher commander? When the advisor's contributions can be significant, he has great clout; when it is not, he may have little or none.

If all available assets are advisor controlled, almost absolute control of the situation is achieved. Of course, if the advisor controls all the assets, he is no longer an advisor; he has become the de facto commander. To maintain a true advisory role, some advisee assets must always be present. To assume total control defeats the purpose of advisorship—bringing the advisee and his operations to a state of effectiveness where advisors are no longer required. Even with overwhelming assets, total control should never be sought. Unfortunately, advisor control can still be total enough to prevent almost anything either good or bad from happening as far as advisee progress is concerned. The US effort from 1966 to 1967 in Vietnam contained more than a touch of this type of control. During that time, US power so dominated the scene, a great tendency to "let Uncle Sam do it" was generated.

The power of persuasion, however, is more nebulous and more difficult to describe. Persuasion combines rational thinking (although this must fit the time,

climate, locale, and other near imponderables—such as vagaries of the Lunar Calendar), and a mutual desire to cooperate and accomplish the mission. Normal psychological factors plus a healthy measure of good luck must be applied to what has to be a sound proposal in the first place.

Initially, most influence by persuasion is accepted only because the advisor is a guest and does not greatly affect the operation. As the advisor demonstrates his professional competence, his influence begins to increase. The final increase of influence comes about when the advisee becomes convinced his advisor's motives and his own are mutually rewarding. However, the maximum influence of the persuasion factor is still far from total control.

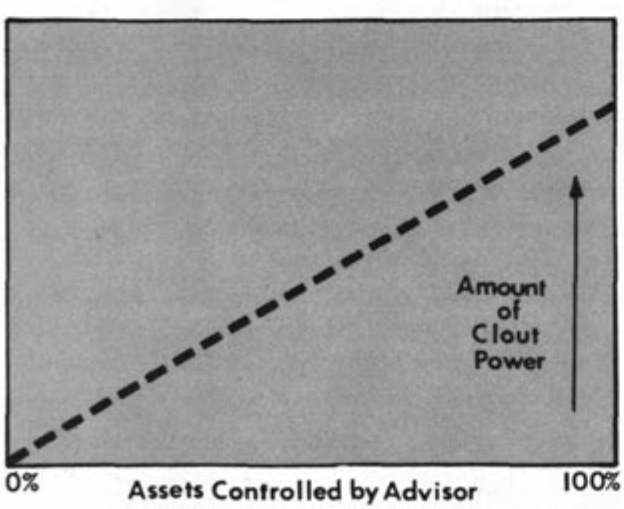
Combining these two factors results in the total influence an advisor has on any particular situation. Note, however, that it would be possible for an advisor to be at one extreme on one factor and at the opposite end on the second.

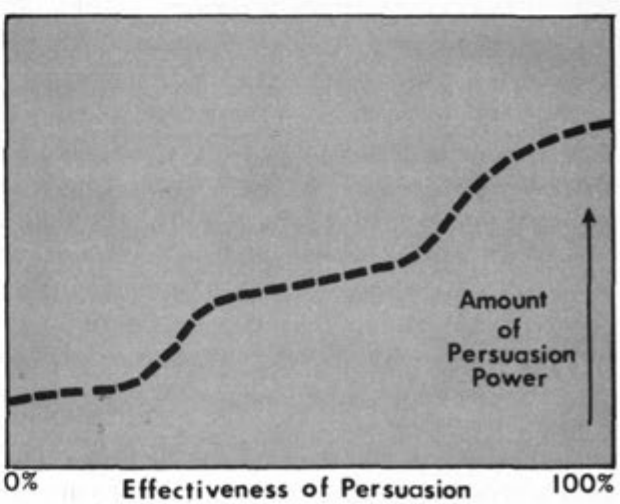
While all of this is very interesting from a theoretical or philosophical viewpoint, there remains the problem of mission accomplishment. Simply stated, it is getting your experience accepted and your advice acted upon. Very seldom will an advisee, upon receiving advice, pick up the telephone and issue the necessary order. In fact, if this happens, the advisor should check to see if the phone is operable, for this response would result in your advisee acquiring the puppet tag and would be disastrous to his own ego. The art of advisorship must be applied.

A forthright approach finds the advisor preparing the complete operation plan and presenting it to his counterpart. Hopefully, this complete document will be blessed, translated and ordered into action. It is a method which has three advantages. First, it will insure your advice is understood in most, if not all, facets. Secondly, the expertise of the advisory staff can be employed effectively in producing the document. And finally, the existence of a document almost demands the advisee take some action, or at least explain why the action cannot be taken. If the reasons are inadequate in the advisor's eyes, the recommendation still may be acted upon merely to prevent loss of face and maintain status.

While this method may produce excellent results, some drawbacks are also present. The document may be filed in "deep six" without serious consideration. Or the proposal is labeled a US or advisor plan—not the advisee's. The advisee can excuse failure, and in fact, may contribute to it by lack of personal interest or prestige involvement. Likewise, the plan is not uniquely clothed in the style of the country. And finally, complete planning by the advisor allows the advisee to avoid work. "Let the advisor do it" may become the attitude and result in again defeating the goal of educating the advisee on how to effectively manage his own operations.

Another method is called planting the seed. It is an oblique approach in which the advisor merely mentions, sometimes only in a passing remark, that a particular policy may be a good idea or an action that probably would be effective. It remains to the advisee to undertake the specifics and to flesh out the ideas. This has the advantage of an apparent generation of the project by the advisee, and the advisor should refrain at all costs from taking any credit for such initiatives. This technique results in the operation being clothed in the unique characteristics of the advisee's culture. There are, however, disadvantages to this tactic. The seed may never flower; either the idea may not transmit well or the advisee may see problems of implementation which are not apparent to the advisor. Blissfully unaware of these additional factors, the advisor patiently waits under the impression that his seed is germinating and preparing to burst forth





It is better they do a thing imperfectly than for you to do it perfectly; for it is their country, their war, and your time is limited.

Lawrence of Arabia
1919

in full brilliancy. While, in fact, his bright suggestion is lying dormant and unnourished. Patience, fortitude and more patience are required with this approach, and one must be prepared for disappointments. This technique is best employed when the counterpart has a relatively effective staff which can produce and carry out an effective plan from the advisee's orally described concept.

Other techniques also exist. For example, many recommendations may come out of a well-written fact sheet which merely points out a situation to the advisee without the advisor expressly making concrete suggestions. Trip reports can serve a similar purpose. One of the most important functions an advisor can perform is that of an additional set of unbiased eyes and ears. Normally, his observations will be regarded as factual and given more weight than those of the counterpart's own chain of command. As a result, the advisor must always insure the accuracy of his observations. Failure to do so will rupture a good working relationship.

One pitfall that deserves comment in all of these generalities is the possibility of overloading the circuit. If an advisor constantly runs to advise his counterpart on every fact, regardless of importance, his effectiveness will soon drop to near zero. It is possible for any relatively bright advisor to generate more ideas, projects and advice than any advisee or anyone else can bring to fruition. The advisor must conserve not only the advisee's time but utilize his own entries to his counterpart's presence for priority items. Those of lesser importance are more appropriate for passing remarks during travel time or at social occasions. Prime office time must be for prime problems.

The best approach always requires a good gut feeling for the greatest effectiveness. Overriding the importance of techniques is the inner attitude of the advisor who has, and thus projects, a true desire to assist his counterpart. He will find mutual respect and understanding returned two-fold.

However, the advisor who merely tolerates the ways of his advisee's culture, will find his advice regarded as from the outside and little respected despite any degree of competency reflected in the recommendation. The inner attitude is always manifested regardless of what face the advisor may outwardly maintain. For example, slighting nicknames and epithets are the most discernable evidence of lack of mutual respect. Without mutual respect between the advisor and advisee, the game is lost and no amount of advisorship will produce success.

Advisorship is an art, not a science; its exact form is dependent upon people—the world's most unpredictable animals. But some truths exist regardless of the technique used. With apologies to Hallmark Cards, we must care enough to send our best.

BRIGADIER GENERAL THOMAS W. BOWEN, a graduate of the US Military Academy in 1948, holds a master's degree in Psychology from Vanderbilt University. From March 1968 to July 1969 he served as the Senior Advisor of Thua Thien Province. From April 1971 to June 1972 he was assigned as CG, US Army Advisory Group, I Corps, and Deputy Senior Advisor, Military Region1. General Bowen is currently the Director of Intelligence Support in the Office of the Assistant Chief of Staff for Intelligence.

As American involvement in Vietnam decreases, it is worth reflecting on one of the more effective weapons to be employed on the insurgency battlefield—

AUTOMATIC AMBUSH
A SECOND LOOK

by Captain Sewall H. Menzel

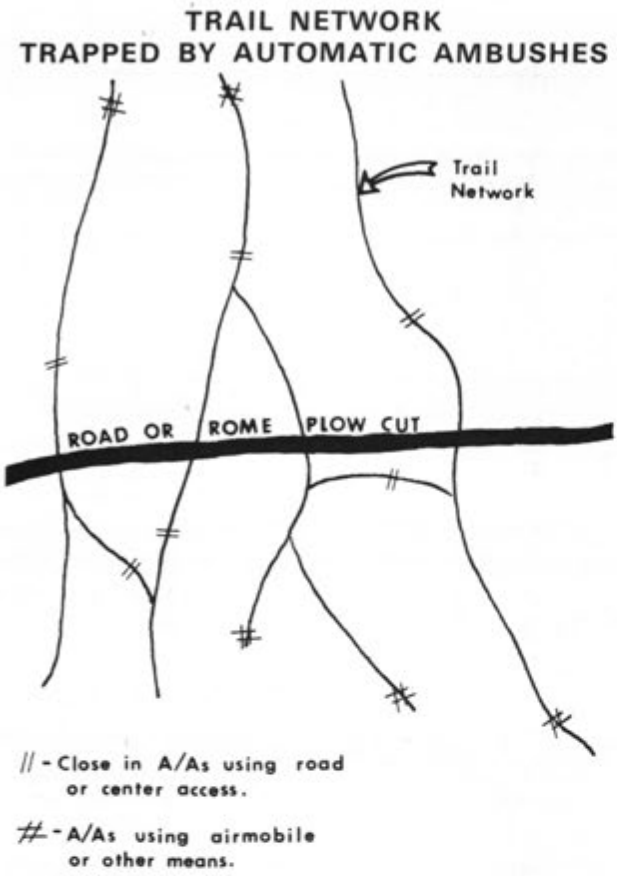
The automatic ambush, sometimes referred to as the mechanical ambush, is a combination of claymore mines, battery and tripwire devices, working on the principle of closing an electrical circuit to complete the firing chain. It has been employed successfully by both the regular military formations of the United States and the Republic of South Vietnam, and in the MACV advisory effort involving the South Vietnamese territorial security forces. Because of the varied application of the automatic ambush to meet two radically different situations, an examination of those operations conducted by the 2nd Squadron, 11th Armored Cavalry Regiment in Tay Ninh Province, and the MACV advisors in Lam Dong Province is in order.

In late February 1970, the 2nd Squadron, 11th Armored Cavalry Regiment, commanded by Lieutenant Colonel Grail Brookshire, was deployed to eastern Tay Ninh Province. The squadron's mission was to interdict enemy lines of communication, destroy base camps, and create havoc in what was referred to as the enemy's "rear" at that time. A Rome Plow company had been attached to the squadron for the purpose of clearing the jungle away from the squadron's ground line of communication. It was also to open up the jungle to facilitate the destruction of enemy base camps.

Interdiction in South Vietnam has been a problem ever since the war began. Many units had tried and met with only partial success or even failure. The litter of war scattered over eastern Tay Ninh attested to the heavy cost in men and materiel to those who challenged Charlie on his own ground. One of the problems immediately apparent to the 2nd Squadron was that there were not enough men and vehicles to deny the enemy use of the myriad of trail networks uncovered by the Rome Plows as they cut swaths through the jungle. An effective ground force of men and vehicles from each troop could cover several trails simultaneously, but would leave the vast majority open to the enemy. As these trails all showed frequent usage by large numbers of enemy troops, it was mandatory to establish as extensive a border seal as was possible.

American ingenuity came into play, and after a short period of experimentation, the automatic ambush was developed as an answer to the squadron's problem. A saturation campaign was developed employing scores of automatic ambushes, supplemented and monitored by the reconnaissance troops of the squadron. Each troop was assigned an area of responsibility covering rather long distances running east and west across the enemy's north-south trail networks.

The automatic ambush caught the imagination of the average trooper. Individuals would spend hours



The lines of communications cutting across the trail networks facilitates the use of automatic ambushes (A/As), which are placed at varying distances to confuse the enemy. To add depth to the employment of A/As and to create the impression that no area is safe, airmobile or long-range patrols should be used.

thinking of and discussing new ways with which to turn the trick and trump the Viet Cong. As more and more trails were uncovered, it became necessary to assign platoon areas of responsibility. Within the platoons, each vehicle and crew were assigned ambushes to establish and monitor. At one point in the campaign, G Troop of the 2nd Squadron monitored some 35 automatic ambushes (often called a trap line). Because of a lack of an indigenous population in eastern Tay Ninh, the squadron was able to leave automatic ambushes out for periods of time often extending up to several weeks with only periodic checks to insure batteries were still operative.

Success was immediate. The squadron began catching everything from liaison couriers to large enemy units and supply columns attempting to traverse the trail networks. Valuable information in the form of documents was continually captured. Enemy forces that sometimes were able to bypass primary ambush networks ran into secondary ones and were decimated. If the enemy attempted to "thunder run" a trail network, he often found ambushes stacked against him in depth. At these times the enemy paid a heavy price in casualties.

The enemy's alternative to accepting heavy losses, which he could not afford, was to attempt to cut new trails (which were immediately discovered and ambushed) or detour around the squadron's area of operation. In either case, it was a considerable hardship. Because of the saturation effect of the automatic ambushes, the enemy was unable, despite many attempts, to inflict significant damage to the squadron. The enemy's one multi-battalion counterattack met with devastating defeat.

By dominating the enemy's lines of communication in the manner which it did, the squadron was able to effectively shut off the flow of men, materiel and information so that enemy operations far to the south of the squadron were effectively curtailed. A further benefit was the backing up of the enemy supplies to the north of the squadron's area of operation. These supplies were later captured intact in an area known as "The City" during the raid into Cambodia by the 1st Air Cavalry Division. The squadron had virtually paralyzed enemy movement throughout eastern Tay Ninh Province. The psychological and materiel ramifications effecting the enemy were great as attested to by the prisoners of war.

From late July through October of 1970, the territorial security forces in B'Sar Subsector of Lam Dong Province successfully conducted a campaign using the automatic ambush. For several years prior to this time, the enemy had been able to move freely throughout the B'Sar area. They had developed a callous disregard for the indigenous population and the government forces stationed there.

Hamlet entries, terrorism, assassinations and kidnappings by the Viet Cong were frequent. A continuous pressure was placed on the military forces in B'Sar Subsector by sniping, harassing attacks and ambushes, all of which took a high toll of friendly troops in dead and wounded. This brought about a certain apathy against moving out to find the enemy. The concept of the automatic ambush was passed along to the territorial security forces with the motivating support of the B'Sar Subsector senior advisor.

A plan was devised with the objectives of first keeping the enemy out of the populated areas; and second, cutting the enemy lines of communication in order to reduce his freedom of movement to conduct operations.

Despite a highly mobile population (Montagnard wood cutters and farmers often traveled the very routes utilized by the enemy), the plan was implemented. Automatic ambushes could only be

The author and his platoon leaders examine the results of an ambush in eastern Tay Ninh Province.

placed out on trail networks and routes of approach into hamlets at night. The next morning, the ambushes were picked up to prevent the friendly population from accidentally running into them. Despite the hardship of having to pick up the ambushes each day, the wide disbursement of friendly troops throughout the length of the subsector made it easy to achieve good coverage of the enemy trails and routes of approach. Automatic ambush positions were constantly varied and often supplemented with footmobile ambush patrols.

As in Tay Ninh Province, success was immediate and during the next several months a heavy toll was exacted against the enemy. No friendly soldiers were killed. Hamlet entries ceased. Viet Cong sympathizers in certain hamlets were killed by the automatic ambushes as they attempted to smuggle out food, clothing and information to the enemy. Enemy movement through western Lam Dong Province (B'Sar Subsector) decreased significantly and the enemy took lengthy measures to reroute principle lines of communication around B'Sar.

For the first time in years, a large number of enemy surrendered. All expressed a great fear of being killed by the ambushed trails. Numerous innovations in automatic ambush technique and devices were developed by the B'Sar advisors. As the number of successes mounted, the morale of the territorial security forces began to rise. In a matter of a few weeks, the friendly forces in B'Sar were able to radically change the military situation there. The populated areas for the first time began to be truly secure. A series of blocks had been established on the vital enemy lines of communication running from Cambodia, through western Lam Dong, to the coastal regions.

The concept and strategy of employment of the automatic ambush is by no means glorious and requires some serious thought and hard work. It is, however, a systematic means by which the enemy's freedom of movement can be severely curtailed and even paralyzed. Its employment does stimulate ingenuity and creative thinking which are so crucial to the waging of successful warfare. Many people tend to scoff at the idea that something so simple and basic as a few claymore mines can accomplish what multi-million dollar aerial delivery systems cannot always do. The results are incontrovertible.

A small number of troops can dominate a large number of enemy trail networks. They can inflict enormously disproportionate numbers of casualties on the enemy with minimal risk involved. The continued employment of the automatic ambush in the strategy being implemented in Vietnam is necessary to the eventual success of that strategy. The concept of the automatic ambush will continue to be a decisive factor in counterinsurgency operations.

CAPTAIN SEWALL H. MENZEL was commissioned in 1964 from The Citadel. In Vietnam, he served as an armored reconnaissance troop commander, infantry company commander, battalion airmobile operations officer and an operations advisor. A graduate of the Armor Officer Advanced Course Captain Menzel is presently assigned to the 8th Special Forces Group in the Panama Canal Zone.

The New Blitzkrieg

by Lieutenant Colonel Cecil L. Shrader

The combination of air cavalry and ground armored organizations, if properly integrated and employed, can achieve all the benefits of lightning warfare.

On 11 September 1939, the world was introduced to a new word and a new concept in warfare—blitzkrieg, the lightning war. The word was used to describe the German invasion of Poland with an army that was trained, organized and equipped to capitalize on lessons learned from World War I. The German Army performed with perfection, and Poland was completely subdued in 28 days.

There was nothing magical about the German Army. It was a simple application of the principles of mobility and mass. New emphasis on the potential of mobility attainable by armored and mechanized units was the decisive element used by the Germans.

If the Polish campaign is not sufficient to portray the effects of blitzkrieg, its awesome power was once again demonstrated against France, Belgium, Holland and the British Expeditionary Force (BEF). The First World War lasted from 1914 to 1918, and in France bogged down to static trench warfare. By contrast, the battle for France 22 years later, fought over the same general terrain, lasted only 46 days. France was overrun, and the BEF was driven off the continent.

At the time of the Polish invasion, many observers, including English and French, credited the quick German victory more to a poor showing by the Poles rather than a brilliant feat of arms. This attitude assisted in the overwhelming defeat suffered by the Allies in May and June of 1940. Unlike the Germans, the French relied on huge static defensive positions such as the Maginot Line patterned on World War I precepts. This defensive thinking contributed to the inactivity of France and England in taking any major offensive action against Germany, even though they had declared war on Germany shortly after the invasion of Poland. This defense-oriented thinking, plus the fact that although France was considered the major military power in Europe, the Allies were too weak to launch an offense in the fall or winter of 1939-40, aided in the German victory. The quick defeat of the Allies in France left no illusions about the efficiency of the German tactics and the training of their army.

What were the blitzkrieg tactics used by the Germans? The Germans had analyzed World War I and realized that tanks, when used in mass, could breach the defenses of the enemy. In fact, the Allies had done this to the Germans in World War I, but at that time there were no combat, combat support and combat service support forces mobile enough to exploit the breakthroughs. Therefore, the Germans concentrated on organizing and equipping some of their forces to have this capability, and designed artillery pieces and logistic vehicles mobile enough to keep up with the attacking forces. The Germans also developed close air support to supplement, and, in cases where they had outrun their artillery, to substitute for it.

To use these forces, the Germans would penetrate the enemy positions primarily with infantry at selected points employing the principle of mass, and then they would pass the tanks and mechanized infantry through the gap to exploit deep in the rear of the enemy. Thus, by materiel and training, the Germans reintroduced mobility to the battlefield.

The military advantages which mobility gives to an army are obvious. However, there is one aspect to the rapid German victories in Poland and France which should be stressed more and contribute much to the use of air cavalry as an extension of the blitzkrieg. The Germans relied heavily on the mobility of their deep thrusts for security. Their logic was that having a large armored and mechanized force deep behind enemy lines would create so much chaos, confusion and demoralization in the enemy that he could not react to effectively counter the force.

This is what happened in Poland and France and was more effective than the Germans had anticipated. An example is that the last set of retirement orders issued by the Polish Army to reestablish a new defensive line farther east was impossible to carry out because of the rapidity of the breakthrough by the German armored divisions and their unexpected interception of retiring Polish columns.

Essentially, the same thing happened to the Allies in the West. German thrusts were so rapid and deep, the Allies were never really able to form a cohesive defense after the start of the invasion in May.

The primary thesis of this article is to advocate the use of air cavalry as an extension of the blitzkrieg by conducting operations well in the rear of the enemy. It is in the enemy rear that the full benefits of the air cavalry organization can be derived. These operations can be likened to the old cavalry raids, but the helicopter enables the raids to be more rapid, violent, cover more terrain and be more destructive. These raids, particularly when coupled with ground armor operations, can be quickly decisive in defeating an enemy. Thus, the combination of air cavalry and ground armored organizations must be properly integrated and employed to fully reap all of the benefits of the blitzkrieg.

The reason that we must develop to the fullest the capability of air cavalry's mobility is that it is one asset we possess which will assist in coping adequately with the potential threat of the Warsaw Pact nations. Yet, this force structure would provide a force flexible enough to be employed everywhere on the globe and still retain its high degree of mobility.

It is no secret that Russia and her Warsaw Pact Allies maintain a much larger standing force than NATO and, in fact, possess a significant numerical advantage in tanks and other mechanized units. In addition, the Soviets possess a modern helicopter fleet. In order to cope with this force, we must possess an organization of greater mobility, properly combined with firepower.

Air cavalry has proven its worth in Vietnam. Therefore, if other wars of national liberation break out, we would possess the ideal force which combines air cavalry and armor to cope with them. Also, air cavalry would provide a force that would be highly effective throughout the spectrum of warfare when combined with ground armor and infantry forces because of its superior mobility, intelligence-gathering ability and combat power.

The controversy of survivability of the attack helicopter in a mid- to high-intensity war environment is beyond the scope of this article. It is the author's opinion that the helicopter can survive and fight in any environment if the proper tactics are used. As well as tactics, the state of training and quality of leadership enter the equation of survivability.

For example, in order to survive, the air cavalry squadron will have to operate entirely in the nap-of-the-earth (NOE) mode. This means tree-top level and below and utilizing every fold, ridge, valley and tree of the terrain for cover and concealment. Anyone leaving the NOE mode immediately becomes subject to acquisition by enemy radar and visually sighted guns and missiles. However, flying at tree-top and below and using the terrain, the enemy's field of vision (both eyeball and infrared) is decreased as all of these devices depend on a clear or relatively unobstructed line-of-sight (LOS) to detect and engage targets. However, these tactics dictate increased training and leadership to be fully effective.

Since operations in Laos, which have been cited by critics to downgrade the survivability of helicopters, were limited to a specific area and the enemy knew where the helicopters would operate, let us examine cases where the mobility of the helicopter can be better used to contribute to its security.

First of all, chances are that avenues of approach into the enemy positions will be reversed for air cavalry units and ground units. If there is a large forest, swamp, unfordable river or steep hill that presents an obstacle to the movement of ground forces, especially armored/mechanized forces, the enemy will probably defend these sectors lightly. These sectors then become candidates for the best

avenues of approach for air cavalry, as the mobility of the helicopter is largely independent of what the terrain is like below. Even if obvious good avenues aren't present, a careful analysis of the terrain and the enemy, as well as selected use of suppressive fire, should disclose some way of gaining entrance to the enemy rear while minimizing the risk to our forces.

When employing the blitzkrieg doctrine, the avenue of approach for air cavalry units to the enemy rear would, of course, be over the friendly ground units that penetrated the enemy front and created a gap in the enemy defense. Thus, the air cavalry and ground units would be mutually supporting and contribute greatly to the security of each other. This situation portrays the ideal method of gaining entrance to the enemy rear and guarantees a high degree of survivability getting there. Also, the ground elements in this case could provide for logistic support for the air cavalry well forward to reduce turn-around time.

The tactics used to employ air cavalry in a high-intensity war should be based, as stated before, on blitzkrieg tactics. In the offense, this means that the air cavalry squadron, in conjunction with armored forces on the ground, should be given deep objectives in the enemy rear. The air cavalry squadron should be given the missions of destroying enemy artillery positions, both tube and missiles, enemy command posts, logistic installations, and facilitating the rapid advance of the ground column. This can be done by seizing and securing key terrain before the enemy can adequately react to the presence of a force in his rear. An example would be the securing of a bridge over an unfordable river before the enemy could destroy it.

The chaos and demoralization of the enemy that such operations would bring about are obvious. Also, the scale on which the air cavalry could operate has never before been seen in warfare.

The air cavalry could penetrate up to 150 kilometers behind the enemy line in one hour versus the 20-40 kilometers per hour of ground forces that are road-bound.

Unlike high performance aircraft, the helicopter flying NOE can independently seek out and destroy camouflaged and hidden targets that otherwise might be overlooked. This capability has been proven in Vietnam against highly camouflaged Viet Cong and North Vietnam Army targets. In addition, the target acquisition capability can be exploited in a nuclear environment.

In the defense, air cavalry, like its predecessor, the horse cavalry, is best used offensively. The air cavalry should be used to operate on raids to the rear and flanks of the advancing enemy. In this manner, the maximum damage could be inflicted upon the enemy. Air cavalry does not possess the capability to hold terrain in the normal sense. So, it should be employed similar to the old light cavalry to harass and destroy any enemy target within its capability and to range over a wide area.

The air cavalry squadron possesses the capability to counterattack enemy penetrations across a corps front through its mobility, firepower and responsiveness. It is unlikely that the air cavalry squadron could stop a penetration, but it definitely possesses the capability to slow the attack and to destroy many of the armored vehicles. Furthermore, because of the nature of the way the air cavalry fights, it can be easily disengaged from one location and redeployed against a threat in another sector that could be 100 kilometers away. By the same token, it can be employed offensively to exploit in another sector a considerable distance away in a short time.

Since Vietnam has established the worth of air cavalry against guerillas, the employment of the air cavalry squadron in a rear area security mission should be discussed as an example of the "mini-blitz." The squadron is ideally suited to provide the primary rear area security for a type corps. This sector would typically be about 60 kilometers wide and 80 to 100 kilometers deep. Unless a massive partisan threat exists, the air cavalry squadron, utilizing D Troop (the ground cavalry troop) as air-mobile infantry to reinforce the aero-rifle platoon of the air cavalry troops, can secure a corps rear area by being properly positioned.

In the matter of rear area security, we need to address the problem not only of partisans, but also airborne and/or airmobile assaults in our rear as our operations in the rear of the enemy has been advocated. The only organization that we have with sufficient mobility and combat power to effectively counter such assaults is the air cavalry squadron. Elements of the air cavalry troop traveling at 120 knots can easily react to such forces in a corps sector.

The air cavalry can react so swiftly that the enemy could not possibly go beyond hastily prepared positions, and in all probability, he will only have time to seek out natural cover and concealment found in the objective area. Thus, the air cavalry will soften the target for the ground elements to complete the destruction of the enemy. This, again, is an example of the blitzkrieg principles utilizing the air-ground combination of combat power.

Since our air cavalry does pose a threat not only to enemy operations in our rear but also in his rear area, it is predicted that in a future war, armed helicopters will be employed in a helicopter versus helicopter role. Operating in the manner that has been described makes the attack helicopter a formidable weapon. The only system available to the enemy with equal capabilities are his helicopters. Therefore, like tanks against tanks, we will see helicopters versus helicopters, and we should begin to design our materiel and train our people for this contingency.

Some people may be skeptical about the helicopter attacking tanks successfully. There is no question that the helicopter can successfully engage and defeat armor. This is particularly true of armor that is moving in the attack. If the tank is conducting an assault, it should be obvious that the helicopter has the advantage in first acquisition as the tank will in all probability be buttoned-up, and its field of view will be greatly limited. Also, the forces on the ground in front of the tank will greatly occupy the attention of the tank crew and accompanying elements. Therefore, it is highly unlikely that a helicopter will be noticed until it engages the tank. The attack helicopter utilizing its superior mobility, the terrain and supporting fires, direct and indirect, can easily attack the flank, rear or top of the armored vehicles, thus gaining a superior tactical advantage.

Once it becomes operational on the attack helicopter, the *TOW* antitank guided missile will make the attack helicopter even more effective against armor. Test firings of the *TOW* mounted on the *AH56A Cheyenne* have been successful, and the *AH1G* is also being modified to accept the *TOW*.

It should be obvious now that the attack helicopter has the capability to kill tanks and other armor-protected vehicles, even as an infantryman has the capability of destroying a tank. Therefore, the point of debate must hinge on the question of survivability of the helicopter. The view has been presented that just as the armored columns of the German Blitzkrieg and General Patton gained a large measure of security from their mobility, the helicopter will and does possess security by its mobility. The only question left unanswered by hard facts is the effectiveness of NOE flying in contributing to the survivability of the helicopter in a sophisticated environment. Hopefully, MASSTER, TRICAP and the Combat Developments Command Experimentation Command will be able to provide some hard data to help answer this question.

In order to make any tactic or concept work, adequate training and leadership is essential. The training required to operate in a high-intensity war should stress NOE flying, target identification (to prevent engaging friendly vehicles and aircraft) and evasive tactics against high performance aircraft. In addition, SOPs will have to be developed, as well as tactics, to be used in attacking armored vehicles both in the offense and the defense. The SOPs will have to concentrate on mutual relationships between the air cavalry and the ground armored forces in a blitzkrieg-type operation.

In order to be successful in combat, realistic training must be conducted. Without the discipline, self-confidence and cooperation created by training, neither air cavalry nor any other unit will ever achieve its full potential. In a unit such as air cavalry, the method of employment and skills required of its members dictate a high level of training to avoid defeat in battle and to achieve the desired decisive results.

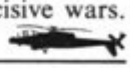
From training we must now move to leadership. Everyone acknowledges that effective leadership is necessary in a military organization. In cavalry type operations (in which the blitzkrieg tactic of deep enveloping thrusts are included), leaders must think rapidly, react instantaneously, be bold and aggressive, yet prudent. When one examines the proposal made in this article, and the fact that the German successes

in World War II were based on the excellent training and leadership of the Wehrmacht, the criticality of superior leadership in air cavalry becomes obvious.

Not only must we insure that air cavalry receives the appropriate training and leaders, but we must also educate other leaders in the Army as to the capabilities and proper use of air cavalry. All too often in Vietnam, decisive results were prevented by the misuse or failure to rapidly exploit the intelligence generated by air cavalry units. In future wars, we may not be allowed the luxury of making these same mistakes again.

The final point to be made is that the combination of effective training and good leadership makes what is known as the morale or moral force of an organization. Without providing the proper training and leadership, we will still not have the capability to win against our enemies even though the equipment is available. No nation or army has won a war without possessing a superior morale. In operations far to the rear of an enemy, morale is an absolute necessity along with training and leadership.

Let us in Armor, the combat arm of decision, not be caught dragging our feet. Let us renew the spirit of lightning war and employ air cavalry and Armor together to further enhance the firepower, mobility and shock effect of Armor. In this manner, we indeed can deal a rapid and decisive death blow to our enemies and avoid long, costly and indecisive wars.



LIEUTENANT COLONEL CECIL L. SHRADER, a 1958 West Point graduate, is currently with the Office, Chief of Research and Development.

DID I REALLY SAY THAT!?!

And gladly would he learn, and gladly teach.

CHAUCER, Canterbury Tales, Prologue.

To become qualified to present instruction in the Weapons Department of the Armor School is an involved process, and one which is often a harrowing experience for the potential instructor.

Starting at branch level, the instructor must pass successive rehearsal boards which not only examine his proficiency, but the depth of background knowledge which he possesses as well. These rehearsal boards, or as they are sometimes called "checkouts," are comprised of qualified instructors. These veterans of the "checkout campaigns" jealously guard the privilege of being qualified to present a unit of instruction, and therefore admit only the most and best qualified to their select fraternity.

The following "classic comments" are instructor mistakes extracted from a chart posted in Common Subjects Branch of the Gunnery Division, and attest to the trials and tribulations of the new instructor while maneuvering under the guns of other instructors:

"Lets move on, I don't have anymore answers on this subject!"

"Forget logic, this is tank gunnery."

"The tank commander tells the loader to unload a round by announcing: 'Loader, Unload Round'."

"To prevent any more questions, I'll give you a quiz."

"It would certainly be convenient if you were to round the corner of a battlefield in Europe, and right in front of you was an enemy tank!"

"The tank commander uses the headrest to adjust his head."

"We are not concerned with morals here!"

"This element of the Initial Fire Command is used when the vehicle commander's override is inoperative, or when the vehicle commander has both arms shot off."

"We will discuss this in little detail, more later."

"There are 640.000mils in a degree."

"The description of a Red Barn is announced as 'Red Barn'."

"The loader will have given up by this time."

"I may have led you astray. Oh well, let's go on."

"Let's go, the slides are getting hot!"

"It certainly would be convenient if we had a fully operational tank!"

"Does that answer your question? No Sir? Fine. . ."

"You lay the main gun on the target, crosshairs and everything."

"Anymore questions on whatever it was we were talking about?"

"I am not authorized opinions."

"I'll get to your question in a moment. Don't you want to rest your arm?"

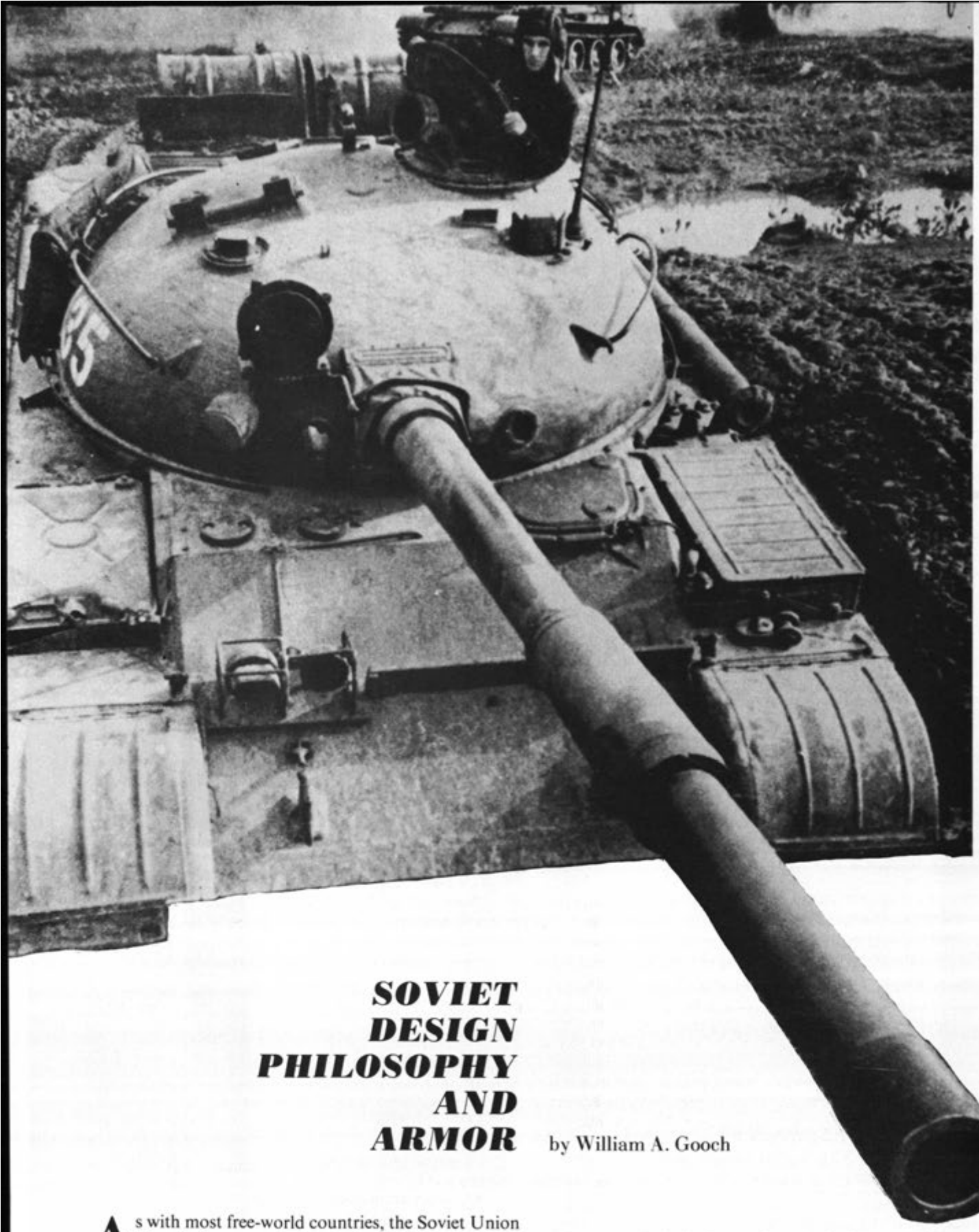
"I want to point this red button out to you, but forget about it! Remember, that you will forget about it!"

"An adding machine adds numbers."

"With 500 meters indexed on the rangefinder, we will have a battlesight of 1,000 meters."

"Do not start your quiz until you receive it."

"Don't worry, everything I covered in this hour will be on the quiz."



SOVIET DESIGN PHILOSOPHY AND ARMOR

by William A. Gooch

As with most free-world countries, the Soviet Union likewise has a particular design philosophy which satisfies its own unique set of requirements and limitations. The Soviets have to trade off firepower, mobility and protection to obtain a workable design. An examination of Soviet design philosophy in regards to armor, particularly the tank, may shed some light on its development.

Estimates from the 1971-72 International Institute of Strategic Studies indicate a Soviet ground force of 102 motorized rifle divisions and 51 tank divisions. At

The *T54*

T55s

full strength, each division would have 175 and 325 medium tanks, respectively. This is equivalent to almost 35,000 tanks just to equip the present ground forces, disregarding any reserve. This figure does not include the 15,000 tanks of the Warsaw Pact. Because of this large inventory, cost effectiveness has to be the major consideration in Soviet designs. Secondly, interchangeable and compatible systems between vehicles are required or the logistic organization would be unmanageable. These two concepts are fundamental to Soviet designs.

Because of these two limitations, Soviet designers are reluctant to change from proven designs and place a strong emphasis on simplicity and ease of maintenance. This is evident from previous vehicles which show an evolutionary development process, with improvements made on systems only when they increase the combat potential of the vehicle or when the threat changes. The idea of product improvement not only reduces lead time for development but also allows proposed modifications to be tried on vehicles of proven design. Emphasis on simplicity should not be confused with a lack of engineering skill. The ideal design is always the simplest. In this area the Soviets excel.

Soviet designers have a valuable planning aid available to them. In reviewing Soviet military journals it is observed that they form a link in the development cycle. Their journals serve as feedback mechanisms to help planners develop systems that fit the needs of the personnel who will use them. They contain many improvements and ideas that the individual soldier has discovered. What is important is that Soviet development originates from the field and is based on noted deficiencies in equipment.

Let us look at the three basic elements of armor design. The medium tank is probably the best example of this philosophy.

FIREPOWER

Since World War II, the Soviets have emphasized firepower and steadily upgunned their tanks. Their tank guns are heavy and well built. Except for the smooth bore 115mm gun on the *T62*, tank guns on past vehicles were adapted from other weapons. For example, the 100mm *DIOT* gun on the *T54* originated as a naval gun, was used on a towed artillery piece, as an antiaircraft gun, as an assault gun, and finally as a tank gun. Except for changes in projectile design, similarities in chamber design allow the ammunition to be interchangeable in most of these weapons.

The *T62* is unique in that it is a departure from previous tank gun origins, being the first Soviet system to use a smooth bore gun. This appears to be the first Soviet tank gun designed for the specific purpose of defeating armor. The 115mm armor-piercing discarding sabot (APDS) round has a muzzle velocity of 1,600 meters per second, the highest known in operational tanks.

Soviet fire control systems reflect a reliable, simple approach. Ranging is by an optical stadia rangefinder. This method compares the target height to the distance between two diverging lines, one of which is calibrated for range. This procedure is satisfactory for the high-velocity projectiles at most tank engagement ranges.

Additionally, the Soviets emphasize stabilization of the tank gun. The *T55* and *T62* have two-plane stabilization, product-improved from the earlier *T54A* which had the elevation stabilized only.

Soviet philosophy in firepower can be summed up as using heavy, well-constructed tank guns of proven reliability; and, if possible, ammunition interchangeable with other systems. Fire control is both simple and effective, and with the stabilization system, provides accurate fire.

The *T62*

MOBILITY

The Soviets emphasize mobility as much as firepower. Medium tanks, except for the *T34*, have used the torsion bar suspension system mainly because it allows them a system which offers satisfactory mobility at a cost they are willing to pay. Further, flat track instead of the support roller type has been the trend. The reason for this method of track support, as well as the single dry pin track shoe, is again economy and ease of replacement. With 90 track shoes per tank, the one-piece track shoe affords a cheap replacement.

The same basic liquid-cooled diesel has been used in all medium tanks since World War II. Originally an aircraft engine, its continued use and capability to be up-powered underlines another Soviet trend, that of overdesigning for future modifications. It would appear that road wheels, transmission, the transfer case, and other drive train components would be similar on the *T44*, *T54*, *T55* and *T62* which have the same basic hull and suspension.

Mobility and armor protection are an area of tradeoffs by the Soviets. High maneuverability and cross-country mobility afford protection to the vehicle allowing reductions in armor protection. This allows the weight of the medium tank to be near 36 metric tons, lighter than most tanks of the free world.

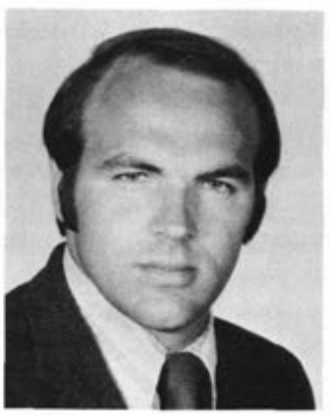
ARMOR PROTECTION

The Soviets stress the use of well-rounded turrets, high obliquity armor and little external equipment mounted on the armor. The height of Soviet tanks is approximately one meter less than US tanks and affords protection by its reduced target size. Armor material selection philosophy in the Soviet Union is somewhat conservative to US criteria—it is not as innovative in the application of new materials or configurations to vehicles.

It appears from studying Soviet technical journals that materials on today's combat vehicles originated from pre-World War II developments and have changed very little since. Generally for armor plate, the Soviets subscribe to the use of the chrome-manganese-silicon steels heat-treated to high hardness levels when the thicknesses are less than two inches in cross section. This is evident from the *T34* which was known to exhibit brittle failure after impact. For plate over two inches, the chrome-nickel-molybdenum steels must be considered optimum by the Soviets. Nickel is generally known to increase the toughness of steel. Since the US and most free-world countries utilize the same type of armor steel as the Soviets at medium hardness levels, it is probable that the thicker armor on today's Soviet vehicles have similar hardnesses and protection.

Use by the Soviets of anything other than steel for vehicular armor (e.g., aluminum) is not known. They are probably reluctant to change from materials of proven reliability as well as present availability. Here again, this should not be misconstrued. The Soviets do not lack ability. It should also be reminded that their supersonic transport, the SST, a titanium skinned airplane, is already flying—an indication of the competent level of applied materials R&D.

Hasty appraisal of Soviet vehicles by many people has previously indicated an inferior product. At a time when a dichotomy exists within the US on the future of the tank as an armored fighting vehicle, a better understanding of Soviet philosophy will hopefully permit a better estimate of their potential and future capabilities and thus avoid a technical surprise.



WILLIAM A. GOOCH Jr., who holds a master's degree in Materials Engineering from the University of Southern Florida, is assigned to the Combat Systems Division, Armor Systems Branch, of the Army Foreign Science and Technology Center, Charlottesville, Virginia. His work at FSTC has concentrated on foreign armor materials and protective systems.

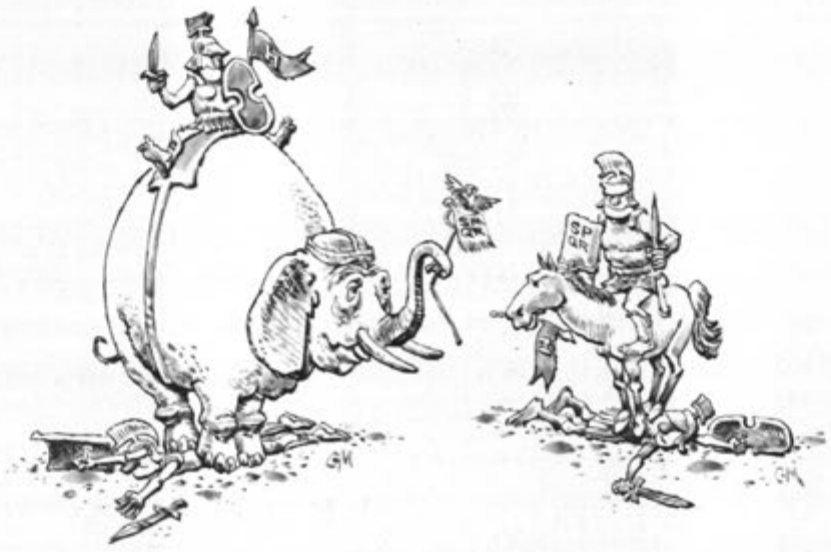
a short history of cavalry

by captain edgar l. smith iii and sp5 walter e. willmert

Back in the Year 900 BC there was a group of guys who called themselves the Assyrians. They were getting pretty tired of lugging all their heavy bows and arrows and brass knuckles around the battlefield. Someone got the idea of riding into battle on horseback, and it was the general consensus that it was a damn good idea. Unfortunately, when they tried it many of the soldiers fell off their horses when the latter moved at a wild trot. The results, however, were apparently effective as the Assyrians, charging directly into enemy infantry formations, dominated the ancient Near East until 600 BC. Thus, cavalry came into being—and so added a decisive tactic to the warmongers of yesteryear.

The Persians got the idea and continued the trend, dominating the scene until about 490 BC when the Greek hoplite infantry began winning more battles than they lost. The Macedonians, under the command of Philip and his son Alex the Great, began using cavalry in their conquest of the Near East in 350 BC. They relied heavily on their phalanx infantry for the brunt of the fighting, but the horse cavalry was also quite important.

Around 250 BC, the Parthians, whose AO extended south of the Caspian Sea, were responsible for developing two major improvements in horse warfare. First, they developed a larger and stronger breed of horse. Then they improved a relatively new device on the equestrian scene—the stirrup. Before this, saddles were not equipped with these wonderful devices, which certainly made it difficult for the incipient cavalryman to stay on his horse in the first place, let alone try to brandish his weapons effectively. But, the Parthian-perfected stirrup offered the rider a firm seat on the horse, allowing him to perform heroic feats of archery and to use shock tactics. Thus, the solution to several basic cavalry problems was found. The result was the cataphract, as it was known then. It was nothing more than an armored cavalryman mounted on a horse. But, he was vastly superior to the stirrup-less, light, small-horse-powered cavalryman heretofore inhabiting the continent. The Parthian cavalry became leg-



endary for doing their thing—a widely-copied tactic known as the Parthian shot. To the amazement of their friends and the consternation of their enemies, they would loose a rain of arrows over the backs of their horses while riding at a full gallop.

Things became more modernized under the Romans. Of course, they had their legions upon legions of infantry with more battle formations than Custer had Indians. But the Romans bit the dust in the year 216 BC at the decisive Battle of Cannae in which Hannibal whipped the Romans like no one whipped anyone else before, darn near killing the entrapped Roman legions to the man. The fun- and fight-loving Romans then reversed this trend at the Battle of Zama (near Carthage in North Africa) in 202 BC. What happened was that Scipio beat the hell out of Hannibal in a number of engagements when his superior horsepower, deployed on his flanks, was once again too much for the opposing pedestrian army.

The Roman leaders all this time were having more fun and enjoying it less, probably because of all the lead they were eating from their plates. (Lead poisoning was a contributing factor in the destruction of the Roman aristocrats.) The rest is history. Some tribe named Visigoth upped and killed 40,000 Romans under their head honcho, Valens, at Adrianople in the year 378 AD. This considerably hastened the fall of the Roman Empire. The Roman legions were no match for the Gothic cavalry, which swept down, overran and entrapped the Roman fighting machine.

An improved iron stirrup soon gave the horseman another edge. Mounted knights were now a must for an army to win any large battle. Armored cavalry dominated the whole military scene in Asia for more than a thousand years. It took hold in Europe as well. In 732 AD, Charles Martel led his Franks and defeated the Moslems at Tours by utilizing that medieval precedent—mounted men in armor.

The strategy and tactics of cavalry dominated the whole European scene until the 14th Century when the English, backed by their longbows and other devices which were infantry favorites (like gunpowder,

for example), rendered the armed and mounted knights ineffective. Again, the infantry dominated the cavalry in the vicious seesaw to fight and win.

World War I was perhaps the greatest man-made social disaster in the 20th Century. Millions of men lay in trenches and foxholes shooting at each other, but were otherwise unable to maneuver about the battlefield without getting shot half a dozen times. Winston Churchill, then First Lord of the British Admiralty, accepted the idea of a large, metal land-rover as a sound battlefield machine. Churchill had several of the large war machines built and attached the naval name TANK as the code word for the project. Shortly thereafter combat commanders in the field began receiving large wooden boxes labeled tank. Everyone thought they were water tanks, so Churchill really deceived all concerned. It didn't take long to learn to drive the mechanical monsters, and soon the British were clanking across Europe at the reckless speed of four miles an hour. Modern armored cavalry was born, and the Allied forces won the war. Every nation in the world followed suit, building tanks. Because it was the Royal British Navy that came up with the idea, various naval terms such as hull, hatch, and bloody stuck with the machines.

It was quickly obvious that horses and tanks didn't mix too well. The noisy engines frightened the horses and combined maneuver formations were disastrous. Most armies got rid of their horses, and the ensuing demise of the horse cavalry was quietly forgotten with the beginning of the World Wars. Gasoline replaced straw, Colt machine guns replaced the Springfield rifle, and exhaust fumes replaced horse dung. Armored cavalry was here to stay.

Combined arms teams of the future will further develop the tactics, strategy, and techniques of cavalry as we know it today. And to think, it all started with a stirrup.

CAPTAIN EDGAR L. SMITH III was commissioned in 1966 from Washington State University. He has served as a platoon leader, company commander and battalion adjutant. During two tours in Vietnam, Captain Smith served with the 1st Cavalry Division (Airmobile). He is a graduate of AOAC 1-70, and is presently an aide-de-camp to the Commander-in-Chief USAREUR.

SPECIALIST FIVE WALTER E. WILLMERT, who has a master's degree in European History, was an instructor at Yankton College, South Dakota before entering the Army. He attended the AG School at Fort Benjamin Harrison and, since returning from a tour in Vietnam, has been assigned as an instructor at the Armor School, Fort Knox.

HELL ON WHEELS DEFEATS THE HELIBORNE THREAT

by Lieutenant Colonel J. Hollis McCrea Jr.

The largest maneuver in the past seven years, US Readiness Command's joint training exercise, Gallant Hand 72, was recently concluded at the sprawling central Texas reservation of Fort Hood. The principal adversaries in this exercise were the famous Hell On Wheels 2d Armored Division and elements of the experimental TRICAP 1st Cavalry Division. Fort Hood proved to be an ideal setting for an encounter between the battle-proven tactics of an armored force and the relatively new concepts of airmobile offensive tactics.

Much of the 2d Armored Division's preparation for this exercise focused on countering the TRICAP Division's professed ability to defeat an essentially ground-bound force heavy in armor by rapid insertion of its forces and application of airmobile firepower throughout the battlefield. Although the scenario was painstakingly constructed to portray US assistance to the mythical country of Marcos in withstanding the aggression of Lobo, their neighbor to the north, the Hell On Wheels commander, Major General George G. Cantlay left no doubt in his troopers' minds that the objective was to "beat the Cavalry."

With this goal, the division's chief of staff, Colonel John A. Maurer, was told to establish a counter-heliborne planning group to determine the best methods of denying the TRICAP aggressor easy access to the division's zone of operations. The planning group included the G3 and his assistant for plans, the G3 air, the division aviation officer, the cavalry squadron commander and the division's air defense battalion commander.

The planning group had no doctrinal literature to rely on—they were pioneers. First, they determined the key to denying vertical access to the division's zone of operations could be described by the acronym DARE (detect, alert, react, eliminate). It was also recognized early that any success the division might enjoy would directly depend on the watchfulness and aggressiveness of every soldier in the division, not just a few with a specific mission, to protect against the airmobile threat.

The detection phase emphasizes the necessity for whole hearted participation throughout the division. The dedicated air defense assets—24 *Chaparral* sys-

tems, 24 *Vulcan* systems, and 50 *Redeye* teams—fall short of providing 100 per cent surveillance of the division's zone of operations. These air defense assets are designed to protect specific priorities established by the division commander, and as a rule will be weighted forward to provide a maximum coverage of the low altitude routes of approach into the division area. The surveillance problem will be simplified somewhat, or at least will be better handled by air defense assets, when the Forward Area Alerting Radar (FAAR) is deployed, but that time has not arrived. Without this radar, the emphasis is on the eyes and ears of every soldier in the division, not just the air defenders.

In Gallant Hand 72, the 2d Armored Division dedicated a portion of its own helicopter assets to provide 24-hour airborne surveillance over the division's zone of operations. This patrol proved to be highly effective in supplementing ground surveillance. It was particularly helpful during darkness and produced a great number of spottings that might not otherwise have been made from the ground. As a result, in Gallant Hand 72, no airmobile incursions successfully evaded detection.

An integral element of this detection phase is the identification of aircraft. This task would be simplified somewhat in an actual hostile outbreak since the participants would not be armed with identical aircraft. This provided an added confusion factor and emphasized the need for thorough training in aircraft recognition throughout the division as well as the need for an awareness of the various weapons control status and rules of engagement currently governing the situation. Most importantly, this helped to highlight the need for proper coordination of the air space over the division and particularly over the frontline brigade areas.

DARE formula's second step is the alert. In some cases this may be simple. For example, if one of the observers for a *Chaparral* or *Vulcan* system spots a

hostile aircraft, he merely talks the senior gunner to its location, and the engagement and kill occur almost instantaneously. There are cases, however, where this important step is not quite as easy. For example, the attempted insertion of an airmobile force might be spotted by a rifleman without means to cope with such a force. Success in this case depends largely on the alert—who does the rifleman notify, and how timely is this notification. The command emphasis placed on this aspect of the DARE formula paid handsome rewards in exercise Gallant Hand 72. The soldiers of Hell On Wheels were provided with detailed instructions on the reporting of airmobile intruders, with emphasis on a rapid report rather than its format, so that the division could locate and react to this threat.

The third step in the formula is the reaction phase; that is, doing something about it. The emphasis here falls on the division's combined arms firepower and its attached resources. If the air defenders are doing their job, any such threats located and identified within the range of their weapons will be promptly engaged and destroyed. The situation to consider is one in which this is not the case—the attempted intrusion made into an area free of the division's air defense assets.

Prior planning can assist greatly here. First, by the construction of barriers to deny likely landing zones to the enemy, and secondly, by the preparation of an artillery fire plan specifically designed to counter the heliborne threat. These actions become particularly desirable in a static or semi-static situation, and were handled most capably in the initial phases of Gallant Hand 72, during which the exercise scenario required Hell On Wheels to delay and defend.

The other principal means of countering this insertion is by the rapid response of a reaction force deployed to that area with the greatest possible speed. If at all possible, this force should be airmobile itself, but at least it must be capable of striking rapidly, should be instantly available, and should be specifically set aside for that purpose. The 2d Armored Division employed the Cavalry Squadron's Air Cavalry Troop most successfully in this role in the division rear area in Gallant Hand 72, while the line brigades designated their reaction forces from within the brigade reserves.

The final element of challenge presented to our adversary, or in the case of Gallant Hand 72 to the TRICAP aggressors, is the elimination phase. If preceding factors have gone well, this phase is but an expected adjunct to our reaction. The division has the ability to quickly eliminate this force upon location. Elimination becomes only a question of the means to be used.

There are three situations, all disadvantageous to him, in which the enemy force can be found. First, if the adversary is located at the pickup zone, either awaiting pickup or in the process, the best tools for elimination are the assets of division artillery or the division's close air support. Second, if the force is located while airborne, it would be no match for the division's air defense weapons augmented by more than 500 *M60* machine guns and 1,200 .50-caliber machine guns available in the division. Finally, after insertion, the finding and fixing becomes more difficult, but the force has lost its mobility, while its characteristic lightness puts it at a great disadvantage against armored or mechanized elements.

The success the Hell On Wheels Division enjoyed during Gallant Hand 72 in countering heliborne operations was fundamentally due to the reorientation, the alertness, the aggressiveness and the desire of the individual trooper. He was taught that the aggressor felt he had free access to the division because of his nap-of-the-earth flying tactics, and he was taught to be constantly alert for these intrusions by keeping his eyes and ears open. He learned his lessons well. The aggressors from Lobo were unable to respond to the DARE.

LIEUTENANT COLONEL J. HOLLIS McCREA JR. is the former commanding officer of the 8th Battalion, 60th Artillery, 2d Armored Division, and is currently assigned to the ADA Branch-OPD.

HIRE THE

by Colonel John R. Byers

He walked in, did a smart left face and saluted. "Sir, Sergeant First Class Mossback reports to the Brigade Commander."

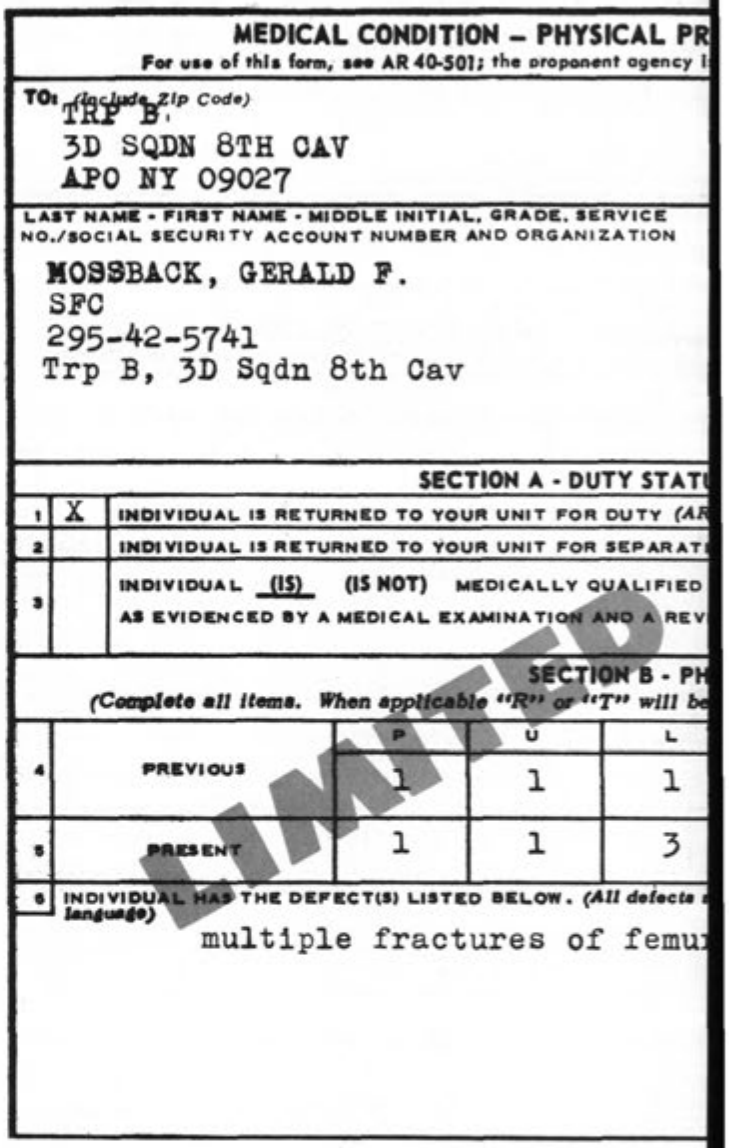
I returned his salute, noted the steady voice of confidence and the several rows of ribbons, and stood up as I offered him my hand in welcome. The brigade needed every senior noncommissioned officer it could get; we were running over 50 per cent short in the top three grades. We walked across the office to a group of easy chairs and sat down to explore each other, the sergeant major sitting back quietly while SFC Mossback and I talked.

The sergeant major had already briefed me on our new sergeant's background and had attached his assignment recommendation to the records' jacket. He had also noted in his briefing that this was the fourth noncommissioned officer assigned that month that had a 3 profile.

After several minutes' conversation and as casually as I could, I asked SFC Mossback about his profile. He informed me that he had been wounded in the knee in Korea and then had multiple leg wounds from mine fragments in Vietnam. But he hastened to assure me that this would have no bearing on his ability to perform his job. And I knew it wouldn't if he could help it. His battalion commander in Vietnam, an old friend of mine, had written a glowing letter of commendation of SFC Mossback's work after he was released from the hospital.

However, a commander's loyalty and duty must run two ways; he owes his men the constant assurance that they will be treated properly as much as he owes the Army the assurance that he will accomplish the unit's mission. Training in our division was physically rugged. We spent nearly all our training time in the field and in all kinds of weather. An infantry platoon was no place for a man with bad legs. The sergeant major and I had already discussed this in detail and decided on a job for SFC Mossback where we could put his talents to good use, and still spare him most of the physical hardships of rigorous field duty.

We were lucky. We had a good job for that noncommissioned officer; one where he could work well and feel that he was contributing to the success of the brigade. In discussing the problem of increasing numbers of handicapped soldiers with my fellow commanders, however, I found that they were concerned over this trend and that the numbers exceeded what I had thought.



MEDICAL CONDITION – PHYSICAL PR

For use of this form, see AR 40-501; the proponent agency i

TO: (Include Zip Code)
TRP B
3D SQDN 8TH CAV
APO NY 09027

LAST NAME - FIRST NAME - MIDDLE INITIAL, GRADE, SERVICE NO./SOCIAL SECURITY ACCOUNT NUMBER AND ORGANIZATION

MOSSBACK, GERALD F.
SFC
295-42-5741
Trp B, 3D Sqdn 8th Cav

SECTION A - DUTY STAT

1	X	INDIVIDUAL IS RETURNED TO YOUR UNIT FOR DUTY (AR
2		INDIVIDUAL IS RETURNED TO YOUR UNIT FOR SEPARAT
3		INDIVIDUAL (IS) (IS NOT) MEDICALLY QUALIFIED AS EVIDENCED BY A MEDICAL EXAMINATION AND A REV

SECTION B - PH

(Complete all items. When applicable "R" or "T" will be

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4	PREVIOUS	1	1	1
5	PRESENT	1	1	3

6 INDIVIDUAL HAS THE DEFECT(S) LISTED BELOW. (All defects i language)

multiple fractures of femu

LIMITED

The G1 brought me up to date; the division had a large number of physically handicapped soldiers and the number had been increasing steadily over the past six months. The future didn't look any brighter.

The result of this inflow was that many platoons were being run by men who were medically unfit for the job, although it is to their great credit that, almost without exception, they performed magnificently and uncomplainingly.

The Army needs to take a hard look at what it can and should do with the seasoned, skilled soldier who

HANDICAPPED

)FILE RECORD
The Surgeon General's Office.

DATE
1 Sep 1972

FROM: (Include Zip Code)
C.L.W. Army Hospital
Ft Leonard Wood, MO
65473

INSTRUCTIONS

Complete Section D of this form in lieu of DA Form 8-118, whenever a medical board is held for the sole purpose of permanently revising the physical profile to or from a numerical designator "3".

PREPARE COPIES AS INDICATED BELOW:

Unit Commander - 1 copy when Item 1 or 2 is checked
Appropriate Commander or HQ - 1 copy when Item 3 is checked.
Health Record Jacket, (DD Form 722) - 1 copy
Clinical Record - 1 copy when appropriate

S (Check Applicable Item(s))

40-3, AR 635-40)

)N PROCESSING (AR 40-3, AR 635-40)

'OR Limited Duty

EW OF HIS HEALTH RECORD THIS DATE 1 Sep 72

'SICAL PROFILE
entered with numerical designator under appropriate factor)

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	1	2	1	PREVIOUS
	1	2	1	PRESENT

quiring a 3 or 4 in any PULHES factor will be reported in non-technical

☐ Continued under remarks

can no longer meet the stringent physical standards for field service but who has both valuable experience and education coupled with the desire to continue to serve his country by service in his Army.

Not every job in the Army demands a tough physical constitution and great stamina—not even every military assignment in overseas theaters. While the physical standards are written for each man with combat in mind, that simply isn't the way it works out. As a matter of fact, above company level or out of the combat and combat support units, numerous slots can be found that require relatively little in the way of physical exertion. This is not to say that the jobs aren't demanding, only that they can be done by someone other than a Charles Atlas; someone, say who is hard of hearing or who has a bad leg.

The Army used to recognize this difference and made assignments accordingly, but somewhere along the line efficiency experts purged the system and discarded proven concepts in the name of economy. You of the Brown Shoe Army will remember the old classification of Limited Service.

AR 40–100, 1943, explained part of it: "In periods of national emergency, individuals may be accepted for original appointment or extended active duty who do not meet the physical standards for general military service but who are physically qualified for limited military service." It then spelled out what limitations would be accepted.

AR 615–28, 1944, went further: "The general objectives . . . are to facilitate the placement of each individual in the assignment in which he will be of the most value to the service and to expedite unit training by utilizing the abilities and skills which individuals bring with them from civil life or acquire during their experience in the Army."

But those are old World War II regulations. New ideas, new concepts and policies arrived and the old ways disappeared. The premise was that the Army, with a greater manpower pool in peacetime than it could effectively use, could afford to be more demanding and critical in its selection. There was no need to retain men who had physical defects. Further, personnel distribution would be more efficient if all men were fully qualified and no particular effort or attention to physical fitness had to be paid to making assignments.

In all fairness to the personnel planners, however, the Army did expect that there would be exceptions and that some men should be retained despite physical infirmities. AR 40–501 entitled "Medical Fitness Standards for Retention, Promotion and Separation Including Retirement," states that the regulation "provides general guidelines and is not to be taken as a mandate to the effect that possession of one or more of the listed conditions means automatic retirement or separation from the service. Each case must be decided upon the relevant facts and a determination of fitness or unfitness must be made dependent upon the abilities of the member to perform the duties of his

office, grade, rank or rating in such a manner as to reasonably fulfill the purpose of his employment in the military service."

Nevertheless, the whole concept was still based on an unlimited manpower pool, and each disability case was treated as an exception to standards. Now things are different. The source is not only limited, it's drying up! The days of the Draft are numbered and the Army is striving toward an all volunteer service. Perhaps that won't be reached as quickly as the Army would like, but now it must look carefully at all of the personnel assets available. One of those assets is physically handicapped soldiers.

Just what are these handicaps? Some may infer that this means everything from a punctured eardrum to a basket case. And that's pretty close! The following physical criteria for retention in service is extracted from AR 40-501:

> A single impairment or the combined effect of two or more impairments normally makes an individual unfit because of physical disability if . . .
> - The individual is precluded from a reasonable fulfillment of the purpose of his employment in the military service, or
> - The individual's health or well-being would be compromised if he were to remain in the military service, or
> - The individual's retention in the military service would prejudice the best interests of the Government."

The regulation then goes on to list 19 major areas for examination, from abdomen and gastrointestinal system to venereal diseases. Over 300 separate and distinct limiting conditions are listed, varying from amyloidosis and biliary dyskinesia to pancreaticojejunostomy and xanthoma! In addition, there are several catch-all paragraphs which describe general conditions that are chronic and interfere with the satisfactory performance of military duty.

Another condition not listed but often found is simply increasing age. The old muscles get tired quicker and recover slower. This may not be so apparent in staff and school assignments, but it becomes obvious in troop units operating in the field.

With this large number of limiting conditions in mind, consider the capabilities of these partially disabled men as a group, granting that there will be exceptional cases, both good and bad.

First, they possess a wealth of experience, literally years of practical knowledge and training that would consume many more years to teach others. This experience is both technical and supervisory. They are communications chiefs, senior recovery mechanics, tank commanders, medical technicians and fire direction chiefs—each with years on years of hands-on-equipment know-how. They are also squad leaders, platoon sergeants, chiefs of section and first sergeants; they are leaders. They know and understand supervision; they know how to guide and teach young men; they have years of savvy in counseling troops.

Second, they are for the most part intelligent men who have proven their worth, many of them in the ruthless crucible of combat. They are versatile, flexible and disciplined. They have amply demonstrated their ability not only to learn difficult subjects but to apply this education and to impart it equally well to others. Many are the pacesetters who establish the standards and guideposts for young soldiers.

Finally, and perhaps most important of all, there is the unbounded loyalty that most of these men have for the Army—their Army. They want to be soldiers, not parasites. They have a fierce determination to show that they can perform their jobs just as well as the next man, that they are still just as tough, and that they can uphold the principles, traditions and heritage of the Army undiminished. That kind of loyalty cannot be bought for any price on any market. The more senior in rank and responsibilities must bear in mind that they owe these men just as great a loyalty. They must not allow them to be abused or discarded.

Where can they be used to the greatest benefit both to themselves and to the Army? Are any appropriate jobs available? The answer is a strong yes; there are many.

There are always a number of special missions assigned to our troop units; jobs that call for a mature individual who must often work with little or no supervision to do a job that wasn't considered when the TOE was made. Some are supposedly part-time work, but often end up as full-time employment. The jobs may vary from unit training sergeant to gymnasium supervisor to the Equal Opportunity Advisor. In Germany, where most units are located on small posts with very small station complements, such troop diversions may constitute a considerable but necessary manpower drain. Many of the handicapped noncommissioned officers can find their niches in these assignments.

Staff and instructor assignments require a maximum output in mental effort but relatively little physical effort. Many senior noncommissioned officers are used here, but many more may not be qualified for these more demanding jobs which require much experience, quick intelligence, and an articulate individual.

In addition, there are numerous post, camp and

station assignments in CONUS that can absorb handicapped men. Such positions may require a little or even major retraining, but the job is not insurmountable.

The basic problem is that under the present system all of these jobs—troop diversions, instructor, staff, installation complement—are presently filled with men without regard to physical qualifications. Troops are currently assigned on the basis of grade and MOS only, not on the basis of physical condition.

The upshot of this system is that many handicapped soldiers are often forced into assignments where their disability penalizes them because other, less physically demanding jobs, are taken by fully qualified men. SFC Mossback, and many others like him, feel obliged to retire or end up in line units, working in pain but too proud to complain.

Some years ago Command Sergeant Major Ernest C. Jeffries retired. Earlier, he had been my sergeant major in the 2d Squadron, 14th Cavalry. Together we bounced in open jeeps over many miles of frozen ground on the German border and at Grafenwoehr and Hohenfels. Sergeant Major Jeffries retired with 60 per cent disability because of old back injuries, but never in the many months we served together did he ever mention a bad back, much less complain about it or seek a softer berth. He was of the old school of noncommissioned officers who believed that if you took the king's shilling, you did the king's work. Today, many more like him are serving gallantly in the Army's ranks; serving because they are soldiers and they would rather be doing that than anything else. But they're also suffering unnecessarily in doing their duties. It is up to their leaders and commanders to find a more equitable system that will recognize their disabilities as a matter of course but which will still employ their talents. Limited Service might be part of that solution.

Suppose the Army did return to the old system of Limited Service; just what would that entail? First, the physical criteria would have to be established for limited duty. Then, those jobs, either by type or by specific assignment, would have to be identified that could be done as well by Limited Service personnel as by anyone else. Certain jobs within an MOS, and certain MOSs in their entirety, could be performed by Limited Service troops. Once that identification is done, the personnel assignment system could be modified to give priority in such assignments to Limited Service troops; priority only, because it might well be that in some instance no Limited Service personnel were available. Obviously, the job couldn't hang open until an LS man could be found. However, these are essentially details in the system. The Army needs to recognize the requirement and accept the concept of reintroducing Limited Service.

The Army is aware of this problem, and already the Army Staff is conducting some studies in this vein. A new AR is being proposed that would cause the records of any man given a permanent profile 3 to be automatically reviewed for possible reclassification if it was determined that his physical condition actually precluded his ability to do his MOS job. Another study is considering the identification of specific jobs that can be accomplished satisfactorily by handicapped men. Both efforts are aimed at solving the Army's problems in becoming and staying an all volunteer force.

These actions comprise a giant step toward a comprehensive Limited Service policy; Limited Service which not only recognizes handicaps and accounts for them, but which also gives the Army specific slots where these soldiers may be assigned. Limited Service takes advantage of the years of accumulated experience of senior noncommissioned officers and relieves the Army of part of the burden of constantly training new men. Limited Service provides a way for a severely injured man to regain his purpose in life and to complete his military career in the service of his country. Cornball? Maybe. But morale, loyalty, pride and esprit are all based in part on the emotional feeling a soldier has toward the Army.

We cannot afford to discard this experience or this loyalty. Nor can we any longer afford a personnel assignment system that ignores physical handicaps. Limited Service is one solution and the Army would do well to give it some serious thought.

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FROM SAND CREEK TO MY LAI

Misunderstandings Surround Military Misadventures

PART III—THE BATTLE OF WOUNDED KNEE

by William Gardner Bell

The final battle of the Indian Wars occurred in southwestern South Dakota between the Army's 7th Cavalry Regiment and a band of Sioux Indians.

The Sioux Nation was the name given to the Teton Sioux, a loose confederation of seven tribes. They were pushed out of the lake and forest region around the Mississippi River's headwaters and moved onto the Great Plains, acquired the horse, hitched their economy and livelihood to the buffalo, and roamed over the vast region north of the Arkansas River and west from the Missouri River to the mountains. They were a numerous, mobile, wide-ranging, and effective enemy with some competent allies in the northern branches of the Cheyennes and Arapahoes. Since they lay athwart the main transcontinental trails, they were the anchor element of an Indian barrier that extended down the Great Plains from the Canadian to the Mexican border. Theirs was the area of decision insofar as white emigration to the West was concerned. Most other Indian problems, while troublesome and serious, were peripheral.

As the white man moved west, the Sioux were pressured into a series of deals that gradually whittled away their territory, freedom and way of life. That they did not take it meekly is evident from the history of the Indian Wars. As General Sherman noted in 1866, "the poor devil naturally wriggles against his doom." In such wriggling as the Grattan, Fetterman and Custer defeats, the reds delayed the march of destiny; but these were only battles and the outcome of the war was never in doubt. If their impending downfall was not apparent earlier, the decade of the 1880s brought the story home.

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Confined to the Great Sioux Reservation in South Dakota, the Sioux saw their political, social, economic and religious customs so abridged and their territory so inexorably compressed that their life style was shattered. In their despair they were highly susceptible to the preachings of an Indian Messiah who offered them a new religion that promised a return to the old way of life.

The first vague rumors of an Indian Messiah spread through the western tribes in 1889. When they reached the Sioux country, a Teton delegation was sent west to search for the prophet. The quest took them all the way to western Nevada, and there they found the Messiah. He was a Paiute named Wovoka who, during an eclipse of the sun, had seen a vision and had been transported to heaven where he saw God and many people who had died long before. He came back as the Messiah of the Indian race, prepared to rescue his people from despair. Out of the mixture of Indian bewilderment, mysticism, paganism, longing for the past, and the promptings of his divine mission, Wovoka began to preach a new doctrine under which the Indians were intended to be industrious, honest, virtuous and peaceful. In addition to following this moral code, participants were to perform a dance that God had taught Wovoka. The Ghost Dance became the most dramatic and inspirational feature of the new religion.

Many of the Sioux fell under the spell of the new faith and plunged into the Ghost Dancing with wild abandon. As the practice spread during the summer and fall of 1890, the problems of the Indian agents who administered the tribal reservations became increasingly acute. The more able and experienced maintained control, but several were replaced at a critical period because of the change of national administrations. The agent on the Pine Ridge Reservation, for example, newly appointed through

political patronage, by November had lost the respect of his charges along with whatever degree of authority he might have had. There, and at several other locations, the Indians defied orders to stop the ceremonial dancing, and emotions reached such a pitch that the lives of government employees and stability among peaceable Indians were clearly endangered.

Despite the traditional rivalry between the Indian Bureau and the War Department over which was better qualified to administer the red man, the commissioner of Indian affairs recommended that the secretary of the interior ask for troops. The President directed the secretary of war to supply them, and on 17 November 1890, units were dispatched from various locations in the Division of the Missouri, to the Pine Ridge and Rosebud agencies, and to other positions along the rail and telegraph lines south and west of the Sioux region. On 20 November, columns arrived simultaneously at dawn at the two large agencies, and a complex and controversial chain of events began that would end in a clash on Wounded Knee Creek five weeks later.

By 1890, the Great Sioux Reservation had been compressed, fragmented and structured into six tribal sub-reservations: Standing Rock, Cheyenne River, Lower Brule, Crow Creek, Rosebud and Pine Ridge. There were perhaps 16,000 Teton Sioux on these reservations, about a quarter of them fighting men. Many had acquired late model weapons from merchants and traders, and while they were dependent upon government rations, there was plenty of domestic stock in the country for both food and transportation.

As for the Army, the Sioux country fell within the Division of the Missouri, now presided over by Major General Nelson A. Miles at headquarters in Chicago. His command consisted of two departments, both of which would be heavily involved in the Sioux Campaign of 1890-91. The one most directly involved in terms of geography was the Department of Dakota, commanded by Brigadier General Thomas H. Ruger with headquarters at St. Paul, and embracing the states of Minnesota,

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Chief Big Foot, Miniconjou Sioux leader (seated front row, second from left) was a member of a Sioux delegation that visited Washington in 1888, two years before Wounded Knee.

North and South Dakota and Montana. To its south, with troops better positioned to move to trouble spots in South Dakota, was the Department of the Platte, commanded by Brigadier General John R. Brooke from his headquarters at Omaha, where he controlled a large area embracing the states of Iowa, Nebraska, Colorado, Wyoming, the Territory of Utah and part of Idaho. Posts in Sioux country were few and lightly manned: Fort Yates in North Dakota, Forts Sully, Bennett and Meade in South Dakota, and Forts Robinson and Niobrara in neighboring Nebraska.

Miles placed General Brooke in charge of field operations and Brooke tried diplomacy to quiet the Indians and eradicate the Ghost Dance ceremonials. This peeved Miles and he ordered Brooke to assemble the scattered bands of Indians at the various agencies under the watchful eyes of the troops.

Not all of the Sioux subscribed to the Ghost Dance religion and participated in its wilder manifestations. The dancers at Pine Ridge comprised perhaps 40 per cent of the population, those at Rosebud about 30 per cent, those at Cheyenne River around 15 per cent, and at Standing Rock around 10 per cent. An important consideration was the fact that several influential elder statesmen of the tribes espoused the cause and swayed their followers although it should be noted that many of the wild young warriors needed little prompting.

Among the prominent leaders who supported the Ghost Dance were Sitting Bull and Big Foot. James McLaughlin, the Standing Rock agent, felt that progress in civilizing the Indians could only be made if these leading "reactionaries" were removed from their midst. He decided to arrest Sitting Bull, and sent his Indian police to do the job, fearing that the use of military forces would cause a violent reaction among the already agitated Indians. He did arrange for a four-company back-up force to hold in supporting distance several miles away, and as it turned out, they were needed.

The police detachment surrounded Sitting Bull's house at dawn on 15 December. Sitting Bull was awakened and submitted meekly enough to the arrest. But his people did not. As he was led to his horse, his followers opened fire on the police. Lieutenant Henry Bull Head, the detachment leader, was mortally wounded by the first shots, but as he fell he shot and wounded his distinguished prisoner. Sergeant Red Tomahawk administered the coup-de-grace by putting a bullet into Sitting Bull's head, and only the arrival of the troops saved the 20-odd man detachment from extermination.

With Sitting Bull removed from the scene, attention turned next to Chief Big Foot. He was a member of the Miniconjou tribe and had won some standing as a diplomat among the tribes. But he was also wedded to the old way of life and he had early embraced the Ghost Dance religion. Yet, one of his close associates had given in to white pressures and moved to the peaceful environs of the Indian agency, and Big Foot became disillusioned. His gradual change of heart was not known to the white authorities, however, and he was well fixed in Army minds as a hostile leader.

On 3 December 1890, Lieutenant Colonel Edwin Vose Sumner had assumed command over four companies in a camp of observation on the Cheyenne River to overwatch Big Foot's area. Sumner was one of the Army's experienced campaigners and a man of compassion and understanding. He established cordial relations with Big Foot, whom he found to be friendly and cooperative. He did not know that his superiors had marked Big Foot for arrest, and he did not learn about it until Big Foot and his band, under the pressures of a combination of factors that included word of Sitting Bull's death, slipped away from his control.

Big Foot disappeared into the remote areas of the Pine Ridge Reservation, buffeted by a variety of doubts and circumstances and not sure whether to break for a hostile refuge called "The Stronghold" where hard-core Ghost Dancers continued their ceremonials, or to move south to the Pine Ridge Agency and join the growing bands of Indians who saw the futility of further resistance. Convinced of his hostile intentions and believing that he planned to join the group in The Stronghold, Miles and Brooke launched a massive search. Units of the 6th, 8th, and 9th Cavalry Regiments marched and countermarched across a huge and bleak region trying to find Big Foot and his band. At least some of the campaigners were annoyed over reports that the 7th Cavalry Regiment was enjoying an easy life at the Pine Ridge Agency. Colonel Eugene A. Carr, a veteran cavalryman who had moved his 6th Cavalry up from scattered locations in Arizona and New Mexico to be thrown onto the wintry plains in Dakota, had no hesitation in voicing his thoughts to General Miles. "I understand," he said in a communication of 18 December, "(that) the 7th has a beautiful camp at Pine Ridge, all laid out according to the regulations and everything in apple pie order." It was a situation that would not last long for the 7th.

On the morning of 26 December, General Brooke

in field headquarters at the Pine Ridge Agency received word that Big Foot had crossed the White River and was heading for the Agency, not The Stronghold. He ordered out a squadron of the 7th Cavalry to locate the band, disarm them, and hold Big Foot for his orders.

Major Samuel Marmaduke Whitside and four troops of the 7th intercepted Big Foot and 350 Miniconjou Sioux out in the Pine Ridge Reservation and escorted them to Wounded Knee Creek. They were camped next to the military bivouac, and a tent was put up for Big Foot, who had become seriously ill with pneumonia. He was attended by the military surgeon. Meanwhile, the officer of the day established 20 sentinel posts around the Indian village with patrols to connect them. The squadron commander posted his two Hotchkiss guns on a hill above camp, and two more that arrived in the evening hours with the remainder of the regiment were also positioned there to form a battery of four guns.

On the morning of 29 December, the soldiers and the Indians went about their day-starting activities cheek-by-jowl. Colonel James W. Forsyth, the 7th Cavalry's commanding officer, laid out his plans for disarming the Indians. His officers were experienced and able leaders. Six of them had been with the organization since Custer's day, and five had fought at Little Bighorn. About 20 per cent of the enlisted men were recruits, some in the unit only two weeks. The regiment numbered about 500, and with its formal organization and disposition, Big Foot's band would have been ill-advised indeed to contemplate resistance. They did not plan armed resistance, and to the military officers it was such a remote possibility as to be no threat at all.

Around 8:00 am, the troop units took up their designated positions and the regimental commander designated the area in front of Big Foot's tent as a council site. The Indian men were assembled and Forsyth told them that they must surrender their arms. When this produced only a few old pieces, Forsyth detailed several officers, backed by two groups of 15 soldiers, to search the Indian tepees. Only the officers entered the lodges. Captain Wallace chucked the children under the chin as the search proceeded.

Lieutenant Mann, writing on his deathbed a few days later, stated that "The squaws were sitting on bundles concealing guns and other arms. . . . Had they been the most refined ladies in the land, they could not have been treated with more consideration." Even this search did not produce nearly the number of rifles, many of them the latest models, known to be in Indian hands. They could only be concealed by the warriors on their persons, under their blankets. A search of individuals was begun.

As these proceedings went along, a medicine man named Yellow Bird circulated among the young men, reassuring them of their invulnerability to the white man's bullets. His incitement added to the natural agitation of the moment.

A final spark came when two soldiers approached a young Indian named Black Coyote, who held a rifle above his head and vowed not to surrender it unless he was paid for it. As the soldiers and the Indian wrestled for the weapon it fired into the air. At the sound of the shot, half a dozen warriors pulled rifles from under their blankets, leveled them at K Troop standing in ranks to the side, and fired a volley into the unit. By instinct the troopers of K and B returned the fire, and all of the armed Indians joined the fight.

In the wild melee that followed, Indian fire that failed to find a K Troop target laced into the Indian village at the rear. Women and children scattered in all directions. The warriors too broke in all directions, and the fight spread over the area, with Indian men, women and children intermixed and partially indistinguishable in the smoke, dust and heat of battle. Some of the squaws were armed and did as much damage as the men. Fighting warriors invited destruction upon women and children, and inexperienced and frightened soldiers exceeded the bounds that would have been observed by cooler and more experienced hands.

The Indians lost about 150 and 50 were wounded out of the 350 in the Miniconjou band. The 7th Cavalry lost 1 officer, 6 noncommissioned officers and 18 privates, and had 4 officers, 11 noncoms and 22 privates wounded, many seriously. Several more were casualties in an action at Drexel Mission the next day.

Military authorities and the general American public were grieved over the killing of noncombatants at Wounded Knee. Miles appointed a Court of Inquiry composed of the inspector general and the acting assistant inspector general of the Military Division of the Missouri. They took extensive testimony on the scene, and found that "under the circumstances, all care was taken after the Indians made the first break to preserve the lives of noncombatants," and that casualties among women and children "could only be ascribed to the fault of the Indians themselves and the force of unavoidable and unfortunate circumstances." General Miles

US SIGNAL CORPS

Colonel James W. Forsyth

criticized Colonel Forsyth for faulty troop disposition and tried to bring the 7th Cavalry's commander before a court martial, but his efforts were rejected by the commanding general of the Army and the secretary of war.

Three correspondents were present at the Battle of Wounded Knee, and their dispatches were carried in newspapers across the land. Two positions developed: one in which the battle was portrayed as an Army triumph over treacherous Indians, the other condemning the troops for slaughtering noble red men and helpless women and children. As with most circumstances in human affairs, the answer lay somewhere in between.

The Battle of Wounded Knee was certainly not something to be proud of, yet neither was it a premeditated massacre of defenseless women and children. Robert M. Utley in his book, *The Last Days of the Sioux Nation*, puts the event in historical perspective: "It is time that Wounded Knee be viewed for what it was—a regrettable, tragic accident of war that neither side intended, and that called forth behavior for which some individuals on both sides, in unemotional retrospect, may be judged culpable, but for which neither side as a whole may be properly condemned."

EPILOGUE

The Army is an instrument of the Nation and a reflection of our society. Inevitably it will suffer occasional aberrations like Sand Creek and My Lai. But movies like "Soldier Blue," books like *Bury My Heart at Wounded Knee*, and bumper stickers telling us that Custer died for our sins will not diminish the Army's contribution to the opening of the West and to Indian acculturation.

There is not much profit, of course, in sitting around today wallowing in guilt and debating whether it was Custer or Sitting Bull who was the more sinful. What happened to the Indians was just as manifest a destiny as was the consolidation of empire between the oceans. The more numerous and advanced civilization simply overran and swallowed up the primitive one, and it could not have been otherwise, moral considerations to the contrary notwithstanding.

Instead of agonizing and cultivating guilt feelings over what our ancestors may have done, we should work to correct the inequities that still exist in our society today so that our descendents will not have to feel guilty about us. We could put our forbears to shame by allowing an unpopular war, juvenile rebellion, political expediency, and spurious economy to undermine the military forces that insure the survival of a major power in the modern world.

Author's Note: The material in this series on episodes in the Indian Wars was prepared for a seminar in military history. Readers who wish to delve more deeply into the subject areas are referred to the following definitive sources:

Sand Creek – *The Sand Creek Massacre*, by Stan Hoig, University of Oklahoma Press, 1961.
Frontiersmen in Blue: The United States Army and the Indian, 1848-1865, by Robert M. Utley, Macmillan, 1967.

Piegan Massacre – *Strike Them Hard! Incident on the Marias*, by Robert J. Ege, Old Army Press, 1970.

Wounded Knee – *The Last Days of the Sioux Nation*, by Robert M. Utley, Yale University Press, 1966 (paperback).

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Another Step Forward

The Combat Arms Regimental System (CARS) was created to perpetuate the traditions and customs of combat arms regiments, and to recognize those honors won and revered by them. In turn, it was intended that unit pride, esprit de corps and identification with the regiment would be enhanced by association with and service in the regiments' battalions. The goal was an increase in unit effectiveness and the preservation of regimental history. Yet, little more has been accomplished than assigning battalions complicated sounding designations. Stop any soldier on the street and ask him what 3/70 Armor means and you can expect a blank stare in reply.

There appears to be little sense in retaining a system that neither comes close to realizing its potential nor receives more than lip-service from those in a position to make it viable.

It appears, however, that the Modern Volunteer Army (MVA) might force the development of the system's possibilities. MVA requires a multitude of means for attracting and retaining soldiers. An important way is to provide soldiers with some living symbol with which they can identify; and that symbol should be a unit under CARS.

What is required is the development of CARS to the point where three objectives are accomplished. First, the new soldier serves in one regiment through his first enlistment. Second, a noncommissioned officer does the maximum amount of his troop duty in his regiment. And finally, the officer serves the majority of his time in the regiment until he reaches field grade rank. Let us take another step forward with CARS then, and see how these goals might be accomplished.

Present battalion headquarters at Advanced Individual and Basic Combat Training Centers should be designated as depot headquarters of the various CARS regiments. The staff of the headquarters would consist of a commanding officer, a regimental sergeant major, a clerk and a retired commissioned or noncommissioned officer custodian to take care of protocol, trophies, ceremonies and regimental matters. Designate a colonel of the regiment—a distinguished retired officer. A Basic Training Company and an Advanced Individual Training Company should be assigned to the headquarters. Retain the present brigade headquarters and consolidate under it all training, administration and logistical support.

What can we do with this reorganization? First, let us take a look at the new professional.

THE NEW PROFESSIONAL

The young man enlists to be an armored soldier and travels to Fort Knox, the Home of Armor, for his initial training. After a few days at the reception center he finds himself standing in front of a barracks. The building, lawn, and parking lot have barely changed over the years. But there is something very different.

This man is not standing in front of the orderly room of D Company, 1st Battalion, 2d Brigade (BCT) USATCA. He is, instead, standing before the Regimental and Depot Headquarters of the 79th Armor Regiment and is about to be addressed by the Regimental Sergeant Major. The tenor and content of the Sergeant Major's welcoming address are designed to make the young recruit feel he belongs and to challenge him to carry his share of the burden in upholding the honor and traditions of his regiment.

The young private then receives his basic training in the regiment's Basic Combat Training Company. As he progresses, he is constantly confronted with examples of what it means to be a member of the 79th Armor. At the end of this training, he graduates and receives the regimental distinctive insignia. They are pinned on by the colonel of the regiment at an impressive ceremony following a field day of military and sports competitions. The Armor Center band, relatives, distinguished guests and soldiers of the Ad-

With CARS

by Raymond E. Bell Jr.

vanced Individual Training Company (AIT) attend and participate in the event.

In the AIT Company, the trainee may have most of the noncommissioned officers he had with him in BCT, but he will have new company officers. The noncommissioned officers are experienced, combat tried, and selected for their ability, soldierly bearing and exceptional conduct. The captains and more senior officers are all experienced men, while the platoon leaders still show a certain amount of greenness.

The training the recruit receives points him toward duty in Germany where the 2d Battalion will require replacements in the months to come. The program of instruction is embellished with continuing emphasis on the regiment. In addition, regardless of what kind of advanced training he gets and where he goes for it on post, be it as a clerk, cook, or mechanic, the recruit lives in the regimental area and participates in all its functions.

At the end of this prescribed training, the young soldier goes to Germany where he serves his tour and advances to Specialist Five. After the tour he goes to either a battalion of the regiment stationed in the United States or back to the regimental depot.

If he leaves the Army and decides to go into the Reserve, he finds that his association with the 79th Armor is not ended. The local reserve unit is a tank company of the regiment or one of the Army National Guard units which is affiliated with the 79th Armor through mutual use of depot facilities. From beginning to end the soldier is with one regiment under a system which emphasizes a sense of belonging.

NONCOMMISSIONED OFFICER CADRE

Of all the improvements that have taken place in the training centers over the past few years, perhaps the most significant has been the introduction of the drill sergeant concept. Today, high quality noncommissioned officer cadres are virtually assured. Sergeants assigned to the depot under this concept would be given all the usual emoluments plus the certainty of a stabilized tour to enhance opportunities for promotion. On reassignment, the sergeant would be allowed to pick his new unit or, if he wants to stay with the regiment, a particular operational element.

The career pattern of a cadre noncommissioned officer might look something like this:

A young man joins the 79th Armor and after training at the depot goes to the 1st Battalion in Korea. On returning he joins the CONUS battalion or goes to the 2d Battalion in Europe. After five years of service he is a staff sergeant. Recognized as having the potential to be a drill sergeant, he is nominated by his battalion commander to fill an allocation from the depot as assistant platoon sergeant.

Under the suggested system, the sergeant would be assigned to one of the training companies on his arrival. The Regimental Sergeant Major would orient him on his duties and the mission of the depot, then see that the sergeant and his family are settled. Before reporting to his platoon, he would attend the Drill Sergeant's School on post if he had not done so previously.

Having the regimental depot conduct both basic and advanced training adds to flexibility in assignment of personnel. The new drill sergeant, in this case having an armored MOS, can be utilized in the Basic Combat Training Company where his drill sergeant training stands him in good stead, or he can be assigned to the Advanced Individual Training Company where his previous MOS training and experience would help. In either case, one additional task is imparted to this young man—to tactfully guide his brand new platoon.

How successfully the drill sergeant completes his tasks will determine how good the 79th Armor, his regiment, will be in the field. The responsibility for

making the sergeant's regiment an effective instrument of war rests squarely on the shoulders of this noncommissioned officer.

The benefits to the Army of having this man as a drill instructor are readily apparent. Equally important is the effect this system has on the noncommissioned officer and his family. He belongs, first and foremost. He improves his chances for promotion and receiving desirable assignments after leaving the depot. His family maintains its association with the regimental family and friends. Contact between friends is not lost by frequent moves around the world. When there is a bereavement, meaningful and comforting help is very near, for the regiment takes care of its own.

THE OFFICERS

The officers are also beneficiaries of this system. For instance, the new officer reporting to his first school for his initial orientation in the Army is usually confused. He does not belong to anything. When he leaves, he still does not really belong—and he has had no experience in the art of leading men. It is with a precious little bit of knowledge and maybe a young wife that he reports to his first unit. The depot proposal is designed to alleviate this situation.

The fledgling officer signs into the Armor Center the first day and at that time chooses a regiment if not previously assigned to one. After signing in, the officer goes to the headquarters of his regimental depot. The depot commander meets the lieutenant on his arrival and has him sign the regimental register. The new officer is then given an orientation on the history, traditions and customs of the regiment by the regimental custodian. After the orientation, the depot commander shows the lieutenant the premises and introduces him to the other officers and noncommissioned officers. The commander may discuss the Army and the regiment as well as outline to the lieutenant what he should strive to gain from the Armor School's Basic Course. He informs him that he is now a member of the regiment and that he is expected to attend regimental functions held at the depot. In addition, he is invited to visit the regimental area at his leisure. Finally, if problems arise, the commander informs him that he is always ready to help or give counsel.

Before going back to the Armor School to start the course of instruction, the officer is officially welcomed into the regiment. A short ceremony takes place either at a noon meal formation or at retreat. The lieutenant receives the regimental distinctive insignia from the depot commander and is presented to the regiment's troops training at the depot.

SERVICE AT THE DEPOT

After the orientation course is completed, the officer returns to the depot for duty as a platoon leader in one of the training companies. He may stay for one or more training cycles, during which time the depot commander and the training company commanders closely observe the new lieutenant and render unofficial reports to the battalions or squadrons in the field. This gives the new officer a chance to get his feet on the ground and the units in the field some idea of what kind of officer they are getting from the depot.

The advantages of an officer starting out his career in the manner described are many. From the first day the officer becomes a member of a fighting unit and is provided with an excellent source of motivation. This gives him incentive to get the most out of school and to pay particular attention to the instruction which will benefit him directly. Then the lieutenant learns about men in a training unit and is not thrust into a position of responsibility for which he is not adequately prepared. Not to be overlooked, is the advantage of having the operational unit getting a chance to look at the officer before he reports for duty. The final result will be a more capable and a better motivated officer.

Later, this officer may be one of the select to return to the depot to command a training company or the regimental depot. He will have to be outstanding because his job assignment will be among the most important in the regiment. Made so by extra benefits and because of the new prestige accorded this position, it will be a sought-after assignment. No longer will the officer in the training center get that abandoned feeling because now he will be able to see that his efforts will determine how good his regiment will be.

IN SUMMATION

The benefits of the proposal are numerous. The soldier who feels he belongs will perform his duty with pride and will want to help make his unit the best in the Modern Volunteer Army. All will feel they have a home even as they move from assignment to assignment. Friendships and professional associations will engender mutual confidence and respect. Incompetents or misfits can be identified and eliminated through careful documentation supported by evidence gained through continuous observation. The officers in the field will know the quality of the soldiers they are

receiving and personnel problems can be kept to a minimum.

The plan is not without difficulties. Facilities for other combat arms to set up depots may not be available. A concerted effort will have to be made to get a soldier assigned to a unit of his choice or one which has a reserve unit in the vicinity of his home town. Extra effort will have to be exerted to see that new officers follow the progression of basic schooling, depot duty, and finally troop duty.

It must also be recognized that as an officer or noncommissioned officer becomes more senior, his opportunities to serve with the regiment diminish. Yet, there are many ways the association may be maintained and strengthened. Certainly, starting out in a unit where morale is high and the training excellent, the soldier and officer will always be able to look back with pride to his regiment.

This proposal can begin as an experiment at Fort Knox. By taking a basic training brigade and advanced individual training brigade and doing some rearranging, the Cavalry and the Armor depot brigades can be formed. Concentrate the instructor committees and logistical support groups at brigade level and then divide up the training companies, placing the appropriate units under regimental depot headquarters detachments. The final step would be to give each depot a regimental designation and to start assigning personnel to the regimental depot.

Bold new ideas will be required to make the Army a palatable profession when zero draft becomes a reality. Increased pay and other material benefits will not be enough. By giving the combat arms soldier something tangible to belong to, however, we will be taking a step in the direction of a Modern Volunteer Army and another step forward with CARS.

RAYMOND E. BELL JR., a 1957 US Military Academy graduate, is currently working as a civilian recruiting and retention officer for the New York Army National Guard.

Challenge! Assignment to the Armor Agency

by Colonel Charles K. Heiden

General Heinz Guderian in the *Panzer Leader* has encapsulated the challenge facing the Combat Developments Command:

> (Technicians) . . . . do tell lies, but their lies are generally found out after a year or two when their technical ideas can't be put into concrete shape. Tacticians tell lies too, but in their case, the lies only become evident after the next war has been lost, and by then, it's too late to do anything about it.

The challenge at the Armor Agency lies in three areas: participation, career progression and the unquantifiable.

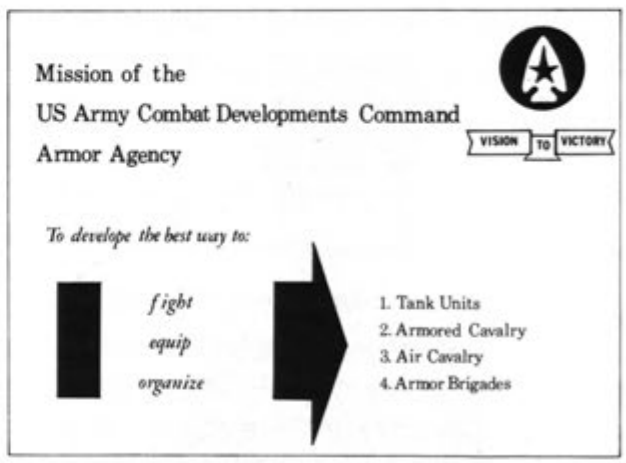
By definition, the Agency's mission lies in the future—the future role, missions, organizations and doctrine of Cavalry and Armor units. As commanding officer, I have defined my mission to be the integration of all diverse elements of doctrine, organization and materiel through an evolutionary process which maintains viable Armor unit systems. Such a mission requires full participation by each officer assigned and places him in the direct path of Armor and Cavalry of the future. It requires that he research the past and determine an evolutionary advance toward future concepts for the employment of our units.

The lead times involved in hardware development, together with the Army's stated goals of combat readiness, place limitations on the revolutionary approach and requires the action officer to temper his thinking. Requirements for future equipment must receive careful consideration to balance the exploding technology and sophistication against the realities of the man/machine interface and of training. Cost versus combat effectiveness is an additional reality in the days of constrained budgets. To participate in the future of our Branch thus places a significant challenge on the action officer at the Armor Agency, and places a significant burden on him to produce carefully thoughtout positions which consider the myriad of factors involved.

One additional aspect of participation deserves mention. We firmly believe in a two-way interchange or dialogue between the Agency command group and the action officer. Any action officer has access to the Agency's commanding officer or deputy commander to challenge his guidance or to request additional guidance on any task he is given. He can present the emerging results of his work and seek approval or redirection; he can also state and support that his task is no longer productive and should be cancelled. He is encouraged to submit problem areas he has identified, to be inserted into the Agency's work program when assets are available to work on it.

In other words, we want the junior officers involved in their work and in their own future.

The second challenge is career progression. Perhaps it might better be called by a less formal name—training. In many cases, our junior officers have not served above the battalion level. In the Agency, they are called upon to look at the big picture: the Air Cavalry Combat Brigade Test Program, not the platoon or troop ATT; the overall tank program, not the individual tank platoon or tank company. He must begin to appreciate the why of decisions that are made—he learns to justify his positions and is called



upon to present them in writing or in a briefing format.

The junior officer learns staff procedures and what being behind the power curve means. Perhaps, bluntly, he learns he doesn't have a corner on brains and that other member agencies of the Armor Center Team have officers who have strong opinions in the areas of his task. He learns that he must refute or accomodate the opinions of his fellow officers. All of this expands his horizons and readies him for future assignments at higher DA staff levels and for the Command and General Staff College.

The third challenge I will term the unquantifiable, not because it is a catch-all, but because nowhere in the Army is mature, military judgment and logic more strongly applicable than in an assignment to the Armor Agency. Many of the concepts, doctrine, organizational considerations and tasks that a junior officer is assigned here defy being quantified. The operations researchers and systems analysts may wish to argue that statement but it is true nonetheless.

In addressing areas which are new, be they doctrine, tactics, equipment or organizational concepts, we always arrive at a point where only judgment and logic suffices. Here lies the young officer's challenge to use his imagination and his fertile mind to impact on the Army of the future.

The human mind has greater storage capacity and performs search and recall faster than the latest computers. It reasons—which no computer can do. It creates—which no computer can do.

A terrifying challenge to a junior officer? Of course it is! One in which he can enlarge himself, become involved and contribute to his future? Certainly! How many can accept it?

COLONEL CHARLES K. HEIDEN, a 1949 graduate of the US Military Academy and the former commanding officer of the Combat Developments Command, Armor Agency, is currently the deputy director of the MBT Task Force.

The Armor Agency: Opportunity for the Junior Officer

by Major Nathaniel W. Foster Jr.

The Armor Agency is a unique organization. It is the cradle of Armor concepts and materiel for the future.

The junior officer assigned to the Agency will discover that interesting and professionally important experiences are in store for him. He will immediately notice the abundance of field grade officers about, and may pause to wonder where all the "Indians" are. He will soon come to realize that the Indians in this outfit are majors—seasoned, experienced combat veterans, with a wealth of knowledge at their fingertips. These action officers or project officers form the bed of current and past experience upon which Armor and Cavalry concepts, organizations and materiel of the future are born.

In the junior officer's initial interviews with his superiors he will be sincerely welcomed. This welcome is not merely a matter of time-honored tradition, but rather a recognition of the key position the junior officer is to hold.

It will take a few months to completely understand the special lingo of the Agency and related organizations. The junior officer may initially doubt his own ability to make a meaningful contribution to this high-power organization. In due time, however, his own innate abilities and determination will prevail and he will become a productive member of the Agency.

The new action officer will find that he is left pretty much on his own to master a particular project and become an expert in that field. He will find that his opinion is respected professionally as often it becomes the Agency's position, and eventually, the Army's.

Such high responsibility motivates the officer to prepare himself so that he may offer sound and logical recommendations.

Infantry officers assigned to the Agency have a rare opportunity to become thoroughly familiar with current and proposed armored fighting vehicles. They will have an important influence on the characteristics of future fighting vehicles, which will materially affect the operations and support of the mechanized infantry.

For the Field Artillery officer, there is an excellent opportunity to utilize his expertise to insure smooth interaction in Armor and Artillery operations. A wealth of knowledge, experience and ideas are available to make the Field Artillery officer more capable of supporting the ground-gaining arms.

The Agency offers aviators a chance to correct present problems with the employment of the reborn air arm of the Army. The concepts for air cavalry and attack helicopters are being worked out, and the outcome of future wars may very well be determined by what is accomplished in this field today.

For all officers of branches other than Armor, there is a unique chance to broaden experience and to prepare for positions of greater responsibility. It is a chance to learn combined arms teamwork and become less parochial.

The Agency is a tight-knit community which works and plays hard. Complete cooperation and coordination with the Armor School is required on each action. Stated positions which go forward to higher headquarters as Armor Policy are expressions by the entire Armor Community.

The importance of such work serves to instill an even greater desire for professionalism. Once exposed to the inner workings of the think tank of Armor, an officer can no longer be considered junior. He must be recognized as a seasoned professional.

MAJOR NATHANIEL W. FOSTER JR. is currently assigned to the Doctrine Division of Combat Developments Command, Armor Agency.

UNIT AWARDS
For Service in The Republic of Vietnam

The following is a listing of unit awards given to all Armor and Cavalry units for service in the Republic of Vietnam. It is based on all Department of the Army and US Army, Vietnam General Orders published since 1965, and is current as of ***31 March 1972,*** *including all subsequent amendments, deletions and revocations. Anyone having information (general order numbers, dates, period of action, etc.) concerning any awards that do not appear in this listing should submit them to* ***ARMOR*** *Magazine for further inclusion or clarification in succeeding issues.*

PRESIDENTIAL UNIT CITATION

Unit	*General Orders*	*Period or Date of Action*
1st Sqdn, 1st Cav	DA 60, dtd 17 Oct 69	31 Jan 68 to 31 Mar 68
Trp B, 1st Sqdn, 1st Cav	DA 42, dtd 11 Aug 70 as amended by DA 56, dtd 25 Nov 70	2 Jan 68 to 23 Jan 68
Trp C, 2d Sqdn, 1st Cav	DA 38, dtd 20 Jul 71	29 Oct 67 to 30 Nov 67
1st Sqdn, 4th Cav	DA 31, dtd 14 Jul 67	Jun 66 to Jul 66
3d Sqdn, 4th Cav	DA 69, dtd 7 Nov 69	Action on 31 Jan 68
1st Plt, Trp A, 3d Sqdn, 4th Cav	DA 82, dtd 9 Dec 69	18 Aug 68 to 20 Sep 68
1st Bn, 5th Cav	DA 40, dtd 21 Sep 67	23 Oct 65 to 26 Nov 65
Co A, 1st Bn, 5th Cav	DA 47, dtd 12 Sep 68	Action on 2-3 Oct 66
Co A, 1st Bn, 5th Cav	DA 73, dtd 27 Nov 68	Action on 20 Mar 67
Co C, 1st Bn, 5th Cav	DA 47, dtd 12 Sep 68	Action on 2-3 Oct 66
2d Bn, 5th Cav	DA 40, dtd 21 Sep 67	23 Oct 65 to 26 Nov 65
3d Sqdn, 5th Cav	DA 16, dtd 31 Mar 72	10 May 69 to 21 May 69
Trp A, 3d Sqdn, 5th Cav	DA 3, dtd 10 Jan 69	Action on 19-20 Mar 67
1st Plt, Trp B, 3d Sqdn, 5th Cav	DA 3, dtd 10 Jan 69	Action on 19-20 Mar 67
3d Plt, Trp C, 3d Sqdn, 5th Cav	DA 3, dtd 10 Jan 69	Action on 19-20 Mar 67
Hq Sec, HHT, 3d Sqdn, 5th Cav	DA 3, dtd 10 Jan 69	Action on 19-20 Mar 67
Gnd Survl Sec, HHT, 3d Sqdn, 5th Cav	DA 3, dtd 10 Jan 69	Action on 19-20 Mar 67
Med Plt, HHT, 3d Sqdn, 5th Cav	DA 3, dtd 10 Jan 69	Action on 19-20 Mar 67
1st Bn, 7th Cav	DA 40, dtd 21 Sep 67	23 Oct 65 to 26 Nov 65
2d Bn, 7th Cav	DA 40, dtd 21 Sep 67	23 Oct 65 to 26 Nov 65
1st Bn (Abn), 8th Cav	DA 40, dtd 21 Sep 67	23 Oct 65 to 26 Nov 65
1st Bn (Abn), 8th Cav (less Co A)	DA 73, dtd 27 Nov 68	21-22 Jun 1966
2d Bn (Abn), 8th Cav	DA 40, dtd 21 Sep 67	23 Oct 65 to 26 Nov 65
1st Sqdn, 9th Cav	DA 40, dtd 21 Sep 67	23 Oct 65 to 26 Nov 65
1st Sqdn, 9th Cav	DA 5, dtd 27 Jan 69	2 Oct 66 thru 24 Oct 66
1st Plt, Trp D, 1st Sqdn, 9th Cav	DA 7, dtd 23 Apr 70	Action on 27 Dec 66
1st Sqdn, 11th ACR	DA 45, dtd 16 Jul 69	11 May 68 thru 3 Jun 68
Trp B, 1st Sqdn, 11th ACR	DA 45, dtd 16 Jul 69	Actions on 21 Nov 66 and 2 Dec 66
1st Plt, Trp C, 1st Sqdn, 11th ACR	DA 45, dtd 16 Jul 69	Actions on 21 Nov 66 and 2 Dec 66
1st Plt, Air Cav Trp, 11th ACR	DA 69, dtd 7 Nov 69	12 Mar 68 to 1 Apr 68
3d Sqdn, 11th ACR	DA 69, dtd 7 Nov 69	12 Mar 68 to 1 Apr 68
1st Bn, 12th Cav	DA 40, dtd 21 Sep 67	23 Oct 65 to 26 Nov 65
1st Bn, 12th Cav	DA 47, dtd 12 Sep 68	Action on 2-3 Oct 66
Co C, 1st Bn, 12th Cav	DA 7, dtd 23 Apr 70	Action on 27 Dec 66
2d Bn, 12th Cav	DA 40, dtd 21 Sep 67	23 Oct 65 to 26 Nov 65
2d Bn, 12th Cav	DA 42, dtd 11 Aug 70	2 Jan 68 to 12 Feb 68
1st Plt, Trp D, 17th Cav	DA 60, dtd 17 Oct 69	5 May 68 to 10 May 68
Trp E, 17th Cav	DA 42, dtd 16 Jun 69	6 Nov 67 to 23 Nov 67
Trp A, 2d Sqdn, 17th Cav	DA 59, dtd 21 Oct 68	2 Jun 66 thru 20 Jun 66
Trp A, 2d Sqdn, 17th Cav	DA 16, dtd 31 Mar 72	10 May 69 to 21 May 69
Trp C, 7th Sqdn, 17th Cav	DA 60, dtd 17 Oct 69	31 Jan 68 to 31 Mar 68
2d Bn, 34th Arm (less Co B)	DA 59, dtd 21 Oct 68	Action on 21 Mar 67
Co B, 1st Bn, 69th Arm	DA 38, dtd 20 Jul 71	29 Oct 67 to 30 Nov 67
1st Plt, Co B, 1st Bn, 69th Arm	DA 69, dtd 7 Nov 69	18 May 67 to 26 May 67
1st Plt, Co B, 1st Bn, 69th Arm	DA 36, dtd 18 Jul 68	9-10 Aug 66

Unit	*General Orders*	*Period or Date of Action*
Recon Plt, Co E, 4th Bn, 3d Inf	DA 75, dtd 2 Dec 69	6-7 Sep 68
US Advisor/Liaison Personnel to 3d Armd Cav Sqdn, ARVN	DA 24, dtd 27 Apr 71	1 Jan 68 to 30 Sep 68
Allied Unit		
9th Co, 1st Cav Regt, ROKA (Korea)	DA 40, dtd 9 Aug 68	9 Aug 66 to 10 Aug 66

VALOROUS UNIT AWARD

HHT, 1st Sqdn, 1st Cav	DA 39, dtd 20 Jul 70	15 Oct 67 to 31 Oct 67
Trp A, 1st Sqdn, 1st Cav	DA 39, dtd 20 Jul 70	15 Oct 67 to 31 Oct 67
Trp B, 1st Sqdn, 1st Cav	DA 39, dtd 20 Jul 70	15 Oct 67 to 31 Oct 67
1st Sqdn, 1st Cav	DA 53, dtd 22 Oct 70	24 Aug 68 to 25 Sep 68
1st Plt, Trp E, 1st Cav	DA 43, dtd 12 Aug 70	12-13 May 69
Trp A, 2d Sqdn, 1st Cav	DA 43, dtd 12 Aug 70	30 Jan 68 to 12 Feb 68
1st Sqdn, 4th Cav	DA 31, dtd 13 May 69	31 Jan 68 to 31 May 68
Trp A, 1st Sqdn, 4th Cav	DA 20, dtd 25 Apr 67	Action on 12 Nov 65
3d Sqdn, 4th Cav	DA 39, dtd 20 Jul 70	1 Jan 69 to 22 Feb 69
3d Sqdn, 4th Cav	USARV 2264-252, dtd 29 Jun 71	1 May 70 to 29 Jun 70
Trp A, 3d Sqdn, 4th Cav	DA 20, dtd 25 Apr 67	Jan thru Apr 1966
Trp C, 3d Sqdn, 4th Cav	USARV 2076, dtd 15 Jun 71	22 Apr 67 to 31 Jul 67
1st Bn, 5th Cav	USARV 2264-252, dtd 29 Jun 71	1 May 70 to 29 Jun 70
Co D, 1st Bn, 5th Cav	DA 28, dtd 23 Apr 69	Actions on 27-28 Jun 68
2d Bn, 5th Cav	USARV 2264-252, dtd 29 Jun 71	1 May 70 to 29 Jun 70
Co C, 2d Bn, 5th Cav	DA 28, dtd 23 Apr 69	Actions on 27-28 Jun 68
2d Bn, 5th Cav	DA 54, dtd 8 Oct 68	Action on 11 Mar 67
3d Sqdn, 5th Cav (HHT, Trps A, B, C)	DA 28, dtd 23 Apr 69	Actions on 27-28 Jun 68
Trp A, 3d Sqdn, 5th Cav	DA 5, dtd 27 Jan 69	Action on 31 Jan 68
Trp C, 3d Sqdn, 5th Cav	DA 1, dtd 8 Jan 69	Action on 2-3 Feb 68
Trp D, 3d Sqdn, 5th Cav	DA 43, dtd 12 Aug 70	6 May 68 to 12 May 68
1st Bn, 7th Cav	DA 39, dtd 20 Jul 70	1 Oct 67 thru 31 Oct 67
1st Bn, 7th Cav	USARV 2264-252, dtd 29 Jun 71	1 May 70 to 29 Jun 70
Co B, 1st Bn, 7th Cav	DA 43, dtd 12 Aug 70	Action on 25 Nov 68
2d Bn, 7th Cav	USARV 2264-252, dtd 29 Jun 71	1 May 70 to 29 Jun 70
5th Bn, 7th Cav	DA 39, dtd 20 Jul 70	1 Oct 67 thru 31 Oct 67
5th Bn, 7th Cav	USARV 2264-252, dtd 29 Jun 71	1 May 70 to 29 Jun 70
Trp F, 8th Cav	DA 53, dtd 22 Oct 70	24 Aug 68 thru 25 Sep 68
Trp F, 8th Cav	USARV 768, dtd 3 Mar 71	11 Aug 69 to 31 Aug 69
1st Bn, 8th Cav	USARV 2264-252, dtd 29 Jun 71	1 May 70 to 29 Jun 70
2d Bn, 8th Cav	USARV 2264-252, dtd 29 Jun 71	1 May 70 to 29 Jun 70
HHC, 2d Bn, 8th Cav	DA 39, dtd 20 Jul 70	Action on 6 May 69
Co A, 2d Bn, 8th Cav	DA 43, dtd 12 Aug 70	Action on 9 Aug 67
Co B, 2d Bn, 8th Cav	DA 17, dtd 23 Apr 68	Action on 16-17 May 66
Co C, 2d Bn, 8th Cav	DA 39, dtd 20 Jul 70	Action on 6 May 69
Co E, 2d Bn, 8th Cav	DA 39, dtd 20 Jul 70	Action on 6 May 69
1st Sqdn, 9th Cav	DA 37, dtd 8 Jul 70	1 Oct 67 thru 31 Oct 67
1st Sqdn, 9th Cav	USARV 2264-252, dtd 29 Jun 71	1 May 70 to 29 Jun 70
Trp B, 1st Sqdn, 9th Cav	DA 17, dtd 23 Apr 68	9 Aug 66 to 16 Aug 66
Trp B, 1st Sqdn, 9th Cav	USARV 2076, dtd 15 Jun 71	22 Apr 67 to 20 Aug 67
Trp D, 1st Sqdn, 9th Cav	DA 28, dtd 23 Apr 69	Actions on 27-28 Jun 68
1st Sqdn, 10th Cav	DA 43, dtd 12 Aug 70	8 May 69 to 29 May 69
Trp C, 1st Sqdn, 10th Cav	USARV 2076, dtd 15 Jun 71	1 Aug 67 to 20 Aug 67
11th ACR	DA 12, dtd 5 Mar 69 as amended by DA 28, dtd 23 Apr 69	31 Jan 68 to 5 Feb 68
11th ACR	USARV 2264-252, dtd 29 Jun 71	1 May 70 to 29 Jun 70
Air Cav Trp, 11th ACR	DA 1, dtd 8 Jan 69	Actions on 19 Jun 67 and 21 Jul 67
Trp F, 2d Sqdn, 11th ACR	DA 53, dtd 22 Oct 70	Action on 19-20 Jun 69
Co H, 2d Sqdn, 11th ACR	DA 53, dtd 22 Oct 70	Action on 18 Jun 69
HHT, 3d Sqdn, 11th ACR	DA 53, dtd 22 Oct 70	Action on 17 thru 20 Jun 69
Trp I, 3d Sqdn, 11th ACR	DA 53, dtd 22 Oct 70	Action on 17 thru 20 Jun 69
Trp I, 3d Sqdn, 11th ACR	DA 50, dtd 9 Nov 71	23 May 69 thru 25 May 69
Trp K, 3d Sqdn, 11th ACR	DA 53, dtd 22 Oct 70	Action on 17 thru 20 Jun 69
Co M, 3d Sqdn, 11th ACR	DA 53, dtd 22 Oct 70	Action on 19-20 Jun 69
How Btry, 3d Sqdn, 11th ACR	DA 53, dtd 22 Oct 70	Action on 19-20 Jun 69
3d Sqdn, 11th ACR	DA 1, dtd 8 Jan 69	Actions on 19 Jun 67 and 21 Jul 67
1st Bn, 12th Cav	USARV 2264-252, dtd 29 Jun 71	1 May 70 to 29 Jun 70

Unit	*General Orders*	*Period or Date of Action*
Co C, 1st Bn, 12th Cav	DA 42, dtd 16 Jun 69	31 May 67 to 1 Jun 67
2d Bn, 12th Cav	USARV 2264-252, dtd 29 Jun 71	1 May 70 to 29 Jun 70
2d Bn, 12th Cav	DA 39, dtd 20 Jul 70	1 Oct 67 thru 31 Oct 67
2d Bn, 12th Cav	USARV 3563, dtd 27 Dec 71	22 Feb 69 to 11 Mar 69
Trp D, 17th Cav	DA 48, dtd 13 Sep 68	31 Jan 68 to 19 Feb 68
Trp E, 17th Cav	DA 17, dtd 23 Apr 68	5 Jan 67 to 25 Jan 67
2d Sqdn, 17th Cav	DA 48, dtd 14 Oct 71	7 Dec 69 to 16 Feb 70
Trp A, 2d Sqdn, 17th Cav	DA 17, dtd 23 Apr 68	17 Jan 66 to 25 Mar 66
	as amended by	
	DA 1, dtd 8 Jan 69	
Trp A, 2d Sqdn, 17th Cav	DA 2, dtd 13 Jan 71	17 Apr 69 thru 7 May 69
3d Sqdn, 17th Cav	USARV 3560, dtd 27 Dec 71	6 May 70 to 29 Jun 70
Trp A, 3d Sqdn, 17th Cav	DA 48, dtd 13 Sep 68	31 Jan 68 to 19 Feb 68
Trp B, 3d Sqdn, 17th Cav	DA 42, dtd 16 Jun 69	31 Aug 68 to 31 Oct 68
Trp D, 3d Sqdn, 17th Cav	USARV 2264-252, dtd 29 Jun 71	1 May 70 to 29 Jun 70
	as amended by	
	USARV 2529, dtd 30 Aug 71	
Aero-Rifle Plt, Trp A, 7th Sqdn, 17th Cav	DA 43, dtd 12 Aug 70	30 Jan 68 to 12 Feb 68
Aero-Rifle Plt, Trp B, 7th Sqdn, 17th Cav	DA 43, dtd 12 Aug 70	30 Jan 68 to 12 Feb 68
Trp D, 7th Sqdn, 17th Cav	DA 43, dtd 12 Aug 70	30 Jan 68 to 12 Feb 68
2d Bn, 34th Arm	USARV 2264-252, dtd 29 Jun 71	1 May 70 to 29 Jun 70
Co C, 2d Bn, 34th Arm	USARV 2076, dtd 15 Jun 71	22 Apr 67 to 20 Aug 67
Co A, 1st Bn, 69th Arm	DA 43, dtd 12 Aug 70	30 May 67 to 3 Jul 67
Co C, 1st Bn, 69th Arm	DA 43, dtd 12 Aug 70	4 Feb 68 to 12 Feb 68
Co A, 1st Bn, 77th Arm	USARV 2045, dtd 14 Jun 71	11 Nov 69 to 15 Nov 69

MERITORIOUS UNIT COMMENDATION

3d Sqdn, 11th ACR	DA 32, dtd 2 Jul 68	13 Sep 66 to 31 May 67
Co D, 16th Arm	DA 48, dtd 13 Sep 68	5 May 65 to 4 May 67
Trp E, 17th Cav	DA 48, dtd 13 Sep 68	5 May 65 to 4 May 67
Trp A, 2d Sqdn, 17th Cav	DA 17, dtd 23 Apr 68	Jul 65 to Oct 66
1st Bn, 69th Arm	DA 42, dtd 16 Jun 69	7 Apr 68 thru 20 Oct 68
919th Engr Co (Armd), 11th ACR	DA 17, dtd 23 Apr 68	14 Aug 66 to 11 May 67

VIETNAMESE CROSS OF GALLANTRY WITH PALM

2d Sqdn, 1st Cav	DA 3, dtd 20 Feb 70	30 Aug 67 to 28 Jul 69
2d Sqdn, 1st Cav	DA 52, dtd 16 Nov 71	29 Jul 69 to 17 Nov 70
Trp D, 2d Sqdn, 1st Cav	DA 3, dtd 20 Feb 70	31 Jul 68 to 28 Jul 69
7th Sqdn, 1st Cav	DA 21, dtd 8 Apr 69	27 Mar 67 to 17 May 68
7th Sqdn, 1st Cav	DA 52, dtd 16 Nov 71	15 Dec 69 thru 10 Oct 70
1st Sqdn, 4th Cav	DA 21, dtd 8 Apr 69	12 Jul 65 to 16 Oct 68
Trp A, 1st Sqdn, 4th Cav	DA 46, dtd 3 Sep 68	Action on 8 Jun 66
3d Sqdn, 4th Cav	DA 43, dtd 12 Aug 70	1 Jan 69 to 31 Mar 69
	as amended by	
	DA 48, dtd 14 Oct 71	
3d Sqdn, 4th Cav	DA 55, dtd 20 Dec 71	1 May 70 thru 28 Jun 70
3d Sqdn, 4th Cav	DA 55, dtd 20 Dec 71	Action on 24-27 Jun 1970
3d Sqdn, 4th Cav (less Trp C)	DA 48, dtd 14 Oct 71	Mar 66 to Aug 68
Trp C, 3d Sqdn, 4th Cav	DA 48, dtd 14 Oct 71	Mar 66 to Oct 66 and
		1 Aug 67 to Aug 68
Trp C, 3d Sqdn, 4th Cav	DA 3, dtd 20 Feb 70	Oct 66 to 1 Aug 67
1st Bn, 5th Cav	DA 59, dtd 25 Sep 69	9 Aug 65 thru 19 May 69
2d Bn, 5th Cav	DA 59, dtd 25 Sep 69	9 Aug 65 thru 19 May 69
Co C, 2d Bn, 5th Cav	DA 55, dtd 20 Dec 71	16 May 70 to 20 May 70
3d Sqdn, 5th Cav (less Trp D)	DA 31, dtd 13 May 69	1 Dec 66 to 15 Feb 68
	as amended by	
	DA 43, dtd 12 Aug 70	
Trp D, 3d Sqdn, 5th Cav	DA 31, dtd 13 May 69	1 Dec 66 thru 30 Jun 68
	as amended by	
	DA 43, dtd 12 Aug 70	
Trp D, 3d Sqdn, 5th Cav	DA 59, dtd 25 Sep 69	Jan 69 to Jun 69
Trp D, 3d Sqdn, 5th Cav	DA 52, dtd 16 Nov 71	15 Dec 69 thru 10 Oct 70
1st Bn, 7th Cav	DA 59, dtd 25 Sep 69	9 Aug 65 thru 13 Nov 65 and
	as amended by	17 Nov 65 thru 19 May 69
	DA 70, dtd 13 Nov 69	

Unit	*General Orders*	*Period or Date of Action*
1st Bn, 7th Cav	DA 46, dtd 3 Sep 68 as amended by DA 21, dtd 8 Apr 69	14 Nov 65 to 16 Nov 65
Co A, 2d Bn, 7th Cav	DA 59, dtd 25 Sep 69 as amended by DA 70, dtd 13 Nov 69	9 Aug 65 thru 14 Nov 65 and 17 Nov 65 thru 19 May 69
Co B, 2d Bn, 7th Cav	DA 59, dtd 25 Sep 69 as amended by DA 70, dtd 13 Nov 69	9 Aug 65 thru 13 Nov 65 and 17 Nov 65 thru 19 May 69
Co A, 2d Bn, 7th Cav	DA 46, dtd 3 Sep 68 as amended by DA 21, dtd 8 Apr 69	15-16 Nov 65
Co B, 2d Bn, 7th Cav	DA 21, dtd 8 Apr 69	14-16 Nov 65
5th Bn, 7th Cav	DA 59, dtd 25 Sep 69	9 Aug 65 thru 19 May 69
1st Bn, 8th Cav	DA 59, dtd 25 Sep 69	9 Aug 65 thru 19 May 69
2d Bn, 8th Cav	DA 59, dtd 25 Sep 69	9 Aug 65 thru 19 May 69
1st Sqdn, 9th Cav	DA 59, dtd 25 Sep 69	9 Aug 65 thru 19 May 69
1st Sqdn, 10th Cav (less Trp C)	DA 3, dtd 20 Feb 70	Oct 66 to 28 Jul 69
1st Sqdn, 10th Cav	DA 52, dtd 16 Nov 71	29 Jul 69 to 14 Nov 70
Trp C, 1st Sqdn, 10th Cav	DA 3, dtd 20 Feb 70 as amended by DA 38, dtd 20 Jul 70 and as further ammended by DA 48, dtd 14 Oct 71	1 Aug 67 to 28 Jul 69
Trp C, 1st Sqdn, 10th Cav	DA 48, dtd 14 Oct 71	Sep 66 to 1 Aug 67
11th ACR	DA 60, dtd 17 Oct 69	7 Sep 66 to 10 Aug 68
11th ACR	DA 50, dtd 9 Nov 71	1 May 69 thru 15 Feb 70
11th ACR	DA 55, dtd 20 Dec 71	1 Mar 70 thru 30 Oct 70
1st Bn, 12th Cav	DA 55, dtd 20 Dec 71	19 May 70 to 27 May 70
1st Bn, 12th Cav	DA 59, dtd 25 Sep 69	9 Aug 65 thru 19 May 69
2d Bn, 12th Cav	DA 59, dtd 25 Sep 69	9 Aug 65 thru 19 May 69
Trp A (less 1st and 3d Plts), 4th Sqdn, 12th Cav	DA 43, dtd 12 Aug 70	26 Aug 68 to 2 Nov 68
1st Plt, Trp A, 4th Sqdn, 12th Cav	DA 43, dtd 12 Aug 70	26 Aug 68 to 2 Nov 68 and 25 Nov 68 to 9 Dec 68
3d Plt, Trp A, 4th Sqdn, 12th Cav	DA 43, dtd 12 Aug 70	26 Aug 68 to 2 Nov 68 and 22 Nov 68 to 25 Nov 68
Trp C, 16th Cav	DA 52, dtd 16 Nov 71	5 Apr 70 to 10 Oct 70
Co D, 16th Arm	DA 51, dtd 10 Nov 71	5 May 65 to 24 Sep 70
Trp D, 17th Cav	DA 43, dtd 12 Aug 70	31 Jan 68 thru 19 Feb 68
Trp D, 17th Cav	DA 51, dtd 10 Nov 71	19 Jun 68 thru 31 Jul 70
Trp E, 17th Cav	DA 51, dtd 10 Nov 71	5 May 65 thru 26 Sep 70
Trp B, 1st Sqdn, 17th Cav	DA 43, dtd 12 Aug 70	6 Oct 68 to 11 Nov 69
2d Sqdn, 17th Cav	DA 21, dtd 8 Apr 69	19 Apr 68 to 15 Aug 68
2d Sqdn, 17th Cav	DA 43, dtd 12 Aug 70	15 Aug 68 thru 14 May 69
Trp A, 2d Sqdn, 17th Cav	DA 21, dtd 8 Apr 69	1 Jul 66 to 31 Jul 66 and 9 Dec 66 to 18 Jan 67
3d Sqdn, 17th Cav	DA 21, dtd 8 Apr 69	22 Feb 67 to 17 May 68
Trp A, 3d Sqdn, 17th Cav	DA 52, dtd 16 Nov 71	5 Jan 70 to 5 Apr 70
Trp A, 3d Sqdn, 17th Cav	DA 31, dtd 13 May 69 as amended by DA 43, dtd 12 Aug 70	1 Aug 68 thru 30 Jun 69
Trp B, 3d Sqdn, 17th Cav	DA 59, dtd 25 Sep 69	Jan 69 to Jun 69
7th Sqdn, 17th Cav	DA 21, dtd 8 Apr 69	22 Feb 67 to 17 May 68
7th Sqdn, 17th Cav	DA 52, dtd 16 Nov 71	1 Jan 70 to 31 Oct 70
2d Bn, 34th Arm (less Co B)	DA 48, dtd 14 Oct 71	1 Aug 67 to Aug 68
2d Bn, 34th Arm (less Co B)	DA 3, dtd 20 Feb 70 as amended by DA 38, dtd 20 Jul 70 and as further amended by DA 48, dtd 14 Jul 71	Oct 66 to 1 Aug 67
Co B, 2d Bn, 34th Arm	DA 21, dtd 8 Apr 69	12 Jul 65 to 16 Oct 68
1st Bn, 69th Arm	DA 48, dtd 14 Oct 71	Mar 66 to 1 Aug 67
1st Bn, 69th Arm	DA 3, dtd 20 Feb 70 as amended by DA 38, dtd 20 Jul 70	1 Aug 67 to 28 Jul 69
1st Bn, 69th Arm	DA 52, dtd 16 Nov 71	29 Jul 69 to 10 Apr 70
1st Bn, 77th Arm (less Co A)	DA 43, dtd 12 Aug 70	26 Aug 68 to 2 Nov 68

Unit	*General Orders*	*Period or Date of Action*
Co A, 1st Bn, 77th Arm	DA 43, dtd 12 Aug 70	17 Aug 68 to 2 Nov 68
39th Cav Plt, 9th Inf Div	DA 55, dtd 20 Dec 71	29 Jul 69 to 20 Jul 71
1st Airboat Plt (Provisional)	DA 31, dtd 13 May 69	1 Dec 66 thru 30 Jun 68
2d Airboat Plt (Provisional)	DA 31, dtd 13 May 69	1 Dec 66 thru 30 Jun 68
Armor Plt, Air-Cushioned (Provisional)	DA 31, dtd 13 May 69	1 Dec 66 thru 30 Jun 68
Armor Plt, Air-Cushion Vehicle	DA 59, dtd 25 Sep 69	Jan 69 to Jun 69
Tuy Hoa Provisional Tank Co, 173d Abn Bde	DA 51, dtd 10 Nov 71	5 Apr 69 to 21 Oct 69

VIETNAMESE CIVIL ACTION HONOR MEDAL (1ST CLASS)

Trp D, 1st Sqdn, 1st Cav	DA 48, dtd 14 Oct 71	31 Jul 68 to 1 May 69
2d Sqdn, 1st Cav (less Trp D)	DA 53, dtd 22 Oct 70	30 Aug 67 thru 28 Jul 69
Trp D, 2d Sqdn, 1st Cav	DA 53, dtd 22 Oct 70	31 Jul 68 thru 1 Jul 69
1st Sqdn, 4th Cav (less Trp C)	DA 53, dtd 22 Oct 70	Oct 65 to 7 Apr 70
Trp C, 1st Sqdn, 4th Cav	DA 53, dtd 22 Oct 70	12 Jul 65 to 7 Apr 70
3d Sqdn, 4th Cav (less Trp C)	DA 51, dtd 10 Nov 71	15 Mar 66 to 21 Jan 70
Trp C, 3d Sqdn, 4th Cav	DA 51, dtd 10 Nov 71	1 Aug 67 to 21 Jan 70
Trp C, 3d Sqdn, 4th Cav	DA 53, dtd 22 Oct 70	1 Oct 66 thru 1 Aug 70
3d Sqdn, 5th Cav	DA 43, dtd 12 Aug 70	19 Dec 66 to 15 Feb 68
Trp D, 3d Sqdn, 5th Cav	DA 59, dtd 25 Sep 69 as amended by DA 43, dtd 12 Aug 70	19 Dec 66 to 28 Jun 69
1st Sqdn, 10th Cav (less Trp C)	DA 53, dtd 22 Oct 70	1 Oct 66 thru 31 Oct 69
Trp C, 1st Sqdn, 10th Cav	DA 53, dtd 22 Oct 70	1 Aug 67 thru 31 Oct 69
Trp B, 1st Sqdn, 17th Cav	DA 48, dtd 14 Oct 71	12 Mar 68 to 4 Oct 68
2d Sqdn, 17th Cav	DA 48, dtd 14 Oct 71	18 Mar 68 to 2 May 70
3d Sqdn, 17th Cav	DA 55, dtd 20 Dec 71	1 May 69 to 15 May 70
Trp A, 3d Sqdn, 17th Cav	DA 59, dtd 25 Sep 69 as amended by DA 43, dtd 12 Aug 70	1 Aug 68 thru 31 Oct 68
Trp B, 3d Sqdn, 17th Cav	DA 59, dtd 25 Sep 69 as amended by DA 43, dtd 12 Aug 70	1 Feb 69 thru 28 Jun 69
Trp D, 17th Cav	DA 51, dtd 10 Nov 71	12 Dec 66 thru 31 Aug 70
HHC, 2d Bn, 34th Arm	DA 51, dtd 10 Nov 71	19 Sep 67 to 21 Jan 70
Co A, 2d Bn, 34th Arm	DA 51, dtd 10 Nov 71	19 Sep 67 to 21 Jan 70
Co B, 2d Bn, 34th Arm	DA 53, dtd 22 Oct 70	31 Jan 69 to 7 Apr 70
Co D, 2d Bn, 34th Arm	DA 51, dtd 10 Nov 71	15 Jan 68 to 21 Jan 70
1st Bn, 69th Arm	DA 53, dtd 22 Oct 70	1 Aug 67 thru 31 Oct 69
39th Cav Plt, 9th Inf Div	DA 55, dtd 20 Dec 71	26 Jul 69 to 20 Jul 70
Armor Plt, Air-Cushion Vehicle	DA 59, dtd 25 Sep 69	19 Dec 66 to 28 Jun 69

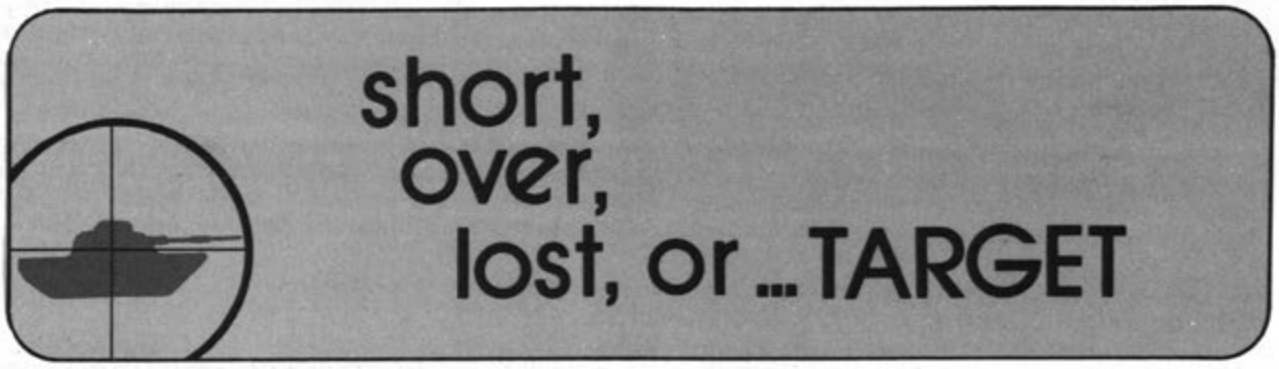
The following unit awards for Armor and Cavalry units for service in the Republic of Vietnam have been revoked or deleted as per designated DA and/or USARV general orders. These awards are no longer valid.

VIETNAMESE CROSS OF GALLANTRY WITH PALM

Unit	*General Orders*	*Period of Action*	*Revoked or Deleted by*
3d Sqdn, 4th Cav	DA 21, dtd 8 Apr 69	Dec 65 to Aug 68	Sec X, DA GO 48, dtd 14 Oct 71
Trp C, 1st Sqdn, 10th Cav	DA 21, dtd 8 Apr 69	Dec 65 to Aug 68	Sec X, DA GO 48, dtd 14 Oct 71
Trp C, 1st Sqdn, 11th Cav	DA 38, dtd 20 Jul 70	1 Aug 67 to 28 Jul 69	Sec VI, DA GO 48, dtd 14 Oct 71
Trp A, 17th Cav	DA 43, dtd 12 Aug 70	31 Jan 68 thru 19 Feb 68	Sec VI, DA GO 51, dtd 10 Nov 71
Trp A, 3d Sqdn, 17th Cav	DA 59, dtd 25 Sep 69	Jan 69 to Jun 69	Sec VIII, DA GO 43, dtd 12 Aug 70
2d Bn, 34th Arm (less Co B)	DA 21, dtd 8 Apr 69	Dec 65 to Aug 68	Sec X, DA GO 48, dtd 14 Oct 71
1st Bn, 69th Arm	DA 21, dtd 8 Apr 69	Dec 65 to Aug 68	Sec X, DA GO 48, dtd 14 Oct 71

VALOROUS UNIT AWARD

Trp B, 1st Sqdn, 9th Cav	USARV 114, dtd 15 Jan 70 as affirmed by DA 39, dtd 20 Jul 70	1 Oct 67 thru 31 Oct 67	USARV GO 3330, dtd 17 Jul 70



This department is a range for firing novel ideas which the readers of ARMOR *can sense and adjust. It seeks new and untried thoughts 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!!

TANK COMPANY FOR THE 1980s

by Captain Kelly M. Morgan

There has been a good deal of controversy on what constitutes the proper span of control as applied to military formations. Usually when there has been a change in the span of control concept, or a realignment in the chain of command structure of a given formation, it has been necessitated by a technological improvement in weapons and accompanied by some change in tactics.

Let us look at the infantry regiment for an example and see the span of control of the commander. In 1861, the colonel of a volunteer regiment could control his ten companies from horseback by riding up and down the line shouting verbal commands to his company commanders. By 1918, however, with the tremendous advances in all forms of ordnance, communications and transportation, the colonel of an infantry regiment had to exercise control through his subordinate battalion commanders, seldom directly dealing with his company commanders, and rarely seeing his entire regiment at one time.

The infantry regiment actually grew bigger from the Civil War to World War I. In turn, the colonel's span of control grew smaller, from directly controlling ten company commanders to controlling three battalion commanders. In fact, most military organizations have evolved to a span of control based on three, such as the number of rifle squads in a rifle platoon, rifle platoons in an infantry company, tank platoons in a tank company, and line companies in a battalion.

It should also be noted that nations seldom agree on what constitutes the proper span of control, or the size formation an officer of given rank should command. The US divisions in France in 1918 were larger than most French corps and a World War II US corps, heavy in armored divisions, was as large as a Russian tank army. The modern US Army, by way of further example, has dropped the rigid regimental system in favor of a flexible brigade system in which span of control is governed by the tactical situation; however, most armies of the world still use the regimental system. Nonetheless, we can learn much from observing each other's organizations and, thus, refine our span of control ideas.

Having briefly explored the span of control concept, let us now examine the present tank platoon in the US Army. It consists of five tanks commanded by a lieutenant, usually with one year or less military experience. The platoon leader is also a crew member of his own tank, and in combat must fight with his own vehicle while trying to control four others. The platoon, in short, is too large.

There are many foreign armies today using the three-tank platoon, and the rationale is simple and sound. Three tanks engaged in combat is the largest number of vehicles that can successfully be controlled by one man. The Israeli Army has demonstrated the excellent use that can be made of three-tank platoons in their desert blitz campaigns. The concept is combat tested and it works. The three-tank platoon is also very adept to the nuclear battlefield as it facilitates dispersion of tanks in small groups without loss of unit integrity.

The problem of controlling, and at the same time, fighting a tank will become more significant with the

fielding of the more modern and complex tank systems such as the *M60A2* with its more sophisticated electronic turret. These super tanks will also have increased firepower and accuracy, thus, three of them would constitute an effective combat formation, more easily controlled by the platoon leader. A new company formation for the 1980s will be required incorporating the smaller platoon.

The proposed tank company commanded by a captain would be made up of three tank platoons. Each platoon would be led by a lieutenant and would consist of three tanks. There would be two tanks in the company headquarters section for the company commander and for the artillery forward observer. This company organization would fit into the present battalion organization of a headquarters company, three tank companies and a combat support company. The headquarters tank section, however, would become the headquarters tank platoon and could either have a tactical mission, such as supporting the scout platoon, or be used by the command group.

The three-tank platoon would be the smallest tactical grouping possible and would not be subdivided. This would be a cardinal principle and would have to be understood by both Armor and Infantry officers. This would rule out the once common practice of non-Armor commanders piecemealing attached tanks and, thus, depriving them of mutual support.

Some may argue that the proposed new organization will decrease the number of tanks and, thus, the firepower and shock action of the battalion. An alternate solution then would be to have five platoons in each tank company, but still only three tanks per platoon. An experienced company commander can control five platoons better than a new second lieutenant can control five tanks.

Let us then carefully consider the three-tank platoon as a basis upon which to build our tank company of the future, so we of Armor can move into the 1980s not only with better tank weapons systems, but with smaller, faster, easier to control, yet hard-hitting tank formations.

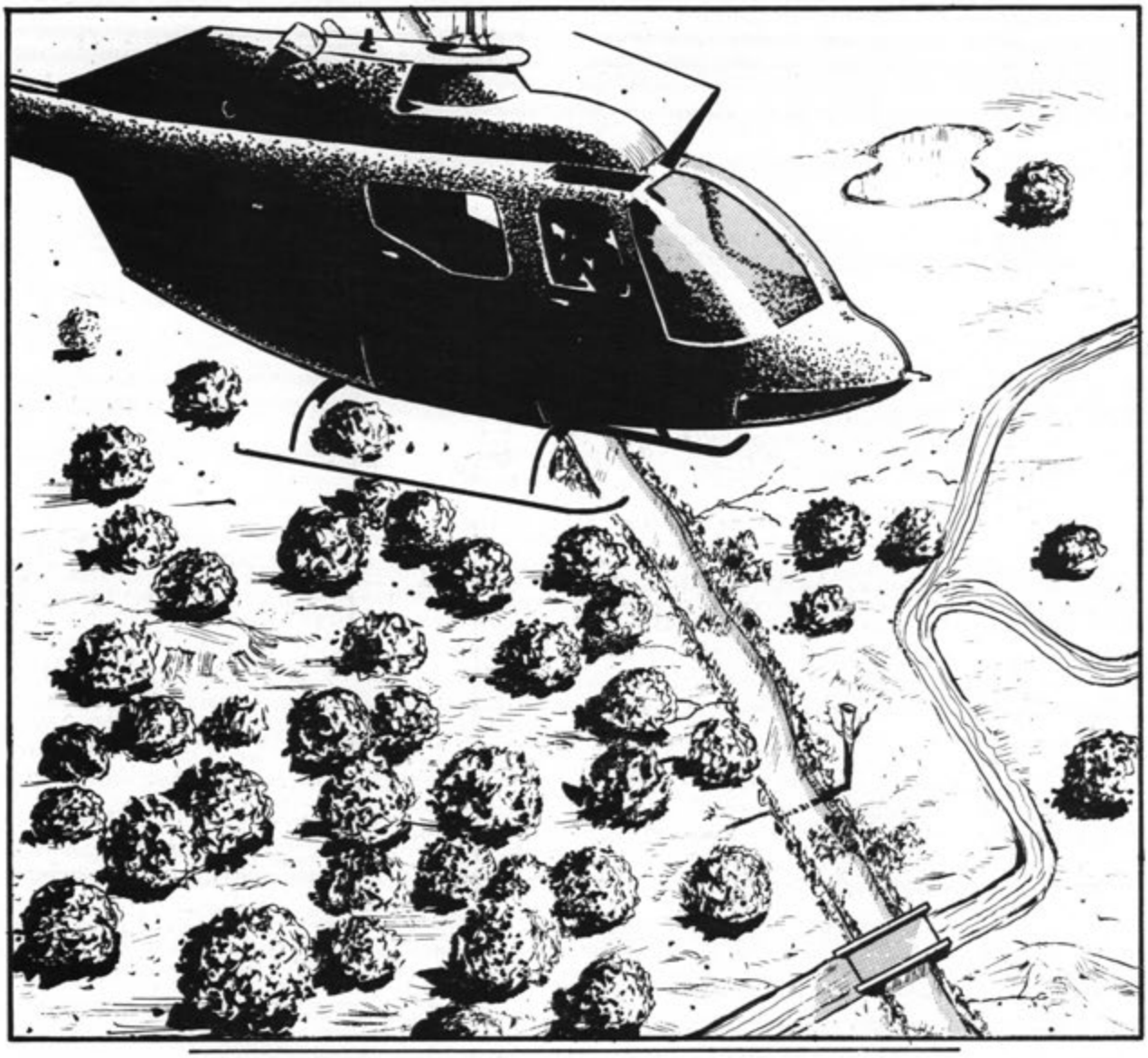
I commend this well thought-out article to all tankers. I have long considered what the optimum size of the tank platoon should be while commanding tank units from brigade to theater levels. I am convinced that a three-tank platoon is the answer because of all the reasons advanced by Captain Morgan, plus a couple of others.

I am also convinced that the tank company should still have 17 tanks—three to each of the five tank platoons, two tanks in the company headquarters. A five element tank company is more feasible, more flexible and more efficient in a highly mobile arm than a three element company. I have found no problem with a five element span of control in such units.

Bruce C. Clarke
General, USA-Retired

CAPTAIN KELLY M. MORGAN, commissioned from The Citadel in 1964, joined the South Carolina Army National Guard after leaving active duty in 1966. He has served as scout platoon leader, tank platoon leader and company commander with the 1st Battalion, 263d Armor.

How Would You Do It?



US ARMY ARMOR SCHOOL PRESENTATION

SITUATION

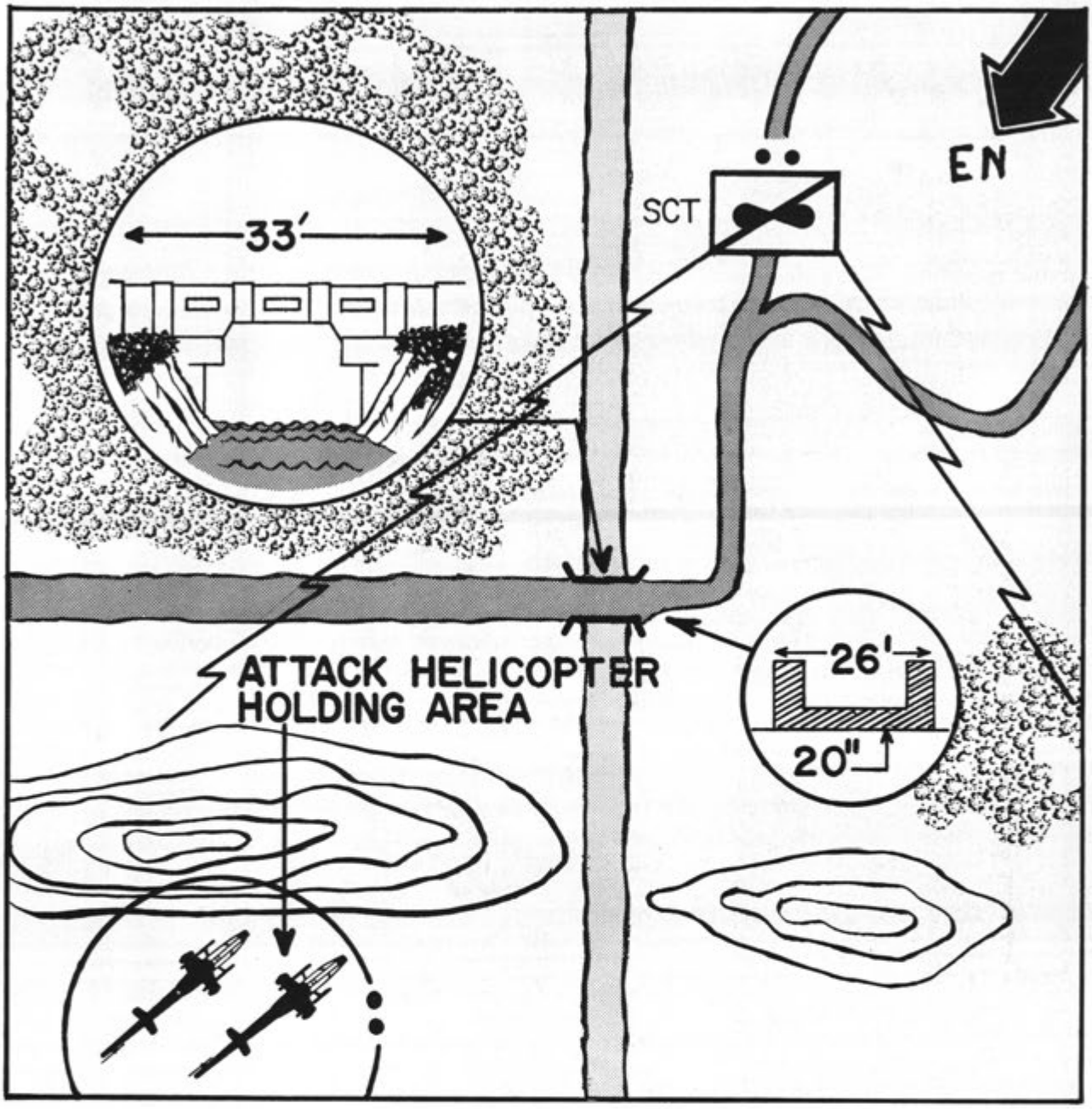
You are the commanding officer of an air cavalry troop in an armored cavalry squadron. Your squadron is committed in a division delaying action against an enemy armored attack. You are located at your troop CP, to the rear of the squadron's sector. During this particularly heavy period of contact, 6 of your aeroscouts and 6 attack helicopters are deployed with the squadron in the delay, and the aerorifle platoon is on call. The enemy is pressing on the squadron's right, and the adjacent unit is rapidly being forced to withdraw. A small river runs parallel to the boundary between your squadron and this unit.

PROBLEM

A small but key class 40 concrete slab bridge astride the river between the two units, could be advantageous to the enemy, and would be reached by enemy armor within the next hour. The squadron's ground assets are heavily engaged and are not capable of reaching the bridge in time to destroy it, and there is no tactical air immediately available; priority of artillery fire has been given to the adjacent unit. You are given the mission of destroying the bridge, before it falls to the enemy. The squadron commander grants permission to use any of your assets that you consider necessary to mission accomplishment. How would you do it?

AUTHOR: CPT ANDERSON

ILLUSTRATOR: ROBERT E. WILDER



SOLUTION

You should insert the aerorifle platoon to blow the bridge. Immediately before the aerorifle platoon is landed, two aeroscouts will begin a screen in the vicinity of the bridge. Two attack helicopters should be moved into a holding position, close to the bridge but behind masking terrain to provide antitank and suppressive fire support if needed. You will alert the team leaders of your assets working on the delay mission to be prepared to assist in the destruction of the bridge, and extraction of the aerorifle platoon. After the explosives and fuses are set, the aerorifle platoon will be extracted, and all air cavalry elements will withdraw.

DISCUSSION

The aerorifle platoon should be used in this situation because they can be deployed very rapidly to destroy the bridge. Aerial rocket fire was considered, but even using antitank 2.75-inch rockets, the probability of success is quite low since they are an area fire weapon. The antitank missile M22, if available, could be used, but bridge destruction would take several direct hits and the likelihood of mission accomplishment is questionable. The role of the aerorifle platoon in the destruction of bridges is normally limited because of the amount of explosives that have to be used. They have no equipment to drill or tamp their explosives. However, this bridge would be no problem because it would only take 100 pounds of C4 to render it useless to the enemy. The demolition material could readily be carried to the site by the aerorifle platoon in one of the platoon's UH-1H's.

from the Armor Branch Chief

COL Julius W. Becton Jr.

Officer Personnel Management System

After a great deal of study and some revision, the Army has adopted the new concept of officer personnel management announced earlier as OPMS. As adopted, the main features of OPMS are a dual track development plan, centralized designation of commanders at the lieutenant colonel and colonel levels, some changes in MOS proponency and staff functionalization, and some non-statutory changes in the selection process for promotion.

The new system is expected to provide a new and dynamic approach to officer career management with the objective of increasing professional competence, improving productive competition and providing greater career satisfaction. In other words, OPMS aims at providing every officer with full opportunity for career progression. He will have more control over his own career and will be able to point himself toward advancement in the areas best suited to his skills and preferences. A combination of self-imposed decisions and Army-directed selections will give him the opportunity to go as far as his ability, dedication and professional development will take him.

Three-Phase Development

Under OPMS, an officer's career will be developed in three phases. During the first 10 years—the company grade development phase—officers will acquire branch qualification as their primary skill. This phase is similar to the present system, with officers attending the basic officer and MOS training courses, serving in platoon and company level positions, attending branch advanced courses and acquiring knowledge of functional areas through formal military training, and performing in battalion or brigade level staff positions, Army Training Centers and/or development and testing agencies.

During the field grade development phase, covering the 10 to 20 year period, major emphasis will be given to the broadening of branch qualification and to the development of an additional skill. Officers will be required to identify primary and secondary skill areas prior to promotion to major and be qualified in these areas prior to promotion to lieutenant colonel. Assignments and education will be controlled during this period when required to foster this development.

An officer will be considered qualified in his secondary skill after two successful assignments in that field, or one assignment plus an advanced degree in a related academic discipline. He must have had at least one assignment in his secondary skill while in the grade of major to maintain this qualification.

Dual Track

In most cases an officer's primary skill will continue to be his branch qualification, while his secondary skill may be in either a staff functional area or in one of the special career programs. For example, he may choose a secondary skill in personnel, intelligence or operations, or he may prefer to enter one of the special career programs such as automatic data processing, logistics or information. Captains who have iden-

tified one of the special career programs as their secondary skill may request permission to designate this area as their primary skill. These officers will be permitted to concentrate their further development in the chosen special career program area, while their branch qualification becomes their secondary skill. Permission to do this is based upon evaluation of overall record, qualification in the field, and the Army's requirements.

Majors who follow the branch development pattern will broaden their branch qualification by schooling and assignments in related fields. This dual track career pattern will result in the development of officers who are not only proficient in their branch functional area but who also possess an additional secondary skill. Majors will also be allowed to change orientation and, as with those officers who concentrate their development in a specialty area, may elect to follow a functionally oriented pattern for the remainder of their careers.

Command Designation

Shortly after announcement of lieutenant colonel promotion selections, boards will be convened to evaluate all selected officers who are following the branch developmental pattern. The boards will designate officers for further command development or for functional or specialized development. The number of officers selected for continued command development will be closely related to projected requirements. Only command designated officers will be assigned to those command positions for which troop leadership is of paramount importance. Once assigned to these command positions, officers will remain in them for 18 to 24 months unless promoted or relieved for cause.

The third phase, covering the 20 to 30 year period, will emphasize maximum utilization of previously acquired skills. Shortly after announcement of colonel promotion selections, DA boards will be convened to designate selected officers for continued utilization in command, staff or specialized assignments.

Phased Implementation

Although OPMS is an approved concept, implementation is expected to be accomplished in stages beginning this year. Phased implementation is necessary because of the varied career patterns which have characterized the development of current colonels and lieutenant colonels (P) and the career alternatives to be made available when OPMS is fully implemented. Application of OPMS to lieutenant colonel and below will be implemented when appropriate functional and special career programs have been announced.

Phase One

Phase one calls for colonels and lieutenant colonels (P) to state their individual preferences for assignment and utilization in designated career areas (including specialist and functional areas, troop command, etc.). Each officer will then be selected for utilization in accordance with his stated desires and qualifications and Army requirements. Preferences will be honored insofar as possible. Officers selected for troop command may elect assignment to a position in their designated functional or specialist area in lieu of command, if they so desire. One of the major objectives of OPMS is to make it possible for officers with valuable functional or specialist skills to be utilized in such career fields without feeling compelled to seek troop command in order to enhance their potential for advancement.

DA troop command selection boards will convene on or about 1 September 1972 to consider eligible colonels and lieutenant colonels (P) for assignment to brigade level troop command position vacancies projected for FY74. Officers who indicate troop command as one of their preferences will automatically be considered by the appropriate troop command selection board. Troop command positions will include TOE organizations, Army Training Centers brigades, branch school brigades, and selected TD organizations.

Selection boards will select officers for troop command. Effective 1 July 1973, only those officers selected by DA troop command selection boards will be eligible for as-

signment to these position vacancies. Principals and alternates will be designated. Principals will be assigned to command positions and will normally be stabilized for 18 to 24 months except in unaccompanied tour areas. Alternates may be assigned to troop command positions to meet unprogrammed requirements occurring during FY74. Officers not selected as principals by the 1972 boards will be reconsidered by the 1973 boards provided they indicate their desire in writing and continue to meet eligibility criteria.

Officers will be notified of the results of the OPMS selection system by individual letter; results will not be published by list or circular. For additional information on phase one implementation, see DA Msg 061440 July 72, subject: Implementation of OPMS for Colonels.

Revised Officer Performance Rating System

Each periodic revision of the Officer Efficiency Report (OER) has stirred up as many new controversies as it has quieted old ones. While almost everyone agrees on the necessity for an OER as a career management tool, that is about as far as agreement has extended. Most officers feel that every reporting system they know about has had its share of faults, and there is much difference of opinion as to what those faults are and how they might be corrected. The most common charge leveled at the current system—as it has been in past systems—is that it has fostered inflation of efficiency ratings. Excessive inflation tends to destroy the usefulness of the rating system.

An ODSCPER study on the OER system revealed limitations in the current OER form (DA Form 67-6). Recommendations of the study for substantial revisions of the form and the regulation (AR 623-105) have resulted in the Revised Officer Performance Reporting System (ROPRS). The main purpose in developing ROPRS was to slow down the inflationary trend in ratings. Corollary purposes were to renew officer confidence in the validity of the performance evaluation and to correct a number of minor deficiencies. ROPRS is not a new system in the sense of replacing another; rather it is a system of proven worth that has undergone a major overhauling.

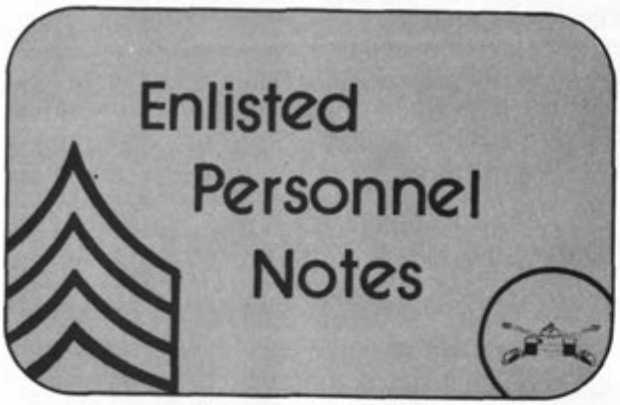
Several of the approved changes have already been placed into use with the current report form through interim changes to AR 623-105. During the past year, an entirely new report form has been designed and reflects further changes. Present plans are to put the new ROPRS form (DA Form 67-7) into effect on 1 January 1973. Other major changes include:

- Thorough restructuring of management information so as to provide data concerning character, job performance, and aptitude to career managers and selection boards.
- Requirement to provide the rated officer with a copy of the report immediately after it has been completed.
- Adoption of a numerical scoring system, with values reflected on the report form itself.
- Revised form design permitting conversion of selected data to automatic data processing.

Assignments to CONUS Training Centers

A large number of Armor captains have received or soon will receive orders for one of the CONUS Army Training Centers. Armor Branch is being tasked to provide a greatly increased number of company commanders and battalion/brigade staff officers to the centers. Thus, many young Armor officers can expect to be assigned to training centers such as Forts Polk, Knox, Jackson, Leonard Wood and Dix upon completion of their overseas tours.

This is particularly true of officers completing a normal tour of duty in Germany. These officers represent our primary input source to the training centers, since they are considered to be well-grounded in the fundamentals of Armor. The experience gained from armor duty in Germany is much needed in our CONUS training centers where young men are being prepared for duty in Germany. Officers assigned to this very important duty will find it both challenging and personally rewarding.



From the Director of Enlisted Personnel

DISCIPLINE OF THE SYSTEM

The important role the Enlisted Evaluation System is playing in the career development of the soldier makes it imperative that both the MOS testing and EER Programs operate successfully. The interrelationship of both programs in the development of meaningful MOS evaluation scores accentuates this requirement.

Commanders are enjoined to give strong continuing support to their programs and insure personnel officers check and double check the control and suspense systems they use in assuring all eligible personnel are scheduled for their written MOS tests in a timely manner, and that all required EERs are correctly prepared and processed. Everyone in the chain of command has a part to play in making the Enlisted Evaluation System work. When the system breaks down, *someone*, not *something*, more than likely is the cause.

IDENTIFICATION, TESTING AND REPORTING OF ENLISTED LINGUISTS

If you are an enlisted man or woman who speaks, reads or writes a foreign language, you will want to check the following items with your unit personnel officer to make sure that your records are up-to-date.

Many who are qualified in a foreign language have never been awarded the Special Qualification Identifier "L" or the Language Code as part of their MOS, as required by Section IX, Chapter 1, AR 600-200. Without the "L", you will never be identified as a linguist and as a result, will not be considered for a linguist assignment.

A review of records at Headquarters, DA reveals that many linguists are not being re-evaluated in their language proficiency every two years as required by Paragraph 2-3, AR 611-6. If you have not been tested recently, it is suggested that you go by your unit personnel office and schedule a proficiency test. Failure to be re-evaluated may result in your not being considered for assignment to a linguist position.

Headquarters, DA is receiving many language proficiency questionnaires (DA Form 330) that are incomplete or incorrect. Since this form is the only source of information for the Enlisted Linguist Master Tape Record, it is imperative that it be complete and correct before it is forwarded. Check the copy of DA Form 330 in your 201 File. If it is incomplete or incorrect, have your personnel office send in a revised copy. If you do not have a copy of DA Form 330 in your records, find out why it is not there.

SPECIAL ASSIGNMENTS

Are you interested in a special assignment such as a MAAG/Mission, International/Joint Headquarters or DA/DOD Staff Agency? If you meet the qualifications as outlined in Tables 11-2 and 11-3, AR 614-200, OPO-DA needs your application. See your commanding officer for a DA Form 2250 (Application or Nomination for Special Assignment). Special requisitions are filled by eligible applicants who apply for special assignment, and by selecting personnel for screening under the provisions of AR 614-200. An application (DA Form 2250) is maintained on file at DA for one year or until requirements exist that the individual may be applied against.

news notes

MG ST. JOHN COMMANDS 1ST ARMORED DIVISION

Major General Adrian St. John is the new commander of the 1st Armored Division, replacing Major General James V. Galloway.

General St. John has served in a variety of command and staff positions. After graduation from West Point in 1943, he became a troop commander with the 15th Mechanized Cavalry in Europe.

MG Adrian St. John

During the Korean Conflict, General St. John commanded the 73d Tank Battalion. After this, he served for three years on the faculty of the Command and General Staff College.

He commanded the 14th Armored Cavalry Regiment from 1967 to 1969 and then was the assistant division commander of the 4th Armored Division. His last assignment was as director of plans for the Office of the Deputy Chief of Staff for Military Operations.

ARMOR SELECTIONS FOR MAJOR GENERAL—AUS

Burton, Jonathan R.	13
Maddox, William J.	23
Simmons, Charles J.	9
Starry, Donn A.	30

Numerals are sequence numbers.

COLONEL WILLIAMS BECOMES ARMOR BRANCH CHIEF

Colonel Paul S. Williams Jr. has been designated as Chief of Armor Branch. His previous assignment was deputy chief of staff, III Corps.

A graduate of Virginia Military Institute, Colonel Williams has served with Armor Branch, The Office of the Assistant Vice Chief of Staff, and commanded the 1st Battalion, 69th Armor in Vietnam and the 2d Brigade, 2d Armored Division.

Colonel Williams is a graduate of the Indian Defense Service Staff College, Army War College, and holds a master's degree in business administration from George Washington University.

COLONEL BECTON PROMOTED

Julius W. Becton Jr., Armor Branch Chief, was recently promoted to brigadier general. Pinning on the star are General Bruce Palmer Jr. and Mrs. Rose Becton, the general's mother.

SENIOR AND MASTER ARMY AVIATOR DESIGNATIONS

Effective immediately and retroactive to 1 January 1972, only a standard military instrument rating and at least 50 hours of actual instrument flight time are required for award of Master Army Aviator designation if the aviator is otherwise qualified. Award of Senior or Master Aviator designation may be made to certain otherwise qualified aviators with expired instrument ratings who are assigned to duty positions wherein flying is prohibited or wherein the maintenance of instrument qualification is waived. (Ref: DA Msg. 261747, 2 June 1972, Subject: Senior and Master Army Aviator Aeronautical Designations.)

FT HOOD WELCOMES BLACK CAT'S COLORS

Major General George Cantlay, 2d Armored Division commander, accepts the 13th Armored Division colors from the division's command sergeant major, Dwight M. James, in a ceremony at the Hell On Wheels Museum on 12 May 1972.

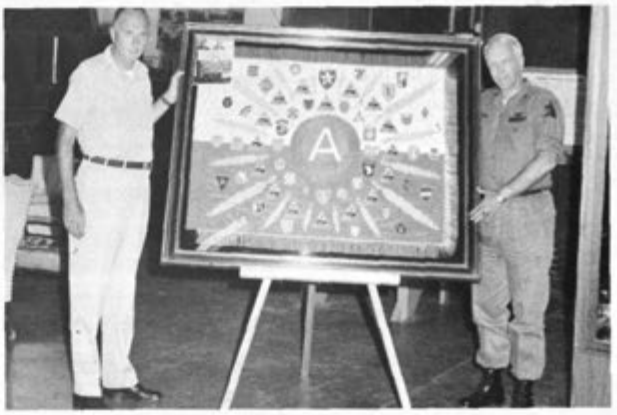
CHANGE OF COMMAND AT THE 2D BRIGADE, 1ST CAVALRY DIVISION

Command of the 1st Cavalry Division's 2d Brigade changed hands at a colorful ceremony at Fort Hood. At the cake-cutting ceremony, which followed the change of command, were (from left to right): Colonel John W. McEnery, outgoing brigade commander; Mrs. McEnery; Major General James C. Smith, 1st Cavalry Division Commander; Colonel Robert H. Nevins Jr., new brigade commander; and Mrs. Nevins. Colonel Nevins comes to the 1st Cavalry Division from Shippensburg State College. Colonel McEnery now assumes duties as assistant division commander.

14TH ACR REORGANIZED AS 11TH ACR

In a recent ceremony at Fulda, Germany, the 14th Armored Cavalry Regiment was inactivated and reorganized as the 11th Armored Cavalry Regiment. Regimental Commander, Colonel Egbert B. Clark III, received the regiment's new colors from Lieutenant General Willard G. Pearson, V Corps Commanding General.

PERSONAL EFFECTS OF GENERAL PATTON DONATED TO MUSEUM



Major General William R. Desobry, commanding general of Fort Knox, accepts the "California Collection" from Brigadier General George S. Patton III, assistant commandant of the US Army Armor School. The collection of equipment belonged to World War II hero General George S. Patton Jr., and was donated to the Patton Museum on behalf of the late general's family. A number of firearms, including the pistol General Patton used in the 1912 Olympics, were in the collection.

HUSTLERS

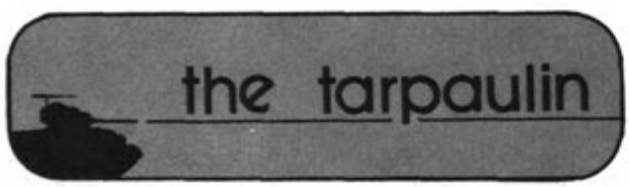
The Armor School has recently acquired *Hustlers* in support of their training programs. The term *Hustler* describes not men but new hardware. It is a six-wheeled combat vehicle simulator (CVS) with a chain driven, lightweight, all terrain chassis. It will provide an economical method of teaching students armored vehicle

field operations without actual use of tanks or APCs. USAARMS students can expect to see wide application of this vehicle in the future.

The *Hustler* simulates a combat vehicle only in terms of providing a comparable ground mobility. It accomodates the typical four-man crew and has the capability of traversing all types of terrain. In some ways it even surpasses the mobility characteristics of many present full-tracked vehicles.

3D BATTALION, 32D ARMOR TAKES TOP HONORS FOR GUNNERY

For the second consecutive year, the 3d Battalion, 32d Armor, 3d Armored Division, commanded by Lieutenant Colonel Roger J. Price, swept top honors in tank gunnery competition in USAREUR. The 3d Battalion fired the optimum 51 tank crews, distinguishing 14 and qualifying 29 others at Grafenwoehr's Range 80.



TAKE COMMAND

COL Edward F. Corcoran, 1st Bde, 2d Armd Div . . . **COL William W. DeLoach,** 1st Bde, 1st Cav Div . . . **COL Hillman Dickinson,** 1st Bde, USATCA . . . **COL Robert S. McGowan,** 194th Armd Bde . . . **COL Robert H. Nevins, Jr,** 2d Bde, 1st Cav Div . . . **LTC Robert J. Bertrand,** 1st Army NCO Academy . . . **LTC Dale Brudvig,** 4th Bn, 69th Armor, 8th Inf Div . . . **LTC John R. Cochran,** 11th Bn, 4th Bde, USATCA . . . **LTC Hewell D. Fleming,** 2d Bn, 37th Armor, 1st Armd Div . . . **LTC Gary P. Graves,** 1st Sqdn, 6th ACR . . . **LTC Carl Henne Jr,** 1st Sqdn, 3d ACR . . . **LTC James R. Hill,** 7th Sqdn, 1st Cav, 194th Armd Bde . . . **LTC Calvin Hosmer III,** 1st Sqdn, 2d ACR . . . **LTC Richard E. Hoyt,** 1st Bn, 81st Armor, 1st Cav Div . . . **LTC Jimmie T. Hughes,** 2d Sqdn, 17th Cav, 101st Abn Div . . . **LTC Luther R. Lloyd,** 1st Bn, 33d Armor, 3d Armd Div . . . **LTC Richard H. Marshall,** 1st Sqdn, 17th Cav, 82d Abn Div . . . **LTC Robert E. Orkland,** Inf, 1st Bn, 58th Inf, 197th Inf Bde . . . **LTC William H. Schneider,** FA, 1st Bn, 77th Arty, 1st Cav Div . . . **LTC Robert S. Thompson,** 2d Sqdn, 2d ACR . . . **LTC James Tutwiler,** 1st Sqdn, 11th ACR . . . **LTC Robert M. Wiser,** 2d Bn, 77th Armor, 9th Inf Div . . . **LTC Billy J. Wright,** 4th Bn, 35th Armor, 3d Armd Div . . . **MAJ John P. Kennedy,** F Trp, 8th Cav, 196th Inf Bde . . . **MAJ William Swift,** D Trp, 1st Sqdn, 10th Cav, 4th Inf Div.

ASSIGNED

MG James V. Galloway, Chief, USA Element, Joint US Mission for Aid, Ankara . . . **BG Robert J. Baer,** Project Manager, MBT, Warren, Mich . . . **BG John W. McEnery,** ADC, 1st Cav Div . . . **BG William J. Maddox Jr,** Cbt Sys Gp, CDC, Ft Leavenworth . . . **BG John R. McGiffert II,** Dep J3, MACV . . . **COL Raymond Battreall,** Sr Adv, RVN Mil Academy . . . **COL William Beckwith,** JUSMAG, Korea . . . **COL John B. Bellinger,** DCSOPS, DA . . . **COL John P. Berres,** Pres, Armor and Engineer Board, Ft Knox . . . **COL Elmer J. Birk,** Project Manager, ARSV, Warren, Mich . . . **COL William C. Black,** PMS, Calif State Poly, San Luis Obispo . . . **COL William J. Buchanan,** PMS, VMI . . . **COL Stephen F. Cameron,** AVSCOM, St. Louis . . . **COL Charles E. Canedy,** MASSTER, Ft Hood . . . **COL Robert M. Carroll,** MACV . . . **COL Raymond Cromwell,** STAG, Bethesda . . . **COL Donald E. Dehan,** STAG, Bethesda . . . **COL Louie W. Donoho,** Adv Gp, NCARNG, Raleigh . . . **COL Charles M. East,** Canadian National Defense College, Kingston . . . **COL John M. Fairey,** Secretary, USAARMS . . . **COL Conrad Grzybowski,** JCS . . . **COL Benjamin S. Hanson,** Ofc of IG, MACV . . . **COL Algin S. Hawkins,** UNC, Korea . . . **COL Martin D. Howell,** OCofSA, DA . . . **COL Robert E. Johnson,** HQ 8th Army . . . **COL Lester J. Knepp,** Ft Gordon . . . **COL Warren J. Lodge,** Dep Cmdt, CATC, Vilseck . . . **COL Robert H. Luck,** AMMD, USAARMS . . . **COL Patrick H. Lynch,** Ofc of Def Adv, NATO . . . **COL Joseph W. Mahaffee,** Sr Adv, 50th Armd Div (NJARNG), East Orange . . . **COL William A. Malouche,** Ft Leavenworth . . . **COL Jack F. Matteson,** MACV . . . **COL Kenneth D. Mertel,** DCS, V Corps . . . **COL Keith Meyers,** JFK Sp Warfare Ctr, Ft Bragg . . . **COL Arthur D. Moreland,** CDCEC, Ft Ord . . . **COL Jack W. Neilsen,** C&S Dept, USAARMS . . . **COL Paul R. Palmer,** OSD . . . **COL Charles D. Phillips,** S&F, C&GSC, Ft Leavenworth . . . **COL Peter L. Philp,** CDC, Ft Belvoir . . . **COL John M. Pickarts,** Adv Gp, Idaho ARNG, Boise . . . **COL Harry C. Smyth Jr,** HQ 3d Army . . . **COL T.S. Riggs,** HQ USAREUR . . . **COL John M. Shea,** Project Manager, DRAGON, Redstone Arsenal . . . **COL Rayburn L. Smith,** DAO, American Embassy, Abidjan, Ivory Coast . . . **COL Roland D. Tausch,** Automotive Dept, USAARMS . . . **COL Walter F. Ulmer,** Sr Adv, 5th ARVN Div . . . **COL Walter L. Watkins,** MACV . . . **COL Gene A. Weaver,** Sr Adv, Armor Cmd, MACV . . . **COL George S. Webb,** CofS, USMA . . . **COL Thomas R. Woodley,** PMS, Univ of Illinois . . . **LTC Andrew H. Anderson,** DCSOPS, HQ USAREUR . . . **LTC John C. Bahnsen,** CATB, Ft Benning . . . **LTC William D. Carter,** Adv, 1st Bde, 50th Armd Div, NJARNG . . . **LTC Richard A. Cook,** HQ CONARC . . . **LTC James Cullen,** XO, 2d Bde, 1st Armd Div . . . **LTC Dwight A. Davis,**

USATC, Ft Leonard Wood . . . **LTC Jack E. DeMuyck,** DCSLOG, DA . . . **LTC David Doyle,** OCofSA, DA . . . **LTC Richard L. Feeney,** Ft Hood . . . **LTC Howard Glock,** DCSOPS, USAREUR . . . **LTC Richard G. Hyde,** SGS, USAARMC . . . **LTC R.P. Knight,** HQ CDC . . . **LTC Marlin C. Lang,** J3-J-USREDCOM, MacDill AFB . . . **LTC Leslie Layne,** DCSPER, DA . . . **LTC Samuel Myers,** XO, 2d ACR . . . **LTC Glenn Petrenko,** Exercise Branch, SHAPE . . . **LTC Joseph D. Posz,** Ofc of PM, Ft Hood . . . **LTC W.A. Schutzmeister,** CDC Armor Agency . . . **LTC Thomas A. Tullar,** MASSTER . . . **LTC Thomas E. Williams,** OCRD, DA . . . **MAJ Gary W. Bloedorn,** USAE, SHAPE-ALFSEE, Turkey . . . **MAJ Jack T. Clark,** J3/JRC, EUCOM . . . **MAJ Louis F. DeMouche,** USTDC-22, DA . . . **MAJ Edward R. Garton Jr,** XO, 2d Bn, 64th Armor, 3d Inf Div . . . **MAJ Stanley N. Gehler,** 1st Bn, 73d Armor, 2d Inf Div . . . **MAJ T.R. Goodwin,** 3d Bn, 68th Armor, 8th Inf Div . . . **MAJ William R. Griffiths,** USMA . . . **MAJ Donald Kirby,** S3, 1st Bde, 3d Inf Div . . . **MAJ Alvin W. Kremer,** USAARMS . . . **MAJ Bobbie D. Lay,** 1st Bn, 66th Armor, 2d Armd Div . . . **MAJ Heilborn B. Love Jr,** HQ EUCOM . . . **MAJ Byron R. Marsh,** RAC School, Bovington Camp, Dorset, England . . . **MAJ Frederick E. Oldinsky,** ACSFOR, DA . . . **MAJ Robert W. O'Shay,** XO, 3d Bn, 64th Armor, 3d Inf Div . . . **MAJ Rex M. Turner,** XO, 4th Bn, 70th Armor, 4th Inf Div . . . **MAJ Barry Winzler,** XO, 1st Bn, 12th Cav, 1st Cav Div . . . **MAJ Robert A. Wagg,** Chief, Materiel Div, DDLP, USAARMS . . . **CSM Walter J. Laverty,** 5th Recon Sqdn, 2d Bde, USATCA.

VICTORIOUS

COL Robert Schweitzer has been selected to be a Fellow at Harvard University . . . **COL Richard Lawrence** has been selected to be an Executive Fellow at the Center For Advanced Studies, Brookings Institute . . . Recently announced selections for enrollment in the Army War College Nonresident Course, Class Number 5, FY73 include: **COL Daniel M. Gauger, COL Donald J. Pagel, COL Peter L. Philp, LTC Emory W. Brownlee, LTC Lawrence L. Clardy, LTC Thomas R. Fowler** and **LTC Robert B. Osborn** . . . One of the "Tank Aces" credited with knocking out five enemy tanks is **CPT Billy H. Causey** . . . **LTC Phillip Daves** has been notified he won the $5,000 first prize in the Bicentennial Medal Design Competition sponsored by the Franklin Mint, a private organization specializing in commemorative medallions . . . One of four Army aviators honored by the American Helicopter Society (AHS) for piloting the *CH54B* to seven world records was **CPT Brendan P. Blackwell.** CPT Blackwell received a certificate from the Federation Aeronautique International for taking the *CH54B* to 31,105 feet with a payload of 2204.62 pounds . . . **2LT Timothy T. Lupfer,** the number one cadet in general order of merit at USMA, received eight awards at the Annual Awards Convocation to lead 14 other cadets who garnered more than one award . . . Distinguished Graduate and Military Stakes winner of AOB 11-72 was **2LT James T. Martin;** Honor Graduates were: **2LT James M. Hackedorn, 2LT Timothy K. Morris, 1LT James A. Niles** and **2LT John C. Goodman** . . . Distinguished Graduate of AOB 12-72 was **CPT Cyril J. Carr Jr;** Honor Graduates were: **2LT Robert C. Arledge Jr, 2LT Stephen W. Miller** and **CPT Regis W. Davis** . . . Distinguished Graduate of AOB 13-72 was **2LT John D. Horn;** Honor Graduates were: **2LT Alan R. Hammon, 2LT Milton R. Steward, CPT Charles T. Jones** and **2LT Thomas E. Myers** . . . Distinguished Graduate of Motor Officer Course 12-72 was **CPT Bobby J. Barnes; Honor Graduates** were: **CWO John M. Hamilton, CW4 John J. McQuirk** and **2LT James W. Larson** . . . Distinguished Graduate of Motor Officer Course 13-72 was **2LT Michael E. Donnelly;** Honor Graduates were: **2LT Lynn W. Rolf, 2LT George H. Wonson** and **2LT Joe A. Parr** . . . Distinguished Graduate of the 1st Army NCO Academy was **SSG Randy B. Pope.**

AND SO FORTH

Two Armor battalions have recently been activated, they are: **4th Bn, 69th Armor, 8th Inf Div, LTC Dale Brudvig** is the commanding officer; and the **2d Bn, 77th Armor, 9th Inf Div,** with **LTC Robert M. Wiser** as commanding officer . . . The **3d Cavalry Group** will hold their reunion 22-24 Sep in Syracuse, NY . . . **North American Rockwell Corporation** has obtained the rights to market and perhaps produce a computer-controlled antiaircraft missile system called the *Crotale* from its developer, Thompson-CFS, a French corporation . . . A **David Packard Chair in Electrical Engineering** has been established at the University of Southern California, honoring the former Deputy Secretary of Defense . . . The **Army's Junior ROTC Program** is going coeducational. DA has announced that girls should be given an opportunity to enroll in the Junior ROTC program conducted in high schools throughout the country . . . The **1st FASCOM** has moved from Ft Lee to Ft Bragg and was redesignated as the **I Corps Support Command (COSCOM)** . . . **MAJ Edward F. Bruner** is the co-author of a landscape atlas of the USSR that is used at USMA . . . The use of **medical evacuation helicopters** which are painted white with bright red crosses is being tested in Vietnam. Test results have been favorable, especially during daylight hours . . . The **3d Bde, 1st Cav Div** has returned to Ft Hood . . . A classroom in the Armor School's Boundinot Hall has been dedicated in the name of **LTG Geoffrey Keyes** . . . Blackhorse scholarships were recently presented to **Sandy Likens,** daughter of **Specialist Arthur E. Likens,** and **David Nicholson,** son of **PSG Glenn H. Nicholson.** PSG Nicholson and Specialist Likens were both members of the 2d Sqdn, 11th ACR, and were killed in Vietnam . . . **LTC Charles Roper's** 5th Bn, 3d BCT Bde, at Ft Leonard Wood has completed 100,000 man days without a lost time military injury . . . **MG Franklin M. Davis Jr,** commandant of the Army War College, has been designated a Fellow of the Company of Military Historians . . . **Alvin R. Sunseri,** former Armor officer and author of several articles appearing in *ARMOR*, is now with the Department of History at the University of Northern Iowa, where he has introduced a course entitled "War and Society in the Modern World."

Armor Association Sabers

Armor Association sabers were presented to two distinguished cadets during ceremonies at the United States Military Academy. The sabers, the first to be presented this year under the revised system of Armor Association awards in recognition of meritorious achievement, were presented by Academy Superintendent, Lieutenant General William A. Knowlton in commendation for the cadets' effort in academic study, physical education and military leadership. The Armor Association is pleased to congratulate these young men and extends to them a sincere welcome to Armor Branch.

Lieutenant Timothy T. Lupfer, of Metuchen, New Jersey, ranked first in this year's graduation class of 801 cadets. In addition to being active in the Chapel Choir, the 1972 Class Committee, and Pointer Magazine, he was commander of Company G4. After completing Basic, Airborne and Ranger Courses, he will report to the 3d Squadron, 1st Cavalry, 1st Cavalry Division (TRICAP) at Fort Hood, Texas.

Lieutenant James M. Slone, of Hillsboro, Missouri, graduated fifteenth in his class and was the second to select Armor as his career branch. Active in the Student Conference on United States Affairs and the German Club, he was the administrative officer of Company D2. After completing Basic, Organizational Maintenance and Ranger Courses, he will report to the 2d Cavalry Regiment in Germany.

from the bookshelf

THE DEATH OF THE ARMY: A Pre-Mortem

by Lieutenant Colonel Edward L. King, USA-Retired

Saturday Review Press. 246 pages. 1972. $6.95

This book will make old soldiers cringe. It is the most comprehensive collection ever published of old wives tales, petty grievances, half truths, falsehoods, innuendoes and allegations—all about the Army, all taken as fact.

It appears that Edward King has been opposed to everything the Army has done the past 20 years: change to green uniforms, change to pentomic organization, efficiency report systems, the size and shape of the Army, chaplains, medics, the UCMJ, NATO strategy, promotion systems and a host of others.

It serves little purpose here to refute Edward King seriatim; so much of what he writes is ungrounded in fact that time and space do not permit tracing the origins of each allegation in order to commence the argument with fact. However, in his closing chapters, Edward King makes 22 recommendations which it might be instructive to examine in a general way. These fall into three distinct categories. Some are patently ridiculous.

"Greater effort should be made to guarantee soldiers their First Amendment rights," says Edward King. However, there is no evidence to show that instructions exist which in fact restrict a soldier's First Amendment rights. Military personnel are free to write; many do so in forums ranging from professional journals to paperback detective stories. Some of what military men write is critical, developing a need for change and postulating a better way to run the railroad. The first requirement, however, is always for a truthful statement of how things really are.

It is impossible to base reform on half truths about what is to be reformed, even though the contemporary media tends to encourage this. What Edward King apparently wants is carte blanche protection for persons with petty grievances to seek a wide audience in which to air their inadequacies, just as Edward King has done since his retirement from active duty.

In a second category, Edward King's recommendations demonstrate his apparent complete lack of knowledge about how the function he criticizes actually works. He is critical of the Army officer efficiency reporting system, claiming that these reports should rely less on numerical accounting and more on narrative description of actual performance. This is precisely the thrust of instructions now in force regarding officer efficiency reports. While numerical ratings play a role, most judgments about promotion and selection for schooling are based on an adjectival indication by the rater/indorser of the rated officer's performance of the duty being rated.

Edward King states that 60 per cent of the Army's manpower is performing noncombat functions, demonstrating his complete ignorance of how the Army is structured. One can prove almost anything about Army manpower by redefining functional categories into which manpower is aggregated for analysis. Using certain assumptions it is possible to prove that about 75 per cent of the Army is noncombat; while still another set of assumptions will prove that over 60 per cent of Army manpower is dedicated to combat functions.

In a third category is a set of recommendations for which Edward King would apparently like to take credit, but which either have been accomplished, are being done now, or are in the process of being done. One such suggestion relates to improved salary levels for junior officers and noncommissioned officers. One striking phenomenon of the last three or four years is the dramatic rise in salary levels in those two groups, to the end that they are now competitive with the civilian labor market, and attractive—for the first time in the nation's history.

In short, Edward King presumes a broad perspective on a range of issues apparently far beyond his competence, for every one of his 22 recommendations falls into one of the three categories set forth above. The question then is, Who is Edward King? What are his authoritative credentials for postulating the Death of the Army? And why does he strike out at an institution for which he claims to have "tremendous affection?"

It is instructive to review Edward King's career and to draw therefrom certain conclusions about the man and his qualifications for conducting this diatribe.

After 18 months of enlisted service, which included duty in Korea, Edward King left the Army. During the two and one-half years as a civilian, he received a Reserve commission as a second lieutenant, and was recalled to active duty in that grade in September 1950 during the Reserve Component call-up for the Korean War. After serving as assistant public information officer of the Southwest Command in Japan, Edward King served two months and 22 days as a platoon leader in E Company, 34th Infantry, 24th Infantry Division in Korea. This was his only combat experience. For it he received neither an efficiency report, nor any personal award or decoration for valor or merit. He was awarded the Combat Infantry Badge. It was to be his last unaccompanied tour.

From early 1952 to mid-1957, Edward King served with units at Forts Riley and Carson, and in US Army, Europe. He had no assignment with troops after May 1957. After 1957, he attended the Advanced Course at the Infantry School, served as an advisor to a US Army Reserve unit, went to school at Omaha, and at Monterey where he studied Spanish. From early 1961 to mid-1962, Edward King, by this time a captain, served in G3 Division, Head-

quarters, Army Communications Zone, Europe.

Leaving Europe, Edward King spent three and one-half years in Spain; the last 18 months with the Military Assistance Advisory Group, before attending the Associate Course at Leavenworth in 1966. He was subsequently assigned to Fort Dix to give him some troop duty and command experience after ten years away from both of these duties; however, at his own request, he was instead assigned to the organization of the Joint Chiefs of Staff in Washington, where he served for 38 months until his retirement in the grade of Lieutenant Colonel in 1969. His principal duty with the OJCS was as military secretary, US Delegation to the Inter-American Defense Board; concurrently, he served as military secretary to the Joint Brazil-US Military Commission, military secretary US Section of the Joint Mexican-US Defense Commission, and liaison officer to the Brazilian Military Commission. His duties were primarily administrative, did not require access to special intelligence, and there is no indication of his involvement in anything other than Western Hemisphere matters. Although Edward King claims to have been "privy to much of the basic planning behind our military policy" during the period, the only specific additional duty he cited in his testimony before the House Armed Services Committee on 27 March 1972, was service as an interpreter during base negotiations with Spain.

In January 1969, orders were issued assigning Edward King to the US Military Assistance Command in Vietnam. In February 1969, Edward King's application for retirement was disapproved; he wrote the Adjutant General in March 1969 requesting reconsideration. The Selective Retention Board approved his retirement, effective 31 July 1969.

The picture that emerges is one of a man with a series of unpretentious assignments which, except for Korea, saw him with his family, and many of which placed him in some of those plush overseas living areas he is so quick to criticize. Certainly nothing in his record of service qualifies Edward King as an authoritative spokesman on any of the issues about which he speaks with such apparent authority.

The picture one develops from his record is of a man who neither was assigned to nor sought the challenging hard jobs, and who at one point at least, on his own initiative, avoided an attempt to get him command and troop experience in favor of a job on a high level staff—one of the institutions he attacks so vehemently. One wonders why.

Edward King alleges "tremendous affection" for the Army, but speaks of the Army, back to the beginning of his career, with complete disaffection. Could it be that Edward King is a sunshine patriot—one who, so long as things rolled along easily for him was willing to serve, but who, when asked to pay the piper at last, proved unwilling to serve.

Edward King speaks with authority of Vietnam; he never served a day there. Could it be that he was afraid to face the challenge of this new war. Having avoided command and troop duty once, was it that he now feared someone might ask him again to command—this time in battle?

Man's greatest challenge is fear—fear of the unknown, fear of inadequacy in the face of a challenge whose dimensions are unclear. It is in the conquering of this fear that men become men, or reject manhood forever. Could it just be that 18 years of nagging fear of his own inability to face the challenge of command in battle finally caught up with Edward King, and he at last had to be honest with himself? Could it be that had he leveled with himself after Korea, he would have resigned then, and spared himself and the rest of us the angry and anguished spectacle of his inability to live with himself now?

He reminds me of a young lieutenant who reported to my command in Vietnam for duty. Assigned as a platoon leader he refused to accept the command, stating that he was afraid and couldn't overcome his fear sufficiently to perform his duties. He admitted that all through his ROTC years, and during his initial schooling, he had realized that eventually he might find himself in this predicament, but that he had never been able to muster the moral courage to admit to himself that he was afraid, and try to conquer his own fear. While his contemporaries faced the same realization almost without exception, they were individually men enough to recognize their responsibility, get control of their fear, and acquit themselves in simply splendid fashion.

So Edward King in *The Death of the Army* exposes to public view the soul of a man unable to cope with the ultimate challenge of his profession, and small enough of mind to lash out blindly at the institution that sheltered him for so long, but which he refused to serve when asked to meet the ultimate demand of his officer's oath. It is an account of a personal tragedy, not about the Death of the Army, but about the demise of Edward King—a man ultimately unable to level with himself and conquer his fears.

It is well that Edward King admitted, albeit unknowingly, his own shortcoming as a soldier and a man, and that the Army acceded to his demand for release from active duty. For it would have been the ultimate tragedy had the Army forced him to fulfill the terms of his oath of office by placing him in command in an environment where his own self doubt surely would have lead to the unnecessary death of men for whom he was ultimately responsible.

Brigadier General Donn A. Starry
ACSFOR

THE LIONHEADS
by Josiah Bunting. George Braziller Publishing. 213 pages. 1972. $5.95.

The Lionheads is ostensibly a novel about personalities in the 12th Infantry Division (Lionheads), its Riverene Brigade, and the events surrounding one combat operation in the Mekong Delta. This is, however, an oversimplification on the reviewer's part, which is perhaps the major problem with the book.

Major Bunting has written a good book. Militarily, he is technically correct, which in itself is unique. Unfortunately he carries this to the classroom level, which for the layman must be confusing. He has also succeeded in painting as fine a portrait of combat as anyone who has tried. If for no other reasons than these two, the book is worth reading. Certainly it is well above the caliber of others offered to date, although Vietnam era competition is not keen.

Bunting is obviously writing about the 9th Infantry Division (Octofoil) and is to some extent as obvious in his character developments as he is with the division. But he has not really written about the 9th Infantry Division or particular people, although knowledgeable people will enjoy fitting real people into the slots provided. He has written a novel that, according to his supporters, is designed to bring the Army into focus, and answer the elusive questions that have surrounded the handling of the war in Vietnam.

Bunting's message to the casual reader

is this—careerism, duplicity and selective integrity are now the hallmarks of the US Army officer and because of these characteristics, soldiers do die, and did die, unnecessarily. He does himself and his readers a disservice by inferring that the antithesis of his prototype is the smart young lawyer/stockbroker who ran the war adroitly, expertly sandwiching it between skin flicks and dealings with ticket punchers, yet sharing none of the responsibility for its casualties.

This may be wishful thinking on Bunting's part. Not to say that some of what Bunting says is not true—it is and it needs to be said. But the message is too simple and the conclusion too obvious. Vietnam, and perhaps to a greater extent, the motives and the character of the Officer Corps, is too complex to be dissected in so cavalier a manner.

Bunting, obviously an artist, proven scholar and soldier, inexplicably draws popular and superficial conclusions. He has given the same easy solution that has so characterized the solutions surrounding both the problems in Vietnam and in internal Army structure.

Fortunately, the definitive work on American involvement in Vietnam has yet to be written. Maybe Josiah Bunting will do it. He has proven with *The Lionheads* that he has the qualifications to do so, but to date he has only given us a good chapter. Hopefully someone will give us the successor to Jean Larteguy's *Centurions*. Maybe it will be Josiah Bunting.

Major Gordon R. Sullivan
OPOAR

BRASSEY'S ANNUAL: THE ARMED FORCES YEARBOOK edited by Major General J.L. Moulton. Praeger Publishers. 317 pages. 1971. $18.50.

Brassey's Annual, in its 82d volume, is an anthology of articles by military, defense and diplomatic authorities who address a wide range of subjects. Topics include world trouble spots, as well as the more prosaic matters of budgets and training that are of a crucial internal concern to armed forces and governments. This edition has been tailored by its editor to include much on flexibility and mobility, articles on disaster relief, training problems in the German Army, and military salaries as they relate to recruitment of soldiers.

Authors are of many nationalities including British, Norwegian, South Vietnamese, German, American, Australian and Swedish. Each author's views are paired or contrasted with at least one other author. The juxtaposition of articles serves to give a point-counterpoint aspect or an adversary format to the book in some cases. Where that is not possible, the editor arranges the articles by general subject compatibility.

A summary chapter on "Defense White Papers" and "Defense Debates" is excellent in that it reduces those lengthy documents and proceedings for easy reading and use. A final chapter on "Military Books of the Year" may be even more appealing to the military reader. Only publications written or translated into English for the years 1970 and 1971 are presented, but the list is a valuable research device.

Brassey's Annual is a valuable tool for the student and practitioner of military affairs. The pairing of articles by the editor is fortunate and the diversity of content provides something for everyone. The impact of the book on a wide audience and to all levels of military concern is lessened because of the absence of a "point of view." Nonetheless, the *Annual* gives a forum in English for NATO officers to transmit their thoughts and opinions to an extensive audience, apart from journals representing individual countries, services or branches.

Colonel Wilmer F. Cline
USAF

SOLDIERS, SCHOLARS, AND SOCIETY: THE SOCIAL IMPACT OF THE AMERICAN MILITARY by Edward B. Glick. Goodyear Publishing Co. 144 pages. 1971. $6.95.

The Department of Defense is the largest single institution in the world, employing directly four and one half million men and women and directing the use of 10 per cent of the nation's wealth. Edward Bernard Glick analyzes the social effects of this organization in a broad range of factors within American society. Readers might find some of this sociologist's recommendations in the concluding chapter a bit utopian, but Glick by no means pictures the Defense Establishment as either a bastion of all that is perfect in our society or as a personification of evil.

For Glick, a well-seasoned writer with several articles and two books to his credit, this huge and complex establishment is not so easily categorized. For instance, in the realm of civil rights, he shows that the view of the American military institution as an agency which suppressed black rioters in Watts, Chicago and Newark must be balanced by the fact that this institution also escorted black children across white lines of resistance so that they could attend integrated schools and colleges in Arkansas, Alabama and Mississippi. Likewise, the Army's high black casualty rate in the Vietnam War must be balanced by the fact that the Defense Establishment was the first institution to have more or less desegregated itself, plus it is one of the strongest pressure groups in the country for integrated off-base housing.

Nor is the picture less complex in the realm of Defense cuts. In 1969, Secretary Laird announced a proposed savings of $609 million a year by eliminating over 64,000 military and civilian jobs and curtailing or closing 307 bases. This move should have pleased those who opposed high Defense budgets; and yet, many Congressmen and local officials bitterly opposed cuts for their own districts, charging that the cuts hurt their local economies. In the instance of Philadelphia's Frankford Arsenal, its closing would eliminate close to 1,000 black employees. The executive director of the Philadelphia Urban Coalition charged that this federal action was more consistent with racism than with justice.

Glick examines the complexity of the Defense Department in other areas as well, such as military conscription, military education and training, the Congressional military relationship, and, of course, the Military-Industrial Complex. He surprisingly does not touch upon the problems of service rivalry, but the areas covered are well worth the attention of those vitally concerned with today's Defense Establishment.

Don E. McLeod
OCMH

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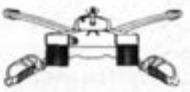
693-1468



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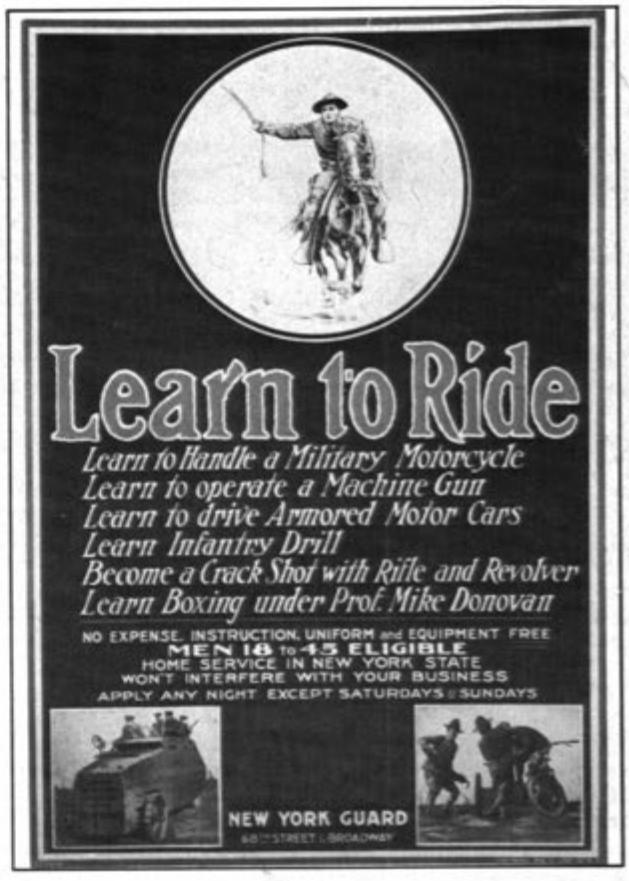

ARMOR

november—december 1972

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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ON THE COVER . . .

The old and the new are brought together in CW2 Chet Jezierski's nostalgic look at today's cavalrymen, set in yesteryear's timeframe.

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letters to the editor

The Death of the Army

Dear Sir:

Brigadier General Donn A. Starry's review of Edward King's book, *The Death of the Army*, which appeared in the September—October issue of *ARMOR*, was more a vindictive character assassination of the author than a worthy book review. If King was as undistinguished and unchallenged in the Army as General Starry indicates, one can not help but wonder why he was retained, promoted and awarded plush assignments for over 20 years. There may even be some credence in King's criticism of the seniors and system that not only tolerated but sheltered him for two decades.

HARRISON W. KIMBRELL
Lieutenant Colonel, USMC
The Citadel
Charleston, South Carolina 29409

Finding The "Perfect" Tank

Dear Sir:

Thanks for reproducing General Polk's superb article from *Army*. It was both timely and appropriate. In the wake of the controversially-titled piece on "The Death of the Tank," and the more recent, "The Tank is Alive and Well," the General struck a much-needed balance.

One thing that bothers me in this otherwise fascinating dialogue is the seeming polarization between those who prefer either armor-over-mobility or mobility-over-armor. The key to the dilemma, as I see it from my position far from the realities of R&D, is in our ability to properly assess the needs of some future battlefield. Planning for the future must, of necessity, involve both scientific and intuitive processes, and the latter might invite rationalizations which support merely desirable capabilities. It might also support, with the desire to fully demonstrate the advancement of our technology, our tendency to cram every conceivable capability into the weapons system. At least, to the maximum limits of the omnipresent budget. Witness the *XM803*.

I remember a high school history teacher that told us that the German World War II armor was far superior, technologically, to that of the Allies. We won, he said, because our superior numbers (and a few other things) more than outweighed that technological advantage. Looking at the numerical superiority of the Soviets, and their preference for simplicity, I wonder whether the shoe is on the other foot, so to speak.

Another thing which bothers me is the ambition to come up with a single tank. If there is so much diversity of opinion among experts as to what constitutes a "perfect" tank, perhaps we would be wise to investigate the possibility of reviving light and medium tanks. Budgetary considerations might well preclude this, but we haven't come awfully far trying to "put it all together" into a single unit so far. We need, certainly, both speed and armor protection; but few would support the extreme of either a relatively-immobile steel fortress (however impregnable), or a rat-patrol type of unit, utilized the way we do our present tank units. We need armor protection, and we need mobility; but we, as an armored force, need flexibility and adaptability. To have these things within the force does not necessarily mean that we have to have them in every vehicle in that force—it may be advisable to diversify, rather than put all our attention and confidence in an omnipotent, but limited edition, super-tank.

JOHN E. GRABOWSKI
Captain, Armor
Fort Hood, Texas 76545

Handicapped Program Working at Fort Knox

Dear Sir:

Congratulations to my good friend, Colonel John R. Byers, for his fine article on hiring the handicapped which appeared in the September-October issue of *ARMOR*.

I think that we are doing well in this area at the Armor School, inasmuch as we have several amputees ranking from lieutenant colonel to captain on our staff and faculty. All of these officers are highly decorated Vietnam War veterans, with intense motivation, love of the service, and desire to do well and make a real contribution to our training mission.

GEORGE S. PATTON
Brigadier General, USA
Assistant Commandant
US Army Armor School
Fort Knox, Kentucky 40121

Rebuttal For "Death of the Tank"

Dear Sir:

I feel it is necessary to offer rebuttal to some of the arguments brought out in refutation to "Death of the Tank." Specifically, I will concern myself with the doctrinal questions of tank-infantry cooperation and of the need for massed concentration of tanks. These two ideas are very closely related, even though they are opposites, so they require simultaneous examination. The author of the article, Lieutenant Colonel Warren W. Lennon, seems to support, by implication, the notion that tanks are meant to accompany infantry, rather than the reverse. This doctrine has been sufficiently refuted by, among others, the authors of some of the past letters in *ARMOR*. In doing so, they have perpetuated another doctrine: the requirement for masses of tanks in offensive operations. There are compelling reasons why such tactics are, and have been since World War II, obsolete.

Masses of tanks can be countered by the use of large numbers of antitank weapons, especially if they are well concealed and used in depth with flexibility. If tanks are concentrated into a mass, it allows the defender the advantage of knowing where an attack is centered, permitting him to move his antitank weaponry along the attackers known line of advance. This is what occurred at El-Alamein, where the Axis Army was able to counter the British advances until overwhelmed by the vastly larger Allied Army. To the front of their position they placed extensive minefields; these were to slow down and channel the British advancing units, allowing the defenders to bring their meager tank and antitank resources to bear at that spot. This tactic was used by the Germans with some success at other battles, and with tremendous success by the Russians against the Germans.

Since World War II, antitank systems have become tremendously more sophisticated; a great deal smaller, more accurate and deadlier. These improvements have been coupled with a widespread distribution of such weapons. For example, antitank weapons capable of defeating battle tanks are commonly distributed at the platoon and even squad level. In addition, man-portable antitank guided missiles able to destroy any known tank out to several thousand meters are becoming more widely available. The development of easily dispersed mines, such as those developed by the British and Germans, greatly enhances the ability of a defender to meet an attack. The combination of such mines, rapidly placed where and when needed, and the growing power of antitank weaponry should preclude any extensive, successful use of masses of tanks.

For the above reasons, I would like to respectfully suggest that the use of masses of tanks, a tactic developed before World War II, is as obsolete as the tactic it replaces. Liddell Hart, who argued so articulately before the war that tanks should not be confined to supporting infantry, and that tanks should operate in masses supported by mechanized infantry, came to the conclusion after the war that such tactics were obsolete. He felt that masses of tanks could not be

practically used; that in the future, tanks should operate in small groups combined with infantry and artillery. He argues that to replace the tactics of mass, we should adopt one of controlled dispersion.

Whether Liddell Hart's theories are practical is, of course, speculative. However, there seems to be little doubt that against a properly trained and equipped opponent, masses of tanks would be as useless as masses of infantry were in World War I.

W. SETH CARUS
La Salle, Illinois 61301

Buy American?

Dear Sir:

In World War I our Army fell behind those of Europe technologically. When we went to war we were forced to adopt European weapons wholesale because our own were incapable of effective employment on the battlefield.

Now, in 1972, we are engaged in the same old pattern. We refuse to adopt a superior tank simply because it is not an American weapon. As General Polk claims (*ARMOR*, July-August 1972), we hold to an obsolete design that is incapable of effective employment against today's adversaries. Unfortunately, General Polk has the attitude common to so many in our Army of not considering any weapon unless it has "made in USA" stamped on it. He just cries over how Congress cancelled the *XM803* and moans over how long it will be before we can replace the *M60A3* with an *MBT80*.

What he is guilty of is the buy American syndrome that has hurt us so much in the past. He has the curious idea that unless it was developed in the US it can't be good. Hogwash! We are the only Western nation to be so blind as to follow such a policy. All our allies are able to swallow their pride when another nation develops a product superior to their own. They view their defense as too vital an item not to rate the best. Not us; we won't buy it unless it's designed in Washington and built in Detroit.

The answer to General Polk's problem is simple; buy the best vehicle available for our interim MBT. If it is the *M60A3*, fine and good. But if it is *Leopard*, *Chieftain* or whatever, then buy it! If, for economic reasons, we don't want to buy the finished product, then buy the manufacturing rights and produce it here in the United States.

As an idea for the future, let's have a NATO design competition for a *MBT80*. This would create competition between the member nations and result in many more innovations and improvements to the various designs than is now the case. Without competition, design tends to stagnate. We find ourself using the sixth rehash of a 20-year old design, because we are saving money using "proven" features.

The only possible objection to such an approach would be that the winner would not be perfect under all conditions for all nations. But what weapon is? Anyway, each nation could adapt the basic vehicle to meet its requirements. Canada and Norway could develop an Arctic version; Turkey and Italy could modify it for hot dusty areas.

I feel that the buy American approach is hurting our ability to defend the United States. I feel that we must buy the best weapon regardless of source or we will pay for our error in blood. The approach I outlined in the last two paragraphs is one way of assuring that both we and our allies procure the best possible weapon.

ROBERT E. NABORNEY
Cadet, ROTC
Pennsylvania State University

British CVR(T) Armored Vehicles

Dear Sir:

From January 1970 through March 1971 I was a student at the British Royal Armour School at Bovington Camp, England, attending the Long Armour Course. As this course is primarily a technical armored vehicle appreciation course with emphasis on basic design parameters, all of my British and Commonwealth classmates were "read in" on the latest status of the new UK *CVR(T)* series of vehicles summarized in Richard M. Ogorkiewicz's article, "*Scorpion, Striker, Scimitar, Spartan*," published in the May-June issue of *ARMOR*.

Mr. Ogorkiewicz starts his report on the *Scorpion* by stating that it "is a very compact, aluminum armored light tank manned by a crew of three . . ." Although I will not attack the author's definition of light tank, the statement "very compact" is an understatement. Any average-size American soldier would find this vehicle extremely uncomfortable when buttoned up. The driver sits alongside the engine compartment in the front of a hull, a mere four feet wide. The turret interior is, likewise, cramped. Conclusion—not enough thought was given "ergonomics" during the initial design of the *CVR(T)* series.

Mr. Ogorkiewicz further states that the nominal ground pressure (NGP) is only five pounds per square inch. Although this may have been accurate for early prototypes, track redesign and additional vehicle ancillaries have deteriorated this to approximately six pounds per square inch when I departed the UK in March 1971.

The author then praises the *Scorpion's* "high power-to-weight ratio, which is due to its combination of light weight with the 195 bhp output of a Jaguar XK engine." Okay *ARMOR* readers, let's think about that statement. The Jaguar engine is a detuned, militarized version of an XKE sports car engine, a gasoline engine. Why? Because the only diesel that will fit into the cramped engine compartment is a US made Detroit Diesel, and Britain has a balance of payments problem of its own. In addition, the diesel is considerably heavier than the Jaguar engine and thus would have further degraded the NGP. Whatever the factors, it seems unacceptable to design an otherwise viable family of vehicles around a gasoline engine with all its inherent disadvantages; mainly, fire risk, economy and reliability.

In defense of the *CVR(T)* series of vehicles, I must admit that Britain has clearly achieved a formidable position in regard to military sales. The cost of the *Scorpion* is low when compared to any other turreted track vehicle. Any of the smaller, developing nations who are seeking a rapid, light weight armored vehicle with a punch will surely look closely at the *Scorpion*.

Now, if we only had a *Scimitar* reconnaisance vehicle for the armored cavalry and the *Striker* modified to fire the *TOW* . . .

COLIN L. MCARTHUR
Captain, Armor
CATC
APO New York 09114

Mission: Move, Shoot, and Communicate

Dear Sir:

The greatest unmet challenge facing the United States Army in Europe today is to make the individual soldier, crewman and platoon feel that they are truly trained for their mission of facing possible Soviet aggression. This challenge remains unmet due to the misplaced emphasis of our Armor training program in Germany. The program places far too much weight on Table VIII, TCQC, and other battalion level tests and competitions.

A fundamental change of our yearly training cycle is necessary to take the emphasis of training away from the competition of battalion percentages and scores, and to place far greater emphasis on the holy trinity of "move, shoot and communicate" at the platoon level.

The annual training cycle for Armor units in Germany does not purposely create this heavy priority on battalion competition. The cycle is based on a one year period and is designed to begin with the training of individual soldier skills, then to progress from crew and platoon training and testing, to company and battalion training and testing.

The theory behind this cycle is valid; however, the misplaced emphasis on crew gunnery qualification percentages, and on successfully passed tests, has created an atmosphere of crisis in which true training is often not accomplished, or often is done superficially to please the higher brass.

The tank company in Europe today moves from one crisis to the next, with the accompanying wear and tear on efficiency, personnel morale and job satisfaction. The company is unable to catch its breath and train well-knit platoons, with confident and competent leadership, which are essential to mission accomplishment. A modification concerning the timing of the training cycle

could greatly improve this situation.

The training objectives could be better met if a program was established that would allow shorter and more frequent combined training periods. These month-long periods would train the tank crew in gunnery proficiency, and the platoon in unit tactics and fire and maneuver.

The training periods would last for one month. The first two weeks would be spent training the tank crew in gunnery and administering the crew gunnery test on Table VIII.

The third week of the month at the major training area (MTA) would concentrate on platoon training in fire and maneuver and other platoon tactics. This would give the platoon leader the experience of operations in a live-fire atmosphere. The culmination of the third week would be a tank-infantry tactical, live-fire test in which the unit and leaders would be graded on their ability to move, shoot and communicate.

The fourth and final week would be used for company and battalion sized, live-fire tactical exercises emphasizing combined arms operations and the direction of indirect fire by the platoon and company leaders. This period would give the battalion commander an opportunity to train and evaluate his company commanders as they perform their primary mission of team leaders in a combined arms task force.

The MTA periods would be twice a year for each Armor and Infantry unit and would insure that the crew/squad, platoon and company were capable of operating under simulated combat conditions. The year would thus be divided into 2 six-month cycles, during which the unit would accomplish the individual soldier's training, normal housekeeping duties and heavy maintenance. Extensive classroom instruction would be carried out at the home station to insure that each soldier was technically proficient in his duties and in the duties of each member of his crew or section.

The use of biannual training and testing periods at the MTAs would insure that each crew remained proficient in the destruction of all types of enemy targets. The use of combined arms exercises would be a novelty for most units, and the calling of actual indirect fire by the leaders at platoon level would be a giant stride toward realistic and essential training on the European battlefield.

A final change in mental attitudes would also be necessary to insure that training, and not merely competition, would be the goal of these training periods. Qualification of all crews, with all assigned weapons, would still be a must. But the ultimate goal of the new training cycle would be to train the junior leaders of the platoons and companies how to effectively operate as small units and as part of the combined arms team and task force.

CAPTAIN JOSEPH W. SUTTON
CAPTAIN JAMES S. WHEELER
Fort Rucker, Alabama 36360

Armor—Alive and Kicking

Dear Sir:

The Demarcation Line between the divided Germanies—electrified, mined and guarded—acts as a sobering reminder to us all that all is not well in the world and there are those yet determined to impose their will on others through force. Behind this wall lies a group of nations bound together by the Warsaw Pact. These nations have contributed to one of the world's largest, most modern standing armies. This highly trained mechanized army is designed solely to attack, penetrate, exploit and destroy. With over 16,000 medium and heavy tanks, this pack of nations has the capability to launch a shocking, high-speed Blitzkrieg—tank heavy assault across central Europe. The many countries in the Warsaw Pact have learned the hard way that good antitank weapons, whether shoulder or vehicle-mounted, although effective, will not stop a well-executed, large-scale combined arms attack.

Too often we have been victims of recent history and have forgotten the hard lessons learned in the past. We consider the tank and its capabilities only in light of experiences gained during the Korean and Vietnam Conflicts and tend to forget the countries of western Europe, their topography, the tactics used and the hard lessons learned by armies in the past.

One would never doubt the need and capabilities of such weapons as the *LAW, TOW, Dragon,* antitank mines and other devices designed to help the infantryman stop enemy tanks. It might even be tempting to consider placing thousands of *LAWs* and *TOWs* side by side firing like the British Infantry at Yorktown at advancing armored attacks. However, when one analyzes the concept of an armored attack more thoroughly, one quickly realizes the best defense against a large armored attack is a tank-heavy counterattack. Few knowledgeable Infantry or Armor tactical commanders in the European environment would seriously be willing to consider a trade-off of antitank weapons for tanks.

A tank attack is, in reality, a combined arms attack, represented by the tri-colored armored division patch; blue for the mechanized infantry; red, the self-propelled artillery; and gold, the tanks—all functioning as a combined arms team, striking quickly and decisively at the enemy. This force, advancing cross country at high speed under the umbrella of artillery steel, suppressing objectives with tactical air power, is indeed a force of shock that any defender, regardless of his weapons, would be hard pressed to stop. This force, which might easily be composed of 200 to 300 tanks with an equal number of mechanized infantry carriers attacking across a narrow front, exploiting into the soft underbelly of the enemy, is now and will be in the immediate future, a decisive force, which when used properly could well make the difference between victory and defeat. The best means, short of tactical nuclear weapons, to stop a force such as this as it rips into the forward edge of the battle area, is a strong tank-heavy combined arms force used in the counterattack role.

Knowing this, the NATO nations of western Europe have adopted a concept of direct and mobile defense. When economic considerations are of paramount importance, it has and always will be tempting for these nations to substitute for a high cost item of equipment, such as a tank, a much less expensive item, such as a small unit antitank weapon. Despite this ever enticing prospect, NATO nations facing the realities of the situation have done otherwise.

In summary, it becomes all Armor officers' duty to insure that our comrades in arms, regardless of their rank, age or nationality, fully understand the concepts of the combined arms team and do not harbor such foolish notions as Armor means tanks and tanks alone. Armor is a concept, not a single weapon and it is alive and kicking.

HOMER M. LEDBETTER
Major, Armor
APO New York 09011

Gateway to the Stars

Dear Sir:

I have just read Colonel Glenn Fant's article, "Gateway to the Stars" (November-December 1971), concerning the four generals produced by the 15th Cavalry Regiment (Mech). I would like to answer the question that he posed in the opening paragraph—"Can any cavalry regiment top this?"

My answer is "Yes"—the original 2d US Cavalry Regiment. This outstanding regiment was activated for less than seven years, from March 1855 to September 1861, but in that short time produced 16 general officers, including four full generals of the Confederacy (John Bell Hood, A. S. Johnson, Robert E. Lee and Kirby Smith) —one-half of the full generals in the Confederate Army.

I doubt if any other regiment of cavalry in modern times can equal this production of stars!

HAROLD B. SIMPSON
Ex-Cavalry Lieutenant
Colonel, USAF-Ret.
The Confederate Research Center
Hillsboro, Texas

Armor Center Commander's Update

MG Wiliam R. Desobry

Since I have received a number of inquiries from the field concerning both equipment programs and the actions of the Armor Center Team (July-August), I have decided to discuss the Combat Vehicle Program Review (CVPR) in this issue. It is another example of Armor Center Team participation in on-going programs.

For those not familiar with the CVPR, it is one of a series of System Program Reviews (SPR) directed by the Chief of Staff, which includes Aviation Systems, Artillery Systems and "Soldier Systems." Their purpose is to focus high level management attention on special areas and to provide top level guidance to major subordinate commanders.

The Review is held in the form of briefings presented by various agencies, followed by discussion periods. Closing remarks are made by the Army Vice Chief of Staff (who normally chairs such reviews) or his appointed chairman. The agenda of CVPR-72 included presentations by project managers of all combat vehicle and related programs, to include tank gun ammunition, night vision devices and antiarmor weapons systems.

The Armor Center Team's participation in the most recent CVPR included a briefing titled, "Armor Center Team Programs/Priorities," presented by Major James T. McWain, the Secretary of Armor.

The Armor Center Team presentation expressed to the conferees our recommendation that the Advanced Attack Helicopter (AAH) and the Armored Aerial Reconnaissance System (AARS) be included in next year's CVPR. In light of the fact that Armor is the proponent branch for air cavalry and attack helicopter units, the current and future development programs for the reconnaissance and attack helicopters must be reviewed with as much interest as our other combat systems. The importance given to these aerial systems and the reasons for the assignment to Armor Branch was reemphasized by the Vice Chief of Staff during his closing remarks.

At the request of the Department of the Army staff, the Center Team briefing included a "priority" list of combat vehicle programs. In developing the overall list, the Center Team first focused on the separate Armor proponent units. All units, including the Light Armor Battalion and the Air Cavalry Combat Brigade, were considered. First and second priority programs within each of the units were determined by asking: what program would provide a combat capability within that unit where none exists now?; and what program would significantly enhance the combat capability of the unit? These units and priorities were then placed in the perspective of the overall force structure to arrive at the order listed below:

- Main Battle Tank (MBT)
- Advanced Attack Helicopter (AAH)
- *M60A1* Product Improvement Program
- Mechanized Infantry Combat Vehicle (MICV)
- Aerial Scout Product Improvement Program
- *TOW/Cobra* Program
- Armored Reconnaissance Scout Vehicle (ARSV)
- Armored Aerial Reconnaissance System (AARS)
- *M60A2* Tank
- *M551 Sheridan*
- *M114* Product Improvement Program

The high priority afforded the MICV results from its importance in the combined arms concept. Unless the accompanying Infantry shares the increased mobility sought in the MBT, a large portion of the increased mobility will not be utilized.

I must also add that any change in the overall threat, technology, funding, or force structure could influence a reconsideration of priorities.

The briefing went on to express to the conferees certain areas of concern within materiel and training areas.

The first area of concern involves the *M114* Product Improvement Program. The generally

agreed upon shortcomings in mobility and reliability found in the current *M114* should be solved by a product improvement program.

The Product Improvement Program, now in the prototype phase, includes placing the sprockets forward of their present location to provide a more aggressive track, increased ground clearance, and an engine/transmission package with increased horsepower and integral steering. However, the engine currently planned for the *M114* would make it the only gasoline powered tracked vehicle in Armor units. Therefore, the Armor Center Team, in working toward effective commonality among tracked vehicles, recommended that a diesel engine prototype also be prepared. The increased cruising range and reduced maintenance effort inherent in diesel engines, as well as the reduced logistics effort in providing fuel are considered adequate reasons for such a request.

The *M60A1* Product Improvement Program was also considered by the Armor Center Team. (The details of this program were well covered by Colonel Stan Sheridan in the July-August issue of *ARMOR*). The mobility of the *M60A1* can be improved by the application of a new engine/transmission package, and the Team endorses this effort. Again, the request was made that maximum effort be made to achieve commonality between this package and the engine and transmission of the new Main Battle Tank. If the *M60A1* can be repowered with the same engine and transmission as that used by the MBT, a considerable saving in logistics and rebuild facilities will be realized.

The positions taken by the Team on tank gun ammunition were presented to the Review. For 105mm ammunition, the Team endorsed a continuing effort to improve the kinetic energy capability of our ammunition and the procurement of a practice APDS round.

The 152mm ammunition picture was also discussed. A new high density case for the 152mm (the *M205*) has demonstrated such improved capabilities that it appears efforts can now be turned to the simplification of the closed breech scavenger system. After a careful consideration of alternatives, the Center Team suggested a reevaluation of the requirement for a 152mm Beehive round. The mission of the vehicles mounting the 152mm, and the low density and limited basic load of these vehicles indicate that further development of the round would not be cost effective. Additionally, a 152mm canister round is in production.

I should note that this rationale does not apply to the 105mm Beehive now under development; however, a reevaluation is also underway to determine the cost-effectiveness of Beehive as opposed to a canister round for the 105mm gun.

The Center Team briefing went on to present its position that maintainability must be built into combat vehicles. A study done by the Team which considered fasteners and the tools used to turn them was presented as an example of the kind of simplification which can be readily achieved. The study showed that if the fasteners used on the *M60A1* tank were standardized, a reduction of nearly 20 per cent of the tools contained in organizational maintenance tool sets is possible. The Center Team continues to have intense interest in the areas of reliability, availability, and maintainability (RAM) in all systems.

I hope that the Armor Center Team's initiatives in the area of laser safety will preclude problems which hinder training for those units soon to be equipped with laser rangefinders. (The *M60A2* has a laser rangefinder and lasers are planned for the *M60A1* and the *M551*). The Team expressed its concern to the CVPR over the lack of a realistic laser safety directive for use on tank gun ranges. The bulletins and memos directing safety precautions to be used when operating lasers had been written in technical language and to laboratory standards. Further, the literal application of these bulletins would require the performance of detailed and complex procedures, such as complete eye examinations for all personnel both before and after each range firing period in which the laser had been employed. On the other hand, no consideration of possible hazards caused by rain or snow are mentioned. The request was made to those present at the CVPR to provide, as rapidly as possible, a regulation governing laser safety as applied to tank gun ranges.

The final topic in the Center Team presentation involved a study performed by the Team involving Army maintenance MOSs. This study considered the two primary maintenance MOSs in Armor units, the **63C** Tracked Vehicle Mechanic and the **45K** Turret Mechanic.

To reduce training time and ensure proper assignment of personnel, it was recommended that the **45K** be divided into three separate MOSs with one MOS dedicated to each major turret system. This would allow the Armor School to train an *M60A1*, *M60A2* or *M551* Turret Repairman as separate MOSs. The efficency of such a program would be increased over the present program since the time to train a repairman for a single system is much less than that required to train him

on two or more systems. (The study contains other recommendations concerning grade structure and progression for the turret mechanic; these recommendations were not briefed to the CVPR.)

The motor sergeant, who supervises the work of the turret mechanic, holds the MOS **63C40** in Armor units. The problem here is the general nature of the **63C** MOS since this MOS is common to over 500 TOEs, of which only a small portion are in Armor units. If the motor sergeant has served in Armor units in the past, he may have some knowledge of the turret systems and maintenance; however, if the preponderance of his service has been in units other than Armor, he will have difficulty in providing technical supervision of turret mechanics. It was, therefore, recommended that a new MOS, **63T** Armor Tracked Vehicle Mechanic, be created. This would allow the Armor School to include turret maintenance instruction in the program of the Tracked Vehicle Mechanic and would ensure that hard won expertise on Armor systems is retained within Armor units.

What are the results of the recommendations made by the Armor Center Team to the CVPR? The box score is indicated below:

- The Armored Aerial Reconnaissance System (AARS) and the Advanced Attack Helicopter (AAH) were recognized as Armor proponent combat vehicles and will be included in next year's CVPR.
- Because of the concern expressed by the Team, the *M114* (PI) diesel prototype is currently being reconsidered.
- The Project Manager for *M60* Tanks and the newly designated Project Manager for the Main Battle Tank (MBT) have developed a program to achieve maximum commonality between the engine/transmission of the MBT and that of the product improved *M60A1*.
- After a reevaluation of the requirement for 152mm Beehive ammunition the project was halted following the engineering development (ED) phase.
- Engineering work is proceeding toward the simplification of the 152mm closed breech scavenger system. The elimination of one air bottle appears feasible as a first step in the program.
- A new Army Regulation prepared with Armor Center Team participation will prescribe those laser safety measures necessary on tank gun ranges. This regulation will explain in simple language what precautions must be taken by the safety officer and the firing crews.
- By the time this issue is in print, the authority to award three turret mechanics MOSs should be a fact. USAARMS will be training turret repairmen dedicated to one tank system. The interim measure of using the Additional Skill Identifier (ASI) **03** to identify and requisition Armor trained Tracked Vehicle Mechanics (MOS **63C**) has been available for some time. This ASI is assigned pending the results of a review of the entire motor maintenance field.

The results of this CVPR will have a significant impact on the entire Armor Community. These results are the basis for a continued effort to increase our combat capabilities in all four dimensions (Tanks, Armored Cavalry, Air Cavalry, and Attack Helicopter).

so you want good training

BY MAJOR GENERAL
EDWARD BAUTZ JR.

Who has heard a battalion or company commander—a platoon, section or squad leader—answer anything but a resounding "YES" when asked the question, "DO YOU REALLY WANT GOOD TRAINING?" If all are united and *really* want good training, why the problem in achieving what all want?

Most commanders will reply that some of the key detriments to good training are understrength, rapid turnover of personnel and additional tasks not related directly to training. All these statements are valid, and the small-unit commander has both little control over and little capability to influence these factors. Many problems are a natural result of the reduction in the size of the Army and the phase-down of operations in the Republic of Vietnam. Some are beyond the capability of anyone to influence; others have been, at least to a degree, self-inflicted.

As this is being written, some of these problems are being brought under control and the future appears brighter. However, from the small-unit commander's point of view, there always will be problems and constraints which he must overcome as he endeavors to achieve good training. One solution is to focus on the wise use of TIME—both his own and that of his subordinates. Staff-wise, recommendations on how to use time are the job of the S3, and a good one will never fail to accord highest priority consideration to the expenditure of time within the ranks of the unit he serves. The cost of time can stagger the imagination of even the most experienced operations and training staff officer, as well as the company commander.

When speaking of the cost of training, most minds run immediately to money—dollars for ammunition, dollars for equipment, dollars for POL, dollars for spare parts—but few think of the soldier's time in terms of dollars. A cost analyst could make a very strong case to prove that the most expensive element of training—dollar-wise—is the soldier's time. But beyond money, time is an element which can never be regained once it is lost. Equipment and facilities can be repaired, a second round might hit the target when the first has missed, a tune-up will conserve fuel—but wasted time is lost forever.

HOW DOES ONE AVOID WASTING TIME? BY PLANNING AHEAD. When units and soldiers know what is wanted and have adequate lead time to prepare for mission accomplishment, they are happy, busy and productive. Further, when they are happy, busy and productive, other problems decrease as individual job satisfaction increases. As training improves, the commander finds he has more personal time to devote to training for he is no longer forced to spend as much time on such problems as discipline, drugs and race relations.

Time should be considered as the key resource in all phases of training—in developing the training estimate and the training program; in scheduling specific activities; in supervising, testing and preparing training; in reviewing and revising training as it goes on day-by-day, week-by-week, month-by-month. However, (because of my time and your time) I will limit this article to planning involved in preparing the training estimate *for it is the point at which good training begins.*

The Army's decentralized training policy provides local commanders with the option of using time more wisely. No one knows better the requirements of a particular unit than its commander. The ideal training program for an armored cavalry troop patrolling the borders in Europe is quite different from that of a National Guard or Army Reserve troop in CONUS, or an Active Army unit at Fort Hood. The key, then, is to tailor the program to the unit's own needs and to the facilities and environment in which it is located.

A realistic training estimate is the foundation for developing this tailored program. It may be formal or informal; a highly polished endeavor or a paper you would be inclined to hide from your English instructor; even a careful thought process will do, although this approach has obvious pitfalls. As a general rule of thumb the less experience one has the more important

it is to prepare a formal written estimate. It need not follow a rigid format, but there are certain essential ingredients that each commander must analyze if he is to develop a good training program.

Choose your own titles, adjust the sequence if you desire, but the following provides a model from which to start.

MISSIONS

To begin, one must address the question, "WHAT MUST MY UNIT BE ABLE TO DO?" The first step is to examine carefully the mission statement in the TOE of the unit. Then, examine assigned contingency and mobilization missions for your particular unit. These may expand the broad TOE mission statement, but normally will permit a more specific definition, the first step in assigning priorities for the use of time.

Add installation support, current and projected. Add standing or anticipated missions, such as participation in or support of joint training exercises, ROTC summer camps, tests and evaluations, and mutual support programs. Determine which aspects of support missions can contribute to redefined TOE mission readiness and which are pure detriments. Recognize that during the training year missions may be adjusted and a new training estimate required. Recognize, also, that for many units, particularly National Guard and Army Reserve units, the time frame may extend over several years.

REQUIREMENTS

WHAT MUST EACH INDIVIDUAL AND EACH ELEMENT BE CAPABLE OF DOING TO ACCOMPLISH THE UNIT'S MISSIONS? Having carefully defined broad missions, the next step is to translate these statements into specific requirements for each type element in the organization and identify key capabilities each must attain. For example, there is a difference between what tank crews, artillery sections, mortar crews, and infantry squads must be able to do. There is a wide difference between these groups and what such elements as maintenance, mess, supply and communications need. Within each type element key capabilities need to be identified; for example, tank crews must be able to shoot, to maintain and service their vehicle and to be employed tactically with other tanks and with infantry.

One must also clearly identify the requirement for improving both common and specialized individual skills. Every commander has an implicit responsibility to improve the individual skill level of his subordinates. These requirements are best known at company level and below as they pertain to each individual; to some degree, this information is known on a by-name basis at battalion level. Echelons above battalion level must rely on statistics; these are quantitative measures applied against a standard, but cannot define precise requirements for a given unit, its situation and its missions.

STANDARDS

HOW WELL DO I EXPECT MY UNIT AND ITS INDIVIDUALS TO PERFORM? Some standards are fairly easy to determine; the Expert Infantry Badge, MOS tests, Army Training Tests and weapons qualification courses all have specific requirements and result in some type of rating, adjectival or numerical. Other standards are less precise. For example, is a five per cent deadline rate of equipment acceptable? How many members of a tank crew should be qualified as gunners? It is easy to say, "My standards are simple—perfection in all things," but not very

realistic. It is better to start with the question, "What are the minimum essential standards for the accomplishment of my missions?"

CURRENT STATUS

IN LIGHT OF THE TRAINING REQUIREMENTS DETERMINED TO BE ESSENTIAL TO THE ACCOMPLISHMENT OF THE MISSIONS AND THE STANDARDS SELECTED, WHERE DOES MY UNIT STAND TODAY? This analysis should result in a list of tasks to be undertaken during the training year ahead. It should eliminate unnecessary repetition of training requirements already filled satisfactorily and leads one immediately into the next step which is an analysis of resources.

RESOURCES

WHAT WILL I HAVE TO ACCOMPLISH THESE TRAINING TASKS? Some will say that this should be included under the analysis of current status. I separate it to emphasize that a *projection* of resources must be made covering the planned training period. Since most units find themselves in training situations that are constantly changing, adjustments will have to be made in the tasks in light of resource projections. Resources are both strengths and constraints in the accomplishment of training objectives. Up to now this analysis has been fairly theoretical, but at this point it becomes very specific and practical. Generally, resources can be grouped as follows:

- *Personnel*—The number of personnel assigned, their qualifications and skills as it exists currently and as projected for the period.
- *Equipment*—Equipment available for training, substitute items immediately available at home station, training devices which may be substituted for equipment, shortages which will interfere with attaining training goals.
- *Facilities*—Classrooms, ranges, training areas, training aids—proximity of their location to your unit. Many will be controlled by higher headquarters and pose a constraint to flexibility in the development of more specific schedules.
- *Funds*—For small units this is more frequently encountered in terms of limitations on number of rounds of ammunition, hours or miles of operation of equipment, allocation of POL and similar controls, rather than actual dollar amounts. This is an area where higher headquarters is responsible for providing timely guidance.

• *Time*—The length of time and locations available for specific periods; number of multiple unit training assemblies, paid drill spaces, schools, time in special training areas. Time reserved for special projects by higher headquarters. Time it takes to accomplish the training tasks determined earlier.

All in all, this analysis should determine what you have to work with and how to use these resources most profitably.

TRAINING OBJECTIVES

BASED ON AN ANALYSIS OF THE TRAINING TASKS AND THE RESOURCES AVAILABLE, WHAT ARE THE DESIRED TRAINING OBJECTIVES FOR THE PERIOD UNDER REVIEW? This should be a list of objectives which must be fulfilled to achieve the readiness required to perform missions. They should cause you and your unit to "stretch" but should not be so ambitious as to be beyond reasonable attainment.

PRIORITIES

WHAT PRIORITIES SHOULD BE ESTABLISHED AMONG THE TRAINING OBJECTIVES? If the reader has been mentally analyzing his own organization, he will recognize that in each of the foregoing steps he has wrestled with priorities. It is now time to establish these priorities clearly for himself and his subordinates. One should not expect to develop a list in which each objective in turn receives highest priority until completed, and nothing else is done. Rather, it must be designed to attain a balance so the unit can perform adequately as it strives to improve its overall level of readiness. Overemphasis on one objective, to the exclusion of others, will defeat the very purpose of the training estimate. On the other hand, to paraphrase what Sun Tsu wrote about 500 years BC, "He who tries to be strong on the right and strong on the left, strong to the front and strong to the rear, is strong nowhere." Careful selection of priorities is not only the art of tactics, it is the art of command and the art of management.

★ ★ ★ ★

The thoughtful reader will also have recognized that if the resource of time were unlimited, he could achieve all his training objectives—and to the highest standards. The element of time must be kept in the forefront as these training objectives are converted into training programs and schedules. Time must be made available for those who conduct training to prepare properly—even lack of knowledge and skill can be overcome, if designated leaders are provided ample lead time to plan training properly.

Therefore, when you have established your objectives and your program, avoid bundling it up in a neat binder and filing it, for it will serve little good there. Be sure that it is disseminated, particularly to your subordinates so they understand *what* is wanted and how much *time* they have to accomplish it. And also to higher headquarters—you may be pleasantly surprised at the resources which might be forthcoming, not the least of which might be *time* conserved for you and your unit.

MAJOR GENERAL EDWARD BAUTZ JR. was commissioned from Rutgers University in 1941. After serving as company commander, S3, executive officer and commanding officer of the 37th Tank Battalion during World War II, he was assigned as a tactics instructor at the Armor School. Returning to Europe in 1949, he served as S3 of the 1st Constabulary Brigade. In 1958, he commanded the 37th Armor, and then became G3 of the 3d Armored Division. During his second tour in Vietnam, he served as J3, MACV, and then as the commanding general of the 25th Infantry Division. General Bautz is currently deputy chief of staff for Military Operations and Reserve Forces, United States Continental Army Command.

French Armor in Algeria

by Lieutenant Colonel Michel A. Henry

The Algerian Conflict, which would engage the French Army for the next eight years, began on 1 November 1954. At the same time, a cease-fire had been signed in Indochina, where the French High Command had finally accepted the idea that armored units are able to fulfill many different counterinsurgency missions. In this new conflict, it should thus have been possible to benefit from past lessons and achieve significant results with armored units from the start. However, because the terrain, enemy, friendly units and missions were not the same, the new experiences and lessons learned were different, as we shall see.

TERRAIN

Algeria stretches over 900 kilometers, from Morocco on the west, to Tunisia on the east. Bounded on the north by the Mediterranean Sea, it merges with the edge of the Sahara 250 kilometers to the south. With the exception of the cultivated coastal plains and the southern plateaus close to the sandy Sahara, the terrain is mainly rugged and mountainous. Intermittent streams with steep banks (called *wadis*) cut across a land covered with thick, thorny underbrush that often changes into forests of pine and oak.

There are a few main highways, and roads are often only dusty, winding, narrow trails; cross-country movement is difficult because of rocks, vegetation and *wadis*. The Algerian climate varies from the hot and dry summers to the freezing winter nights on the plateaus. Each year it snows on elevations above 1,000 meters; the streams swell and their brief floods cut the roads with muddy waters.

ENEMY

The terrain offers many possibilities to a rough and hardy foe. Using their initial surprise, the Algerian rebels quickly gained the support or neutrality of a population terrorized by the fear of reprisals. Although the rebels lost men and weapons, new recruits joined them or were forced to join, and more weapons were imported from abroad: 400 weapons each month in 1956, and 1,000 per month by May 1957, arriving mainly from Tunisia, Egypt, Libya and Yugoslavia. However, within the Algerian borders, rebel strength never reached more than 30,000 soldiers. Ceaselessly hunted and decimated, they belonged to poorly equipped bands which never succeeded in growing larger than company-sized units (called *katibas*).

The threat of urban terrorism was promptly eliminated during the Battle of Algiers, 1957-58. On the other hand, a regular army, the National Liberation Army (ALN), was created by the rebels outside the Algerian border. In Morocco and especially Tunisia, that army was able to draft, equip and train a growing number of men without interference from the French Army. The political and psychological repercussions of any cross-border operations weighed too heavily against France. By 1961, at the end of the conflict, these outside rebel forces were equipped with armored vehicles and artillery (heavy mortars, 122mm howitzers and cannons). But until the cease-fire, all the at-

tempts of the ALN to break through and fight on the Algerian soil failed. Meanwhile, the size of the rebel forces inside Algeria had steadily diminished. By the cease-fire on 19 March 1962, they numbered less than 10,000.

ARMORED UNITS

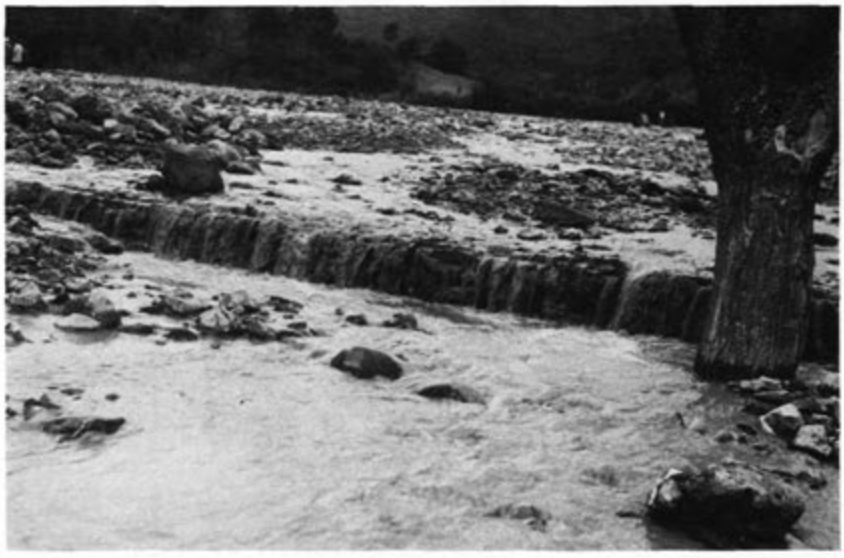
In November 1954, at the beginning of the conflict, French Army units in Algeria totaled less than 50,000 men. There were only four armored regiments (a French armored regiment is roughly equivalent to a US tank battalion) garrisoned in Tlemcen, Algiers, Medea and Batna. Quickly, the French government decided to send substantial reinforcements drawn from divisions stationed in Germany and France, and mobilized several reserve contingents. Soon, the French High Command was able to draw on more than 400,000 soldiers (including large numbers of Moslems from Algeria) and 45 armor regiments.

All medium tanks were left behind in the European garrisons (many crews would fight as infantry) and light armored vehicles were used from the start in the vast operational areas. The armored units had to become acquainted with the terrain, navigate narrow defiles and blaze new trails across the hills (*djebels*). Armor leaders strove continuously to overcome these obstacles in order to retain the cross-country mobility necessary for armored units. Progressively, most of these formations were equipped with light armored vehicles.

When French military depots ran short of materiel, 200 *Ferret* armored cars were purchased from Great Britain, and the last World War II American *M8* armored cars still available in US Army depots were transferred to Algeria. Also, several armored regiments were re-equipped with the heavier French *Panhard EBR*, normally the standard vehicle of European reconnaissance units. The advantages of this fast, powerful vehicle were readily appreciated, particularly the *inverseur* or rear pilot who is able to drive backward immediately on being ambushed, making it unnecessary to turn around. However, it was found that a better wheeled vehicle was necessary to replace the *Ferret* and *M8* machines, and as a result, the French *Panhard AML* was designed and built. Those vehicles equipped one regiment six months before the cease-fire.

Other regiments used light tanks: either the US *M24 Chaffee* or the French *AMX13*. The latter, with its powerful antitank gun (75mm with 1,000 meters per second muzzle velocity), proved extremely reliable and had few logistical problems. The *M24* tanks were progressively replaced by *AMX13* chassis fitted with the *M24* turret, the gun of which was considered adequate for counterinsurgency warfare.

Armored vehicles were normally employed by separate platoon, often by separate troop or company and rarely as a complete regiment. The composition of each regiment varied considerably, but most included one or two companies mounted on halftracks, scout cars or jeeps, which allowed armor-infantry teams to be organized. At the end of the conflict, eight armored regiments were still being used as infantry battalions. Finally, there were three horse-mounted regiments. These units struck the rebels by surprise by using rugged cross-country routes, and achieved excellent results in difficult terrain; however, there were many training problems when they were first established. It should be noted that every regiment or troop had been authorized to recruit indigenous partisans (*harkas*). Poorly trained, but often completely loyal, these Algerian partisans provided security and infantry support to the armored units.



". . . the streams swell and their brief floods cut the roads with muddy water."

MISSIONS

To counteract the rebels, it was necessary to:

- Deny any massive reinforcement from the outside
- Destroy the armed groups and the rebel organization isolated on Algerian soil
- Regain the confidence of the population in order to achieve pacification goals

All armor units in Algeria dealt with these three general missions according to their operational location.

ON THE BARRAGES

In June 1957, to thwart the rebels stationed in Morocco and Tunisia, it was decided to seal off these frontiers with seven-foot high electrical barriers. By November 1957, about 300 kilometers of electrified barbed wire (under 5,000 volts) had been built along the Tunisian border. At the beginning of 1958, this eastern *barrage* stretched 400 kilometers. Simultaneously, on the Moroccan side, the High Command started another obstacle line that was lighter but reinforced by mines. But it was obvious that such obstacles alone were not enough to stop the rebels.

An obstacle is valuable only if it is covered by fire or at least observed. The armored units were given both tasks. Five armored car regiments, with four troops each, were assigned this mission. The mobility of the armored cars, their protection against small arms, their firepower, adjustable searchlights, radio sets and trained crews made them well suited for this role. From dusk to dawn, these vehicles patrolled with lights and mobile searchlights.

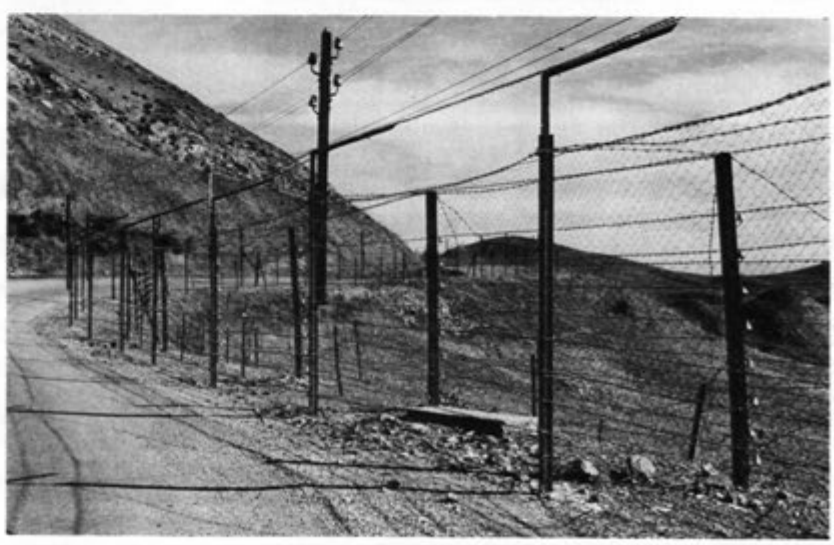
The alert was given by the small fortified posts providing electrical power. As soon as any cut was made in the wire, a very simple device (Wheatstone Bridge) pinpointed quite accurately the location of the crossing attempt, and in less than five minutes an armored car was on the spot. The results were soon apparent; for example, in the sector immediately north of Tebessa, the rebels made 29 successful crossings and had 8 failures from December 1957 to January 1958; in February and March 1958, out of 26 attempts, all but 8 were thwarted. In most cases, after a successful rebel crossing, the armored units were still able to alert parachutist intervention units with heliborne capacity.

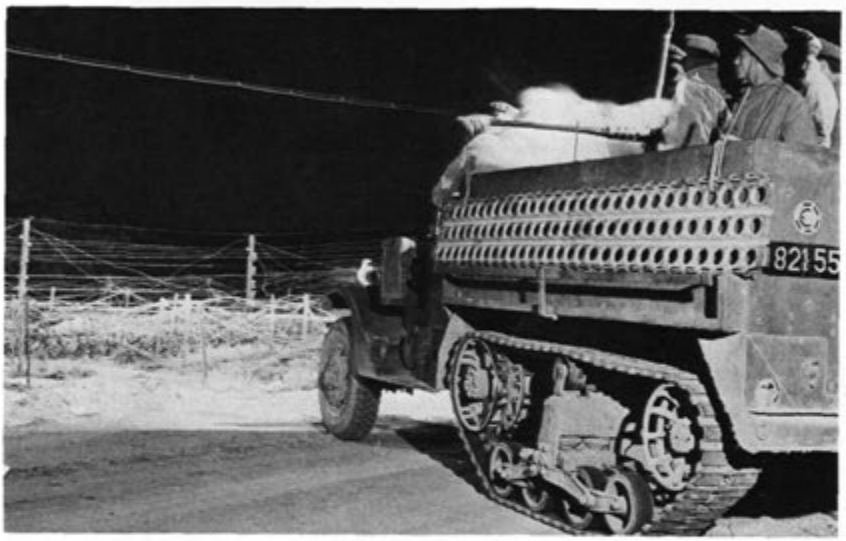
These actions almost achieved the total destruction or capture of the rebel units in the east; of 1,300 rebels attempting to cross the barrier near Souk-Ahras from 28 April to 2 May 1958, 800 successfully crossed the electrical barrier, of which 650 were subsequently killed or captured. At the end of 1958, 4,000 rebels had been eliminated and more than 3,000 weapons seized. This dealt a severe blow to the morale of the enemy who were unable to operate effectively. Because of this, the number of guerrilla defectors mounted rapidly. On 21 March 1959, a whole *katiba*, with 156 fully-equipped men, defected and surrendered to an armored car unit.

In 1959, the eastern *barrage* was doubled, then partially tripled, and minefields were laid. In addition, nine radar stations were installed and linked to artillery platoons and armored units in order to establish an effective ground surveillance along the *barrage*. On the Moroccan frontier, a 500-kilometer long barrier, with 20 radar stations and 4 other armored car regiments fulfilled a similar task. Until the cease-fire, those *barrages* were successful despite the efforts of increasingly better-equipped rebels.

The electrical fences were mended each day and

". . . to thwart the rebels stationed in Morocco and Tunisia, it was decided to seal off these frontiers with seven-foot high electrical barriers."





"Along the barrages, 80,000 men were patrolling or ready to intervene by day or more often by night."

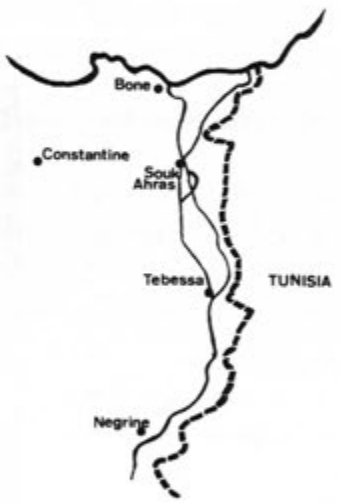
reinforced by mines (3,500,000 were finally laid), by searchlights (along 80 kilometers), anti-bazooka wire nets and concrete pillboxes for observation posts. Along the *barrages*, 80,000 men were patrolling (including 10 armored regiments) or ready to intervene by day and more often by night. The last rebel attempt, on 7-12 March 1962, was led by several battalions based in Tunisia and supported by artillery and mortars; it failed completely.

INTERIOR FORCES

Armored units were located with the other French forces scattered throughout Algeria. Stationed in isolated posts, troops and platoons were generally assigned route security missions. Before each convoy, roads had to be opened and cleared of mines and ambushes; armored units were also responsible for traffic security while patrolling and escorting convoys. Such missions are classical in stability operations. In addition, armored units served as mobile reserves, ready day and night to rescue besieged posts or units trapped by ambushes. Such missions were always hazardous because the rebels could anticipate or even provoke them—but they were often decisive.

Infantry battalions also claimed armor support. Moving at the same speed as foot infantrymen, or assuming monotonous blocking positions (*bouclages*), armored units often found themselves using difficult roads, rocky mountain trails and narrow forest lanes. Such actions occurred mainly during the operations of "Plan Challe." The Commander-in-Chief, General Challe, used an extremely basic scheme of maneuver: destroy the rebel bands by engaging the French general reserves in a sweep west to east on the whole Algerian front; that is, from the weakest rebel bands to the best-equipped and trained *katibas* on the Tunisian border.

The Western Barrier



The Eastern Barrier

PACIFICATION

As soon as 50 per cent of the rebels had been eliminated in a given area, close relations were resumed with the civilian population—always the objective in stability operations—and their confidence was regained. The French Army personnel had to accept responsibilities far removed from their normal military tasks: for example, building resettlement hamlets, medical care for the population and constructing schools for children. Troop and platoon leaders had to assume diverse responsibilities in close cooperation with civilian administrators and with officers of the para-military SAS (Sections Administratives Spécialées) who were in charge of the special action program. The best rewards for these active and devoted armor leaders were the fine civil-military relationships developed and the surprising results of the civic action program.

LESSONS LEARNED

The Algerian Conflict had many dimensions. Officers, NCOs and men who served in Algeria gained valuable experiences which prepared them for all possible types of conflicts. From the human and professional points of view, leaders and troops not only became acquainted with new ways of life and thinking, but also developed combat reflexes and a mentality which will prove valuable for survival and victory in future conflicts. These men had to leave their comfortable home existences behind and develop the moral stamina and the physical training necessary to survive in a harsh climate, with rugged terrain, against a determined enemy. Alone with their troops, junior leaders learned to control their weariness and make decisions while facing the delicate moral problems of a counterinsurgency effort. They also became impressed with the need for relevant and detailed intelligence before mounting a successful combat operation.

The Algerian experience was also full of lessons concerning equipment and combat procedures. The *AML* armored car demonstrated its complete suitability for counterinsurgency operations. Many wheeled vehicles, trucks and light weapons—those now used by the French Army—were also combat-tested.

Large areas of operations and lack of security led to the development of radio-telephone links and modern radio sets. French units became acquainted with ground surveillance devices and armored units became especially more familiar with the use of radar along the *barrages*, as well as along flanks or intervals between main units, as might occur in a future conflict.

Helicopters were employed extensively in Algeria to support ground operations (in Indochina the first French helicopters came into action only as the war was ending), and for the first time, Army aviation techniques became familiar to every armor leader: observation, fire support, personnel airlift and logistical transport. Finally, facing guerrillas every day, armor personnel were often obliged to dismount and pursue the rebels as foot soldiers on their own terrain.

In a future conflict, either to collect intelligence in the enemy rear area, or to prolong the combat after a successful enemy breakthrough, the basic methods of insurgency warfare are still valid. But the long marches by night, the secret ambushes followed by fast withdrawals, the preparation of caches for survival and other methods are now, after eight years spent in Algeria, well known to French armor leaders.

Despite the political outcome of the Algerian Conflict, the enemy's military defeat again proved the value of armored units in stability operations. More important, the struggle provided an opportunity to prepare armor leaders for future conflicts by allowing them to draw on past experience in Algeria in order to imagine the nature of future conflicts.

LIEUTENANT COLONEL MICHEL A. HENRY, former French Liaison Officer to the US Army Armor School, was graduated from the French Military Academy of Saint-Cyr in 1949 and commissioned in Armor. He served in both Morocco and Algeria, commanding an armored car troop from 1958 to 1961. He is presently the director of the Doctrine-Material-Literature Department and the editor of the *Bulletin de l'A.B.C.* at the French Armor School in Saumur.

by Colonel Wesley W. Yale,
USA-Retired

It is a matter of record than many military professionals have generally tended to plan for the next war on the basis of the last. Hence, there have been witless arguments pitting the horse against the tank or the tank against the helicopter. Now arises a cult that foresees an endless chain of guerrilla-type wars in which the pronouncements of Chairman Mao and Che Guevara become gospel. The ideas are not surprising. A soldier becomes expert in jungle fighting and he is naturally reluctant to surrender his expertise.

There is little in this cult for the future of Armor. But there is no reason for fear, if one simply applies strategic logic to the geopolitical situation in the world of today in light of what Armor can do about it.

How can it be seriously argued that a military posture based on guerrilla warfare is a desirable planning goal? The Eisenhower administration, as well as most of the military advisors then and thereafter, opposed the entry of ground troops into Southeast Asia. The reason was simply to avoid a war fought over lines of communication more than half a world in length, on enemy terms and without objectives that promised more than a stalemate.

Now, as matters have developed, we are finishing by doing what we should have opened with, namely, denying the enemy a logistical system with which to press aggression. But regardless of how it all ends, it should be plain to all that we must avoid traveling the same route a second time.

Planning for a nuclear age military posture requires answers to some basic questions. It is a question, for example, of whether we are to continue policies of gradualism that have proven disastrous, and whether there is any real difference, except semantically, between gradualism and flexible response. It is a question whether either policy is not really based on a fear that use of overwhelming, decisive strength might provoke a Sino-Soviet nuclear attack dealt from a position of parity, if not superiority. Again, are these questions rooted in the belief that the American public will not support any war, even if provoked by actual attack or overt threat against the homeland? A fair question, since a recent poll of college students showed a significant majority in favor of surrender.

There is also the matter of whether future conflicts will be fought by small, professionalized and highly paid volunteer forces or by a citizen army, cadred by professionals, that has served so well in two world wars. This problem has been argued pro and con for a century—a debate that has been well summarized in Weigley's *Towards an American Army*. Now we are in a new age casting doubt upon American capability to mobilize and train a citizen army in a timely manner—especially Armor components. The alternative, a volunteer army, has yet to be proved feasible, though the signs are encouraging.

At the moment, it would seem that any military effort, based on a secret policy of bowing to Soviet nuclear blackmail, is predestined to failure. But do the Soviets really want nuclear war? Certainly they do not accept the destruction of forces that do not presently threaten them if it means the loss of American and Russian productive capacity. All the more so when their considerable gains have come from successful blackmail.

The answers to these basic questions are unlikely to be forthcoming in the near future. The implications are ominous, however, on the evidence that Soviet policy has a major influence on the American body politic. Presidential aspirants, members of Congress and a large number of church groups reflect the threat of Soviet power by subscribing to attitudes of peace at any price—to include unilateral disarmament. Their views are by no means to be dismissed. If they prevail, and the Army is still to carry out its mission, it will have to make do with reduced armament and training facilities, much as the post World War I German Army did. The answer of the German Army was found in the decision to overcome obstacles,

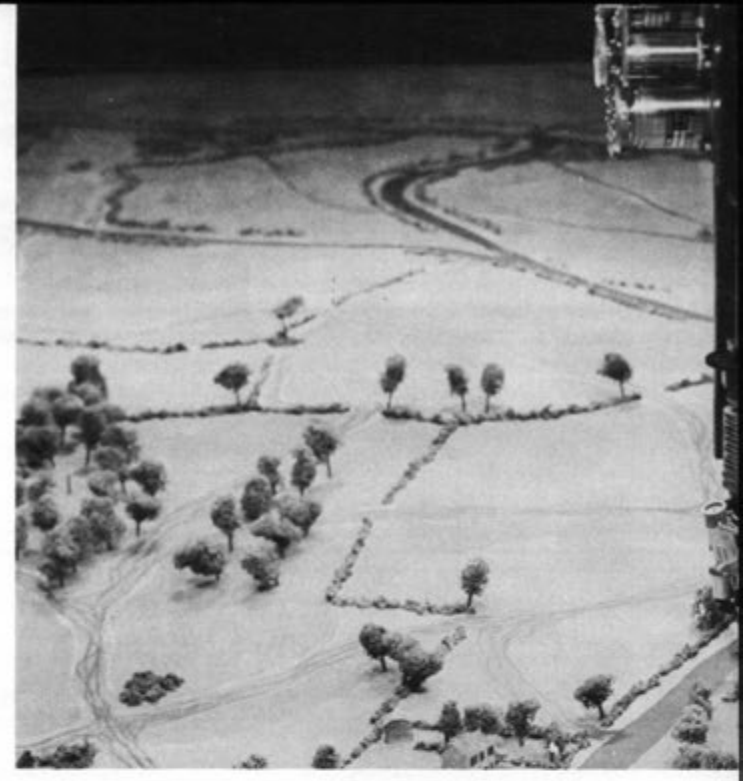
hopefully temporary, by improving the quality of leadership.

The nation, and much of the Army, fails to understand that modern war is a three-pronged affair. Ignorance is the root of today's troubles. But the Sino-Soviets understand perfectly. Accordingly, we have been drawn into a shooting war in Asia without direct Soviet participation; we have been subjected to psychological warfare, world-wide, while the enemy has been immeasurably aided by the American media. As an example, consider the slanted reporting of the 1968 Tet campaign as an enemy victory, the criticism of the Cambodia and Laos raids, and the current lashing at the mining and bombing operations. Basically, however, the Soviets are motivated by economic warfare to which psywar is a handmaiden and a shooting conflict a last resort.

Mr. Khrushchev was talking about economics—not shooting—when he promised to bury us. In consequence, all the Soviet moves in the last decade have pointed to economic domination—the naval involvement in the Mediterranean and the Indian Ocean, incursions into Africa and the Suez, and the promotion of intra-American labor, racial, educational and social strife. All of these, in one way or another, detract from US military-economic strength alarmingly. The control of Southeast Asia was the economic objective of the Japanese Co-Prosperity sphere, launched militarily in 1940-41 and ultimately causing the collapse of Indonesia and Oceania. Immediate and disturbing signs of possible USSR success are the dubious positions of Vietnam and Cambodia, the adverse balance of US trade, the weakness of American currency and continued social unrest.

These signs point to a continuation of Soviet steps aimed at domination of trade routes, sea and air, together with the establishment of bases from which these routes may be protected. If the sun once never set on the British Empire, need it now set on Russian-controlled territory? The concept, of course, gravely affects the future posture of the American Army and in particular, its armored elements.

These trends cannot help but have a major impact upon the economy, and thus upon the affluence which Americans have come to regard as a normal state of affairs. If decline is to be tolerated, a point is certain to come when the public will demand a reversal. And if the reversal requires a resort to arms, will the public will be equal to it? If not, there is little use in maintaining any sort of defense establishment—an option that many already advocate. On the other hand, what sort of development might produce a demand for a strong defense, and would it come too late? How



about a disclosure that there are either Soviet missiles in Cuba or base facilities for nuclear submarines firing nuclear missiles? How about a grant by Canada for a giant Soviet airbase near Montreal? Or the complete expropriation of mid-East oil?

On the face of it, no government should allow matters to drift to such straits. Yet in view of campaign promises, military bankruptcy cannot be ruled out. In the latter case, the defense of CONUS becomes the one and only problem. The one-time policy of responding to wars of liberation has in all probability been rejected by public reaction to Vietnam. But aside from CONUS, then, probable or possible theaters are confined to Europe and the mid-East. There will no doubt be pressures to save Europe if dangers become apparent, just as there are now pressures to defend Israel. But moves into the mid-East are more than questionable for lack of bases and the uncertain control of the Mediterranean.

In any event, CONUS, Europe and the mid-East, should intervention there prove feasible, all add up to a mobile war, fought under the threat, if not the actuality, of nuclear attack.

Here is the requirement for a high degree of mobility and firepower, wide deployments, rapid assemblies and dispersals, and an extremely flexible control system. The Soviets subscribe to this requirement. No more setting up headquarters in town halls; no more (or at least rare) cases of sitting up in a command helicopter to direct a battle in the midst of possible enemy air superiority.

This does not mean refighting World War II, as many seem to think. The terrain is either the same or opportunities for Sinai mobility are even greater. All

other factors of time, space and air defense are stepped up markedly. Tactical leadership presents new challenges for which Vietnam experience is more of a liability than an asset.

It is time to face new realities. American arms are considered to be in decline, a decline that may hasten with political developments. But the decline can be halted, or at least delayed, by a firm stand on the principles upon which Armor was founded, and by the development of a new breed of leader, set in the command systems of Rommel and Patton.

Leadership development is the only real answer to the future, regardless of what might transpire politically. The activity of the military may be drastically curtailed, or it may be given a green light to anticipate a highly mobile conflict in Europe or CONUS. Nevertheless, in an environment of inadequate training ground, with inadequate weaponry and with minimized numbers of troop units operating at reduced strength, the only recourse is simulation training, which has progressed to a high degree of competence since the Link Trainer for aircraft pilots came into prominence some years ago. Now, astronauts train with simulation models of mooncraft, captains of the huge oil tankers practice on working models of their ships, Navy and Marine Corps leaders have been furnished with sophisticated command simulation equipment. The Combat Arms Tactical Training Simulator (CATTS) at Fort Benning has proven invaluable for the production of ground and airmobile commanders and their immediate staff members at the battalion-brigade levels.

Strangely, the highly successful Miniature Armor Battlefield at Fort Knox, described in previous ARMOR issues, has been allowed to lapse, it is said, because of the alleged expense. Strange, in that the original cost was little more than $20,000. But whatever the cost of maintenance, is the expense more than a small fraction of that involved in using real equipment and real troops at reduced strength on inadequate training ground? And should the mistakes of a tyro commander be visited on any unit as a whole, especially on a real battlefield? Let us not be absurd.

In any event, what is needed is training in techniques, not tactics. Leaders must be taught the actions required of them in mobile combat—how to position themselves at different phases of battle; how to organize and use a mobile staff as eyes and ears; how to physically coordinate firepower strikes with maneuver within seconds. All require actions, not theories—actions to which commanders must be habituated by practice.

Simulation techniques, within a standard command post environment, augmented by mock-ups of command vehicles and aircraft can easily implant correct habits without requiring any tactical decision-making by a student commander. Tactics he can learn from books.

Simulation is making great strides. Since Armor methods are the real wave of the future, despite the contentions of Mao and Guevara, we must seize what may be the only opportunity to set new standards of leadership for the time when mobile war in the nuclear age is thrust upon us—or worse yet, when unilateral disarmament, if only partial, becomes general policy.

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Orienteering

BY
MAJOR
ROBERT L. SLOANE

As any Armor officer can quickly tell you, the shortest distance between two points is not necessarily the fastest. The most readily navigable, however, is. Just being able to read a map is not good enough for an Armor officer. He must be able to navigate. He needs to appreciate the terrain over which he will maneuver and purposefully select what he considers to be the best route. Conventional training in land navigation has used either navigation courses emphasizing accuracy or tactical exercises emphasizing maneuver. Both of these important aspects of training can now be stressed concurrently by innovating on a new sport—Orienteering.

In its conventional context, Orienteering involves cross-country movement either from position-to-position or along a fixed route. The accent is on both speed and accuracy in varying degrees, depending upon the method of competition involved. The goal of this article is to offer Armor units the information necessary to adapt this sport for use within training programs.

AMERICAN INTRODUCTION

The sport was first brought to the United States in 1946 by Bjorn Kjellstrom, a former Swedish Orienteering champion. The first active major participants were the Marines led by the interest and enthusiasm of the faculty of the Marine Corps Physical Fitness Academy. Their efforts led to the development of a complete Orienteering program within the Corps, culminating in the participation of four Marines and three soldiers in the 1969 CISM championships.

Within the past several years, the military virtues of this sport have received increasingly wide publicity. Programs are now in full swing within the Infantry School, the Army ROTC Program and the US Military Academy.

Cadets at West Point first received an opportunity to run Orienteering as an intramural sport in 1967. It gained immediate popularity with those who wanted not only a physical challenge but also a challenge of their military skills. Orienteering is currently a major means used to teach land navigation during the field training phase of a cadet's second summer.

MILITARY VALUE

The immediate military value of Orienteering is obvious—it is of absolute necessity that military personnel be able to move themselves and their units from one location to another by the shortest, fastest, most efficient route. Orienteering develops this ability within a competitive environment. Not only can it aid the small unit or individual vehicle commander in developing land navigation skills, but also physical endurance of cross-country foot movement. Orienteering is especially valuable to small armored

cavalry units where dismounted movements are inherent to the rifle squad and frequently required of scouts.

INDIVIDUAL VALUE

Within physical fitness, it has long been realized that the primary trait required by military personnel is that of endurance. A soldier must be capable of performing at a high level of efficiency for prolonged periods of time. He must also have certain minimum levels of bulk strength to enable himself to move loads around the battlefield. However, it is more important that he be able to do so consistently rather than occasionally with larger loads—thus the need for endurance.

Dismounted Orienteering requires the soldier to move himself and any load he may have over the prescribed course in as short a time as possible. By gradually lengthening the course, we may develop his endurance to increasingly higher levels. The challenge engendered by the competitive pitting of one man or group against another is usually sufficient to motivate the desired performance.

FREE ORIENTEERING

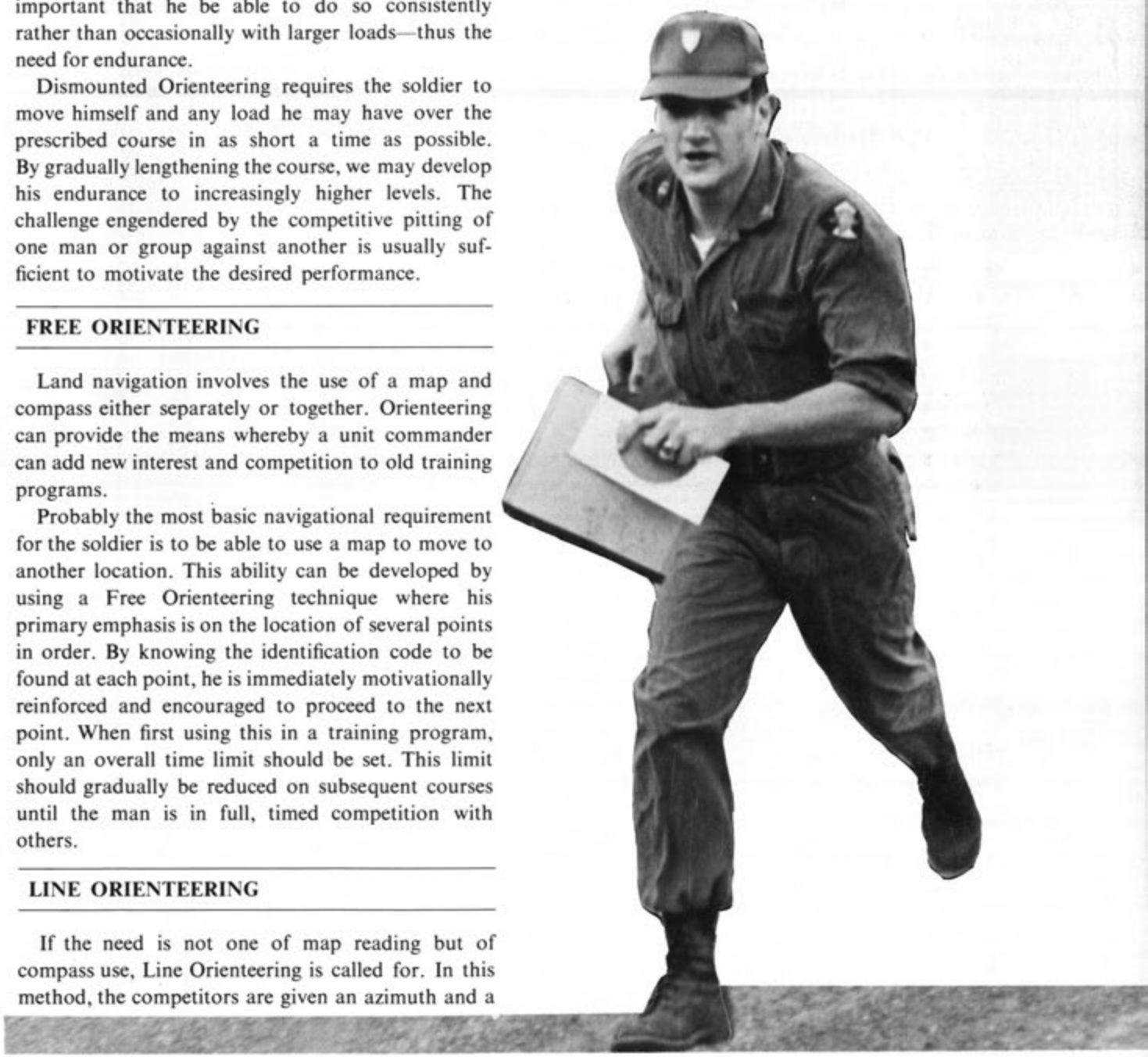
Land navigation involves the use of a map and compass either separately or together. Orienteering can provide the means whereby a unit commander can add new interest and competition to old training programs.

Probably the most basic navigational requirement for the soldier is to be able to use a map to move to another location. This ability can be developed by using a Free Orienteering technique where his primary emphasis is on the location of several points in order. By knowing the identification code to be found at each point, he is immediately motivationally reinforced and encouraged to proceed to the next point. When first using this in a training program, only an overall time limit should be set. This limit should gradually be reduced on subsequent courses until the man is in full, timed competition with others.

LINE ORIENTEERING

If the need is not one of map reading but of compass use, Line Orienteering is called for. In this method, the competitors are given an azimuth and a distance for each leg of a course. Some place along each leg is a control point with a code which must be located. False points can be placed off-course to more precisely determine the errors made by each individual. The location used for a change from one leg of the course to another should be fully described and easily identifiable on the ground. If a man never gets beyond the first leg you will have trouble keeping his interest up.

Like Free Orienteering, Line Orienteering should be started with no more than overall time limits for the beginner and progress to high levels of timed competition for the more advanced.



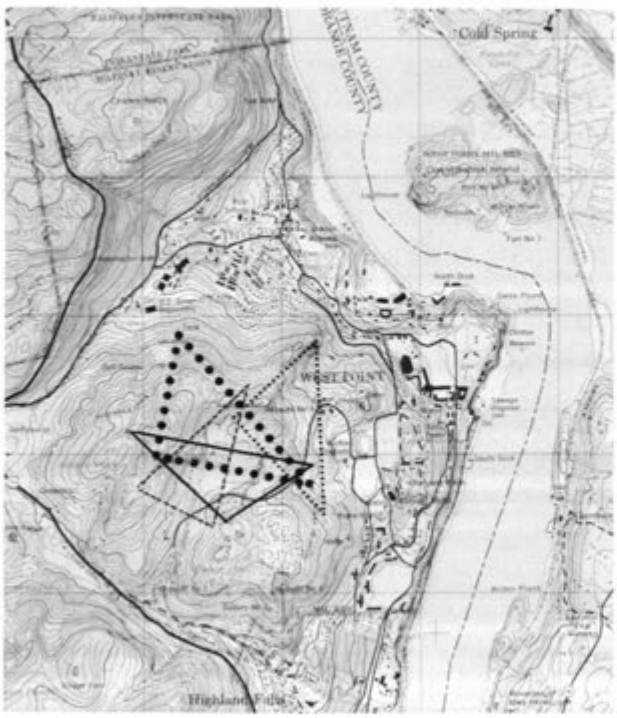
SCORE ORIENTEERING

If the need is for concurrent development of map and compass abilities, Score Orienteering is useful. With this procedure, locations are given of numerous control points scattered throughout the area. Each location is assigned a value depending upon its distance from the starting point. The objective is to amass as high a total score as possible within a specified period of time.

This method can be modified to divulge only certain locations to each individual or group. They then go after these locations only and get no credit for identifying others. In this manner, more than one competition can be held within the same training area. It is this method that is currently in use within the intramural program at West Point. On any given afternoon, eight two-company contests are held simultaneously. Three two-man teams from each company compete over the same course but are started at two-minute intervals. It is thus possible to accomodate 96 individuals on eight courses within an assigned area of about four square kilometers.

RELAY ORIENTEERING

Relay Orienteering is designed specifically for group or unit competition. Within this method, a crew can be sent out on a short course and finish at a location where another crew from the same unit is waiting. The new crew then navigates the same or another course and "passes the baton" to still another crew. This can continue until the entire unit has completed. Scoring can be accomplished by either comparing the total scores of each crew or by tallying the individual competitions won.



PROJECT ORIENTEERING

A common modification that may be applied to any of the aforementioned methods involves Project Orienteering. This technique is familiar to many in the form of a sweepstakes. In Project Orienteering, the soldier is given a specific task to perform at each control point. This procedure does bring emphasis to bear on factors other than land navigation and thereby reduces the effect of the navigational training. It is, on the other hand, an excellent method of incorporating navigation into other areas of the training program.

All of these courses can be run at night in order to increase the difficulty and training level of the requirement.

MOUNTED TRAINING

The most pressing question that many of you may be asking probably involves how this technique can be applied to mounted training. Needless to say the speed of mounted movement places even more importance on the soldier's ability to maintain his orientation than does any other method.

Mounted Orienteering courses can be set up for individual vehicle crews as easily as they can for dismounted groups. It must be recognized that the burden is on the vehicle commander, but then this is as it should be. He, in turn, should require his crew to aid him during the course and take over if an umpire suddenly appears and takes him out of action.

This same procedure can be applied to teams, squads, sections and platoons with equal ease. As the unit gets larger, the commander should use them more and more for their designed capabilities. In cavalry, the scouts can be sent out to check the terrain or reconnoiter a route. In tank platoons, the teams can alternately maneuver then provide cover. While covering, they can recheck their orientation. While maneuvering, they can rely on rough map reading to go from one general location to the next. Dispersion is frequently the key to locating a control point. If one team bypasses the point, the next may pick it up by following a different route.

One important technique required by all Armor

units is that of being able to move to a precise location that is inaccessible to vehicles. This is, of course, much more feasible when training cavalry units. The most frequently used Orienteering method in this case involves the rapid, rough use of map and compass to move to a position that is easily identifiable on both the map and the ground, and as close to the control point as possible. From here, the unit should slow considerably in order to more precisely orient as close to the point as possible. A patrol is then dismounted and sent to the actual control point.

COURSE SELECTION

When charged with the responsibility of actually setting up an Orienteering course, a great deal of insight as well as practical help can be gained from *The Orienteering Handbook* published by the Infantry School. Several factors must always be considered:

- Choose an area that is not well known by the participants. Ensure that it is navigable and not excessively hazardous for the training objectives.
- Use a good map, check its accuracy and correct it. This can be supplemented with aerial photographs.
- Select control points that are easily identified once located, but offer an interesting challenge. Don't hide them or locate them where they may fall down or wash away. Place the markers above local vegetation so as to be seen from at least 25 meters away. Each marker should have an observable alphanumeric code or a perforating punch with a particular design for competitors to use in proving that they actually went to the point.
- Locate the control points no closer than necessary and try to place them so as to open as many routes as possible to consideration.
- Minimize the number of times competitors have to recross their own or other's routes.
- Make the course easy during the first few legs.
- Run the course yourself prior to using it for training.
- Select a start line that is well away from the assembly area and requires the participants to move to it in advance.
- Select a finish line that affords the umpires ample fields of observation to prepare for finishers. Ensure that a location away from the scoring table is set aside as an assembly area for the unit to regroup.
- Provide for individual and group performance critiques. The learning process is only as good as it is perceived. Encourage them!

RETROSPECT

Remember, the primary objective is to enable the unit to learn navigation. If you force a difficult program on them, they will neither perform nor learn as well. Discuss the program with the men who will be conducting it and make modifications to meet their needs. If they enjoy the work and you accomplish your training mission, everybody benefits. When initially establishing the program, the key to success is the same as any good Armor operation—careful planning followed by aggressive execution.

Orienteering is a new method available for use in our new training programs—an innovative method for commanders with initiative—a method for Armor.

MAJOR ROBERT L. SLOANE was commissioned in 1963 from the US Military Academy. He later returned to the Military Academy to serve as a physical education instructor. Major Sloane is currently attending the Command and General Staff College.

Water Propulsion

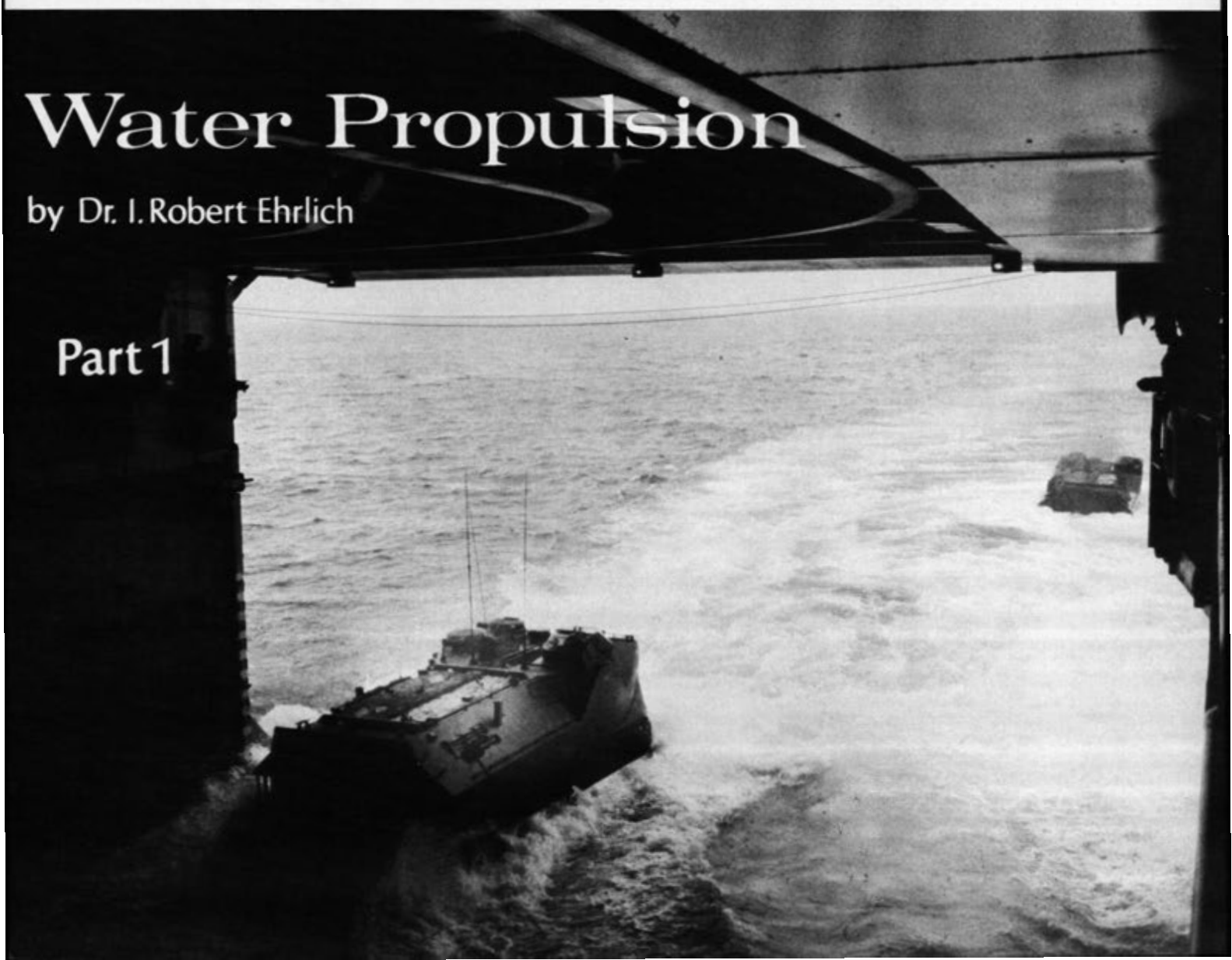
by Dr. I. Robert Ehrlich

Part 1

One of the most significant developments in the design of military vehicles has been the recent recognition that to achieve true cross-country mobility, a vehicle must possess the inherent capability of crossing bodies of water. This fact has brought a new dimension to the problems confronted by those faced with the responsibility for the design and development of new military vehicle concepts.

Three different modes of locomotion are important in connection with the general water-crossing maneuver: fully floating, fully land-borne and water-land transition. Of equal importance are the associated environmental factors relevant to all three modes. Though this article concentrates on the fully floating aspect of amphibious operations, recent tests have found that the water-land transition frequently is the most critical element of the stream-cross maneuver. Thus, the study of egress is also of prime practical importance and should not be neglected.

The water-land transition aspect of stream-crossing is a subject about which very little is known. Analysis of this "twilight zone" is extremely complicated, involving consideration of both hydrodynamical and terramechanical factors. Many actual field problems, however, have demonstrated that the transition phase, particularly egress, is greatly aided by a good water propulsion system which allows the vehicle to approach the water-land interface with a maximum velocity and can, if



possible, continue to generate thrust while negotiating this difficult terrain. Thus, improvement in propulsion systems should also aid exiting behavior.

Quite a sophisticated technology in ship propulsion has already been developed by the naval architect, but applications to the design of amphibious vehicles, which have unusual shapes (for a boat), are extremely limited. The propulsion concepts presented here are those which are applicable to swimming-vehicle design.

PROPULSION PRINCIPLES

Self-propulsion of any kind is necessarily a reaction phenomenon, with the propelling force derived from a pulling or a pushing on some external matter. For self-propulsion in bodies of water, the needed propulsion force is obtained by changing the momentum of a mass of fluid in a direction opposite to the desired direction of vehicle motion. In practice, the accelerating device is usually a propeller, pump or paddle.

To understand the basic principle behind propulsion, we must introduce a little mathematics. For any propulsive device, simple momentum considerations yield the following expression for thrust:

$$T = \rho \, q \, \Delta^{v} \qquad (1)$$

where T = magnitude of the thrust vector
ρ = fluid mass density
q = volume flow of fluid
Δ^{v} = change in velocity of fluid parallel to the vector, T

Since in water, the mass density is fixed, to generate maximum thrust, any good propulsion device should try to maximize both the volume of water influenced and the change in velocity imparted to the fluid.

However, from momentum theory, it can also be proved that the ideal efficiency of any propulsive device is represented by the following equation:

$$\eta = \frac{{}^{v}A}{{}^{v}A + \frac{\Delta^{v}}{2}} \qquad (2)$$

where η = ideal efficiency of the propulsive device
${}^{v}A$ = initial velocity of the fluid under consideration with respect to the propulsor (essentially the velocity of the vehicle in the water)
Δ^{v} = change in velocity imparted to the fluid by the propulsor

From Equation (2), it can easily be seen that, regardless of the forward velocity, vA, the maximum efficiency will be obtained when the change in fluid velocity, Δ^{v}, is small.

Equations (1) and (2) are somewhat in conflict. We would like a large Δ^{v} to generate high thrust, but a small Δ^{v} for high efficiency. Thus, from these two equations, it is clear that it is better to accelerate a large quantity of water a little than to accelerate a small quantity of water a great deal. This principle, translated into hardware terms, means that best performance is obtainable with propulsion systems of large capacity.

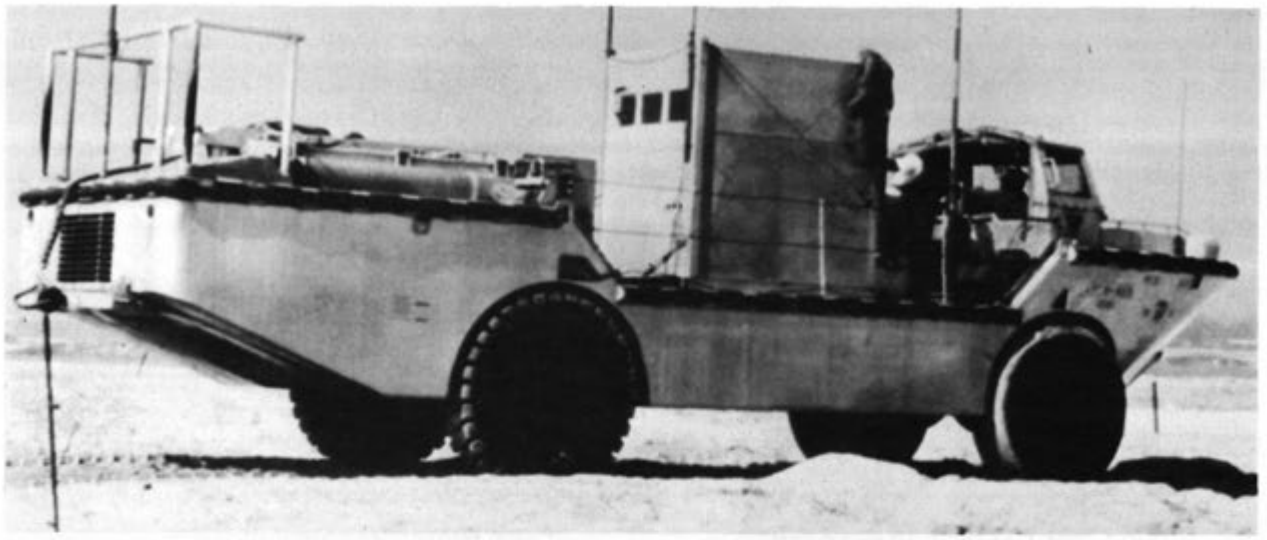
PROPULSOR LOCATION

The presence of the hull distorts the flow into any propulsive device, causing mutual interference affecting both the performance of the propulsor and the drag of the hull. The interference terms are sensitive to the positioning of the propulsor relative to the hull. If the propulsor is situated well below the hull, losses due to turbulence, ventilation and cavitation will be small. On the other hand, if the propulsor is placed immediately behind a flat stern, large amounts of energy will be expended just to bring water to the propulsor, resulting in low efficiency.

SCREW PROPELLERS

For more than a century, the screw propeller has reigned supreme as the primary method of ship propulsion because of its high propulsion efficiency (due to large capacity), its simplicity and its rela-

The propellor attached to the *M113's* drive sprocket, surrounded by a Kort nozzle, is placed where entrance and exit flow is unrestricted.



The propeller-driven *LARC V*. Note the propeller tunnel cut-out between the rear wheels.

tively small size. The blades of a screw propeller act as foils, generating lift and drag forces, which resolve into the generated thrust and the applied torque. Performance depends on the angle of attack of the blade sections relative to the incoming fluid, and the angle of attack, in turn, depends on the rotational speed, pitch and velocity of advance of the vehicle.

The number of blades for most propellers varies from two to six; choice is dictated by many considerations. In general, the optimum diameter of the screw decreases with a decreasing number of blades. The propulsive efficiency also increases with a decreasing number of blades. Therefore, most small screws applicable to amphibious vehicles have but two or three blades. Propeller vibrations, however, are reduced as the number of blades increases, thus encouraging a greater number of blades where vibration considerations are important.

The hub of the propeller should be, ideally, located at least one diameter below the free surface of the water, to avoid ventilation (the sucking in of air from the surface), or to prevent the blade tip from breaking the surface when the wake trough forms behind the vehicle.

The selection of a screw for any given application is quite complicated and involves the consideration of many trade-offs in weight, efficiency, cost and size, matching engine and propeller torque characteristics and operating limitations associated with cavitation and ventilation. Thus, propeller selection is best left to the professionals.

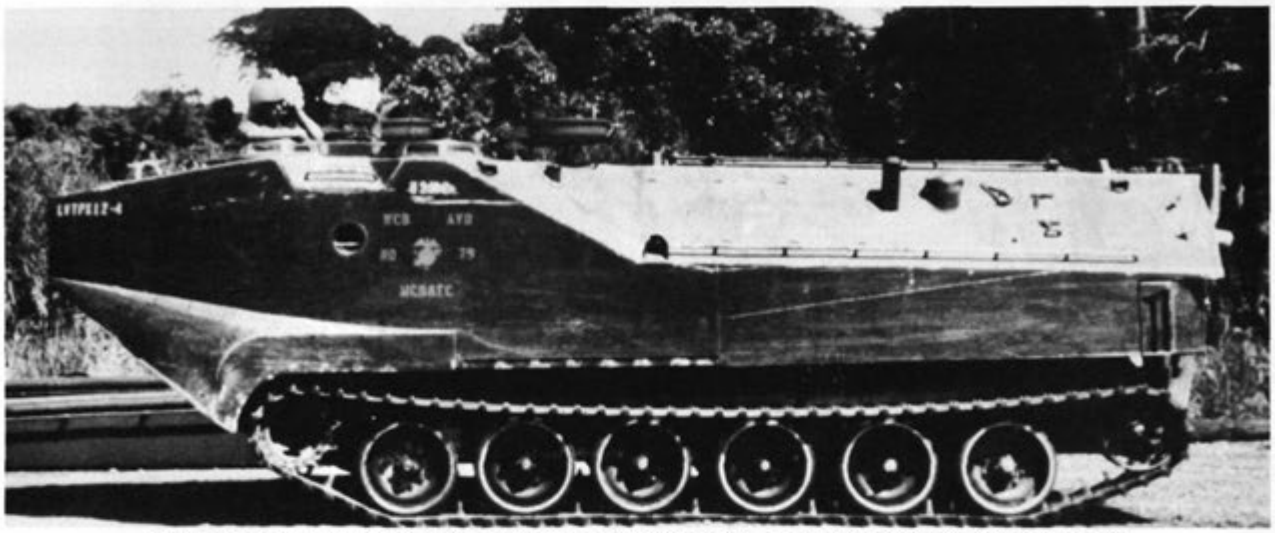
Cavitation is the formation of water-vapor bubbles or cavities at locations on the leading face of the propeller where the dynamic pressure falls below the fluid vapor pressure. It is usually caused by operating the propeller at too high a speed for its design. Properly controlled, cavitation can greatly aid thrust (usually called supercavitation). Usually, however, cavitation is undesirable since it causes excessive propeller erosion, vibration and loss of thrust.

From our earlier discussion on propulsor efficiency, it is easy to see that one would desire as large a propeller as possible to operate at as slow a speed as possible. We would also like this propeller to operate out in the open, away from the hull. Ground mobility considerations, however, dictate a rather small propeller, operating close to the hull. As to be expected, there is much compromise in design and most propeller-driven amphibians either have retractable propellers, or operate the propellers in a special hull cut-out, called a tunnel.

When properly designed, the propeller is the simplest and most efficient propulsion device in common use. Hence, it should be used whenever conditions permit. Peak efficiencies of standard propellers range from 50 per cent to 75 per cent, depending on many factors. The range of peak efficiency is usually quite narrow, hence the propeller must be properly matched with both the speed-drag characteristics of the hull and the torque-output of the engine to generate peak efficiency at maximum output.

THE KORT NOZZLE

As mentioned before, the blades of a propeller act as small low-aspect ratio foils. Placing a shroud around the propeller causes the blades to act as



The *LVTP7* employs water-jet propulsion quite effectively. Water is taken in above the tracks and exited through the doors about each track. When the exit doors are closed, water is directed forward through the louvers, generating a rearward thrust for turning or backing.

high-aspect ratio foils, thus improving thrust and efficiency. Such a device is called a Kort nozzle.

In addition to increasing thrust and efficiency, a Kort nozzle reduces cavitation and reduces the required propeller size. To be effective, the clearance between the blade tips and the inside of the nozzle should be as small as possible. It is common to machine down the rather pointed tips of a conventional propeller to give it blunt ends before fitting it to the nozzle.

The Kort nozzle is especially attractive for amphibious vehicles, since the shroud also provides a measure of protection for the propeller blades. As a rule, the slight penalty in increased hydrodynamic resistance easily justifies the employment of this device.

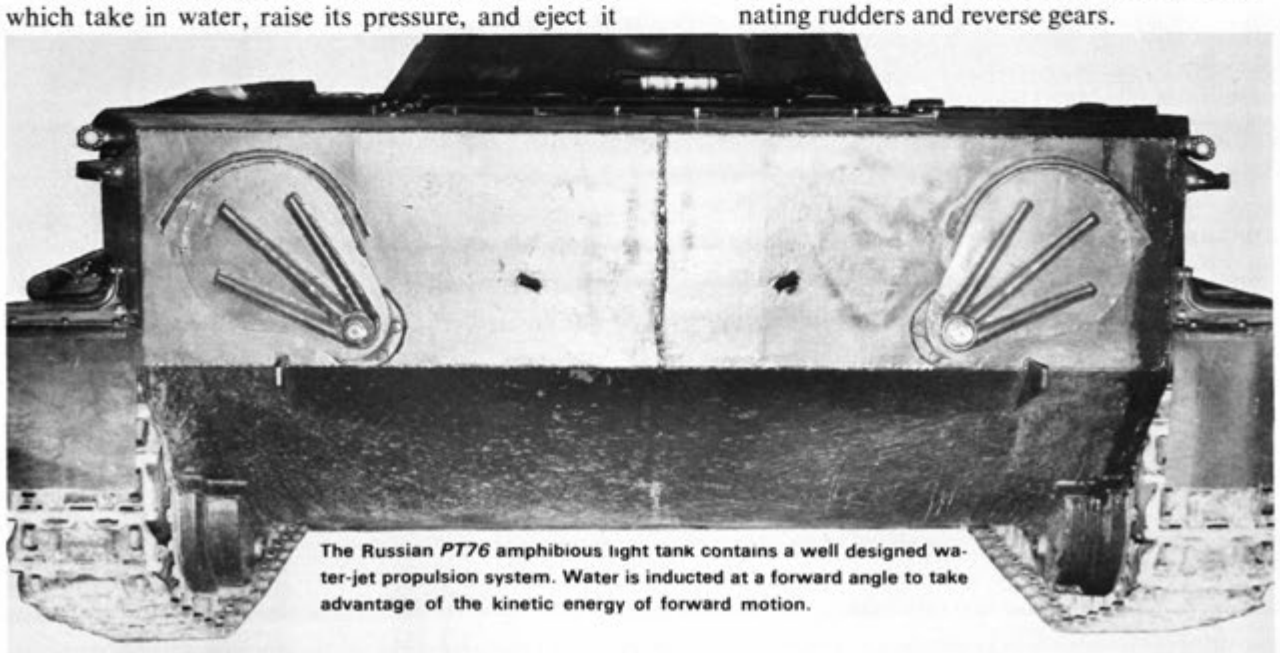
WATER JETS

Water jets (hydrojets or pump jets) are devices which take in water, raise its pressure, and eject it rearward at a higher velocity than it had when it entered.

Since water jets usually operate with modest flows and large velocity changes, their propulsion efficiencies are inherently lower than those of corresponding screw propellers. Fluid flow losses due to high flow velocities in the internal ducting of the water-jet device further reduces efficiency. Of particular interest are the losses at the inlet and the effect on such losses as vehicle speed increases. If the inlet is oriented so that the incoming fluid impinged on the opening, these inlet losses can be significantly reduced, since some of the kinetic energy of the fluid entering the duct is recovered.

Despite its reduced efficiency, the water jet has several distinct advantages for an amphibious vehicle:

- There need be no projections outside the hull.
- Steering and reverse thrust can be obtained by redirecting the exit flow, thereby eliminating rudders and reverse gears.



The Russian *PT76* amphibious light tank contains a well designed water-jet propulsion system. Water is inducted at a forward angle to take advantage of the kinetic energy of forward motion.

- There is less chance of cavitation in a properly designed water jet.
- Water may be taken in from regions of high forward pressure and exited into regions of low aft pressure, thereby reducing effective drag.

On the other hand, the major disadvantages of a water jet are:

- Special care must be taken to prevent ingestion of debris by the pump.
- The buoyancy of the hull is reduced by the volume of the internal ducting (a significant consideration, since most amphibians are but marginally buoyant).
- Lower propulsion efficiencies are obtained than with a screw propeller.
- Water jets have the characteristic of a severe fall-off of thrust with increase of forward vehicle speed.

WHEEL PROPULSION

Amphibious wheeled vehicles have, for sometime, been able to propel themselves simply by spinning their wheels. When the top of a wheel is above water, the tire acts somewhat as a paddle wheel. It has been observed, however, that propulsion is also obtained even when the wheels are totally submerged. The exact mechanism of this propulsion is not yet known; tests, however, indicate that wheel propulsion is only about 0.5 per cent-2 per cent efficient, hence their advantage lies not in their efficiency, but in the fact that they are already required for land operations.

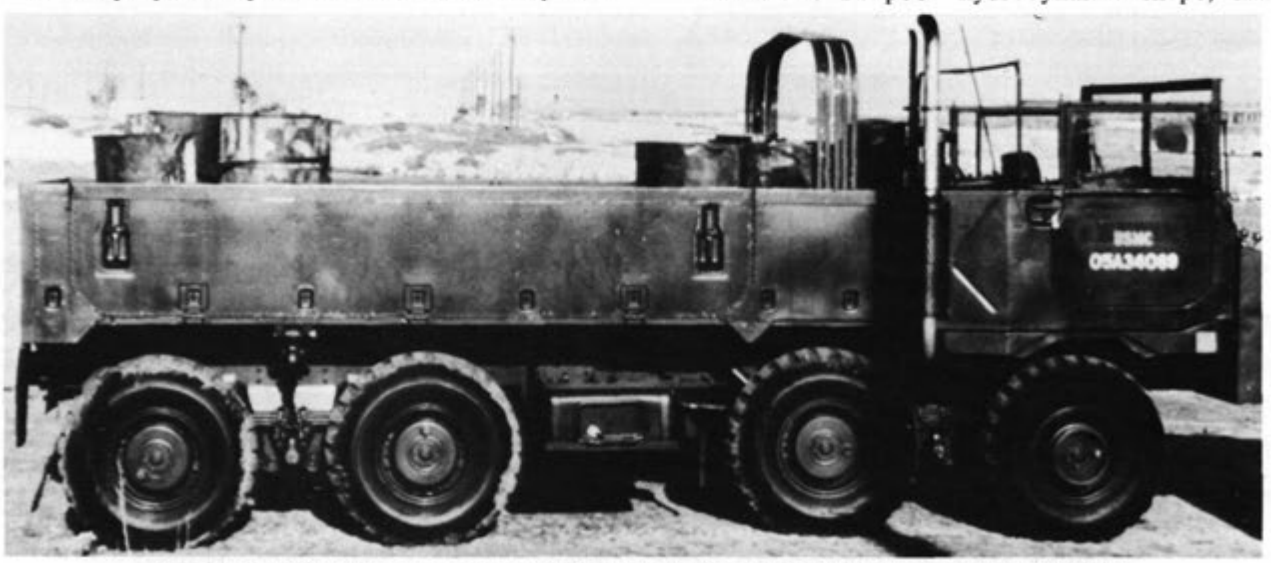
Wheel propulsion performance is affected by such factors as tire tread, diameter and width, and by the juxtaposition and geometry of fenders, deflectors and baffle plates. Proper wheel-shroud design can increase water speed up to 70 per cent above the best unshrouded condition. Improper wheel-shrouding and/or worn tire treads can significantly decrease the propelling forces of the wheels. Speeds of 3mph and higher have been obtained by wheel propulsion alone.

WHEEL PUMP PROPULSOR

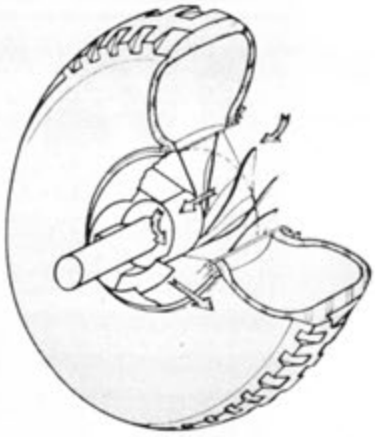
In an attempt to generate added propulsion from the wheels of a vehicle, Mr. C. J. Nuttall and the author conceived the idea of a wheel pump. Basically, the wheel pump concept envisions some simple alterations to the wheels of the vehicle to enable the turning wheel to pump water axially toward the center of the vehicle into a simple, static device which was designed to redirect this inward flow rearward, thereby generating a forward thrust.

Although conceptually sound, the device has some major problems that still must be solved. When used with the *M151*, the following observations were made:

- Although it was able to double the thrust to the vehicle, the extremely high drag characteristics of the *M151* enables the device to increase the speed of the vehicle only by 1/2mph.
- The tires, which are, of course, attached to the pumps, absorb a great deal of power while turning in the water, yet serve little useful propulsive purpose.
- Due to its poor hydrodynamic shape, the



The 5-ton *M656* has no water propulsion system but its tires. Though they are completely submerged, spinning them will propel the vehicle at a water speed of nearly two miles per hour.



The wheel pump propulsor is intended to generate a reasonable amount of thrust in water, yet not interfere with the basic off-road mission of the vehicle.

turbulent flow around the vehicle, while moving in water, causes the pumps to aerate, thereby greatly reducing efficiency and thrust.

ARCHIMEDEAN SCREW

Though not a new idea (drawings from the fourth century show a ship propelled by an Archimedean screw), the concept of using a large, buoyant screw to propel a vehicle has recently received a great deal of attention in the form of the Marsh Screw Amphibian and the Riverine Utility Craft. In semi-fluid conditions (marshes, mud flats, bayous), this vehicle has demonstrated its ability to propel itself where most other vehicles fail. It is therefore quite a suitable vehicle for operation in the transition zone between water and land.

A basic principle behind the outstanding performance of this device, in environments where few other vehicles can operate, is its ability to float a great deal of its weight with the propelling device. Ideally, the rotors should be large enough to float the entire vehicle without the undercarriage touching water.

Comprehensive model test programs were conducted at the University of Michigan and at Stevens Institute of Technology to establish design criteria for operations both in water and on land. In general, the results of these studies may be summarized as follows:

In water:

- Performance improves with larger blade height.
- The performance of the two-lead screw is, overall, better than that of the one- or three-lead screw.
- In general, the 50 degree helix angle is better than the 30 degree and 40 degree angles tested.
- Optimum length/diameter ratio occurs near a value of six.
- A purely cylindrical shape is definitely superior to that of a tapered cone.
- Progressive rearward increase of the helix angle has no beneficial effects.
- Cupped (as opposed to flat) blades are more efficient at high trim angles and high speeds.
- Optimum rotor-spacing appears to be near four diameters.

The Marsh Screw Amphibian can travel well in water, marsh and soft soils.

In mud:

- Optimum performance can be expected when the longitudinal center of gravity is slightly aft of the rotor mid-point.
- Maximum practical drawbar-pull occurs near 80 per cent slip.
- The best helix angle (from among choices of 30, 40 and 50 degrees) is 30 degrees.
- Performance degrades with increasing blade height.
- Optimum length/diameter ratio is near six.

In sand:

- Performance parallels that in mud with the exception that performance improves with increasing blade height.

Note that there are contradictions in performance characteristics between water, mud and sand, a common occurrence in the design of amphibians.

The Archimedean Screw Amphibian presents two serious problems which have not yet been satisfactorily solved: it cannot operate well on hard surfaces such as roadways, and its performance on hard ice is erratic. It is, however, an excellent vehicle for a rather narrow band of environmental conditions. To overcome these problems, several concepts are presently under study.

The concluding portion of "Water Propulsion" will appear in the next issue of ARMOR.

The 3d Cavalry

brave rifles

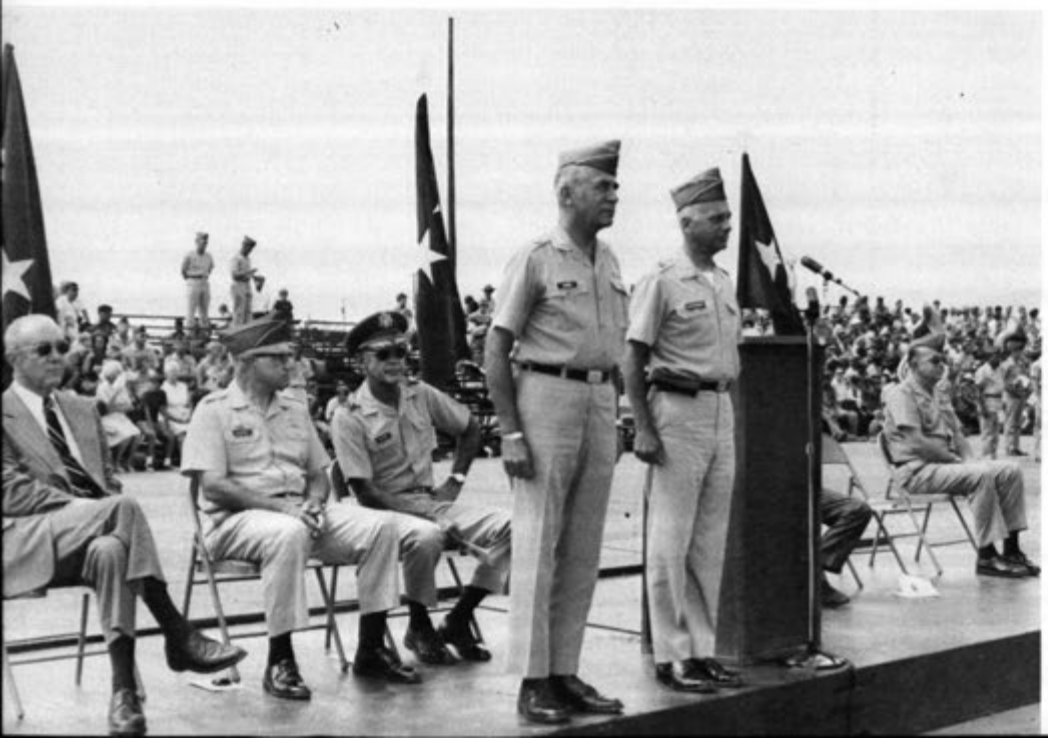
A crowd of more than 5,000 joined Major General R.L. Shoemaker in welcoming the 3d Armored Cavalry Regiment and Colonel Walter W. Plummer, 53d Colonel of the Regiment, as the unit returned to the area where it first distinguished itself during the Mexican-American War.

The all-day celebration included the commanding general's official welcome to Fort Bliss and demonstrations of the 3d Cavalry's mobility, firepower and reconnaissance capabilities.

Among the many distinguished guests present were General Ralph E. Haines Jr., Commanding General of the Continental Army; Retired General James H. Polk, President of the US Armor Association and 32d Colonel of the Regiment; and Lieutenant General Patrick F. Cassidy, Commanding General of the 5th Army.

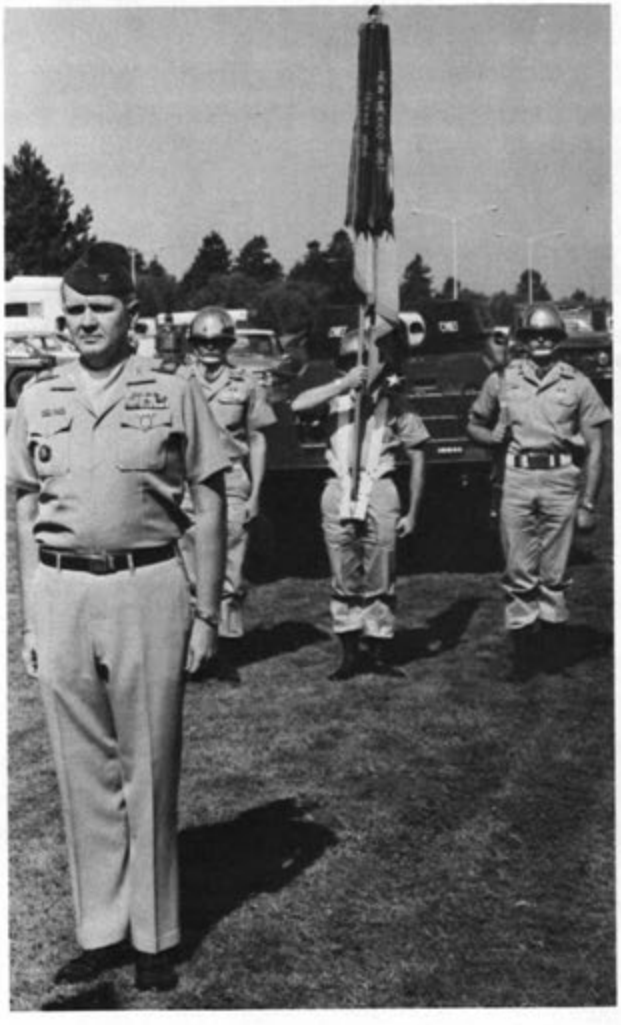
Formed by an act of Congress on 19 May 1846, the Regiment, mounted and armed with hunting rifles, first saw action during the war with Mexico. After a member of the Regiment's F Company had placed the US colors over the palace of President Santa Ana, General Winfield Scott, Commanding General of the Army, proclaimed, "Brave Rifles! Veterans, you have been baptized in fire and blood and have come out steel!" The "Brave Rifles" continued this proud tradition through the Indian Wars, the war with Spain and both World Wars.

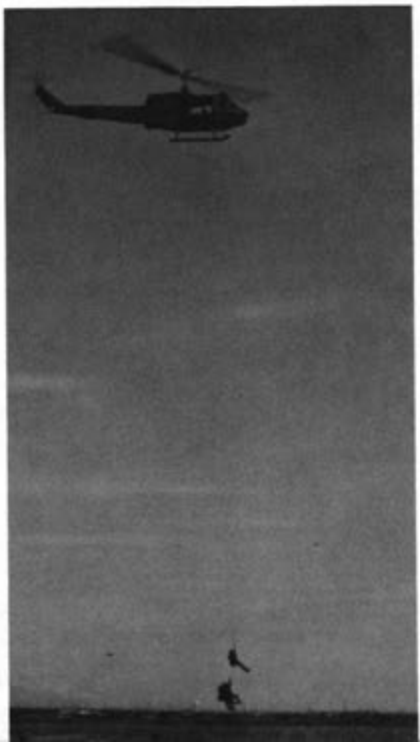
The unit will benefit in mobility from the expansive training area at Fort Bliss, as it maintains its readiness as a REFORGER unit.



Returns to Texas

blood & steel





THE FUT BATTLE TANK

by Colonel Helmut Ritgen

Since the end of World War I battle tanks have assumed the role played in the past by heavy cavalry. They are now, and will remain in the future, the weapon of high mobility and decisive offensive ground combat. The armored weapon system must impress its superiority over the enemy by rapid, surprise concentration of many vehicles at one point in order to neutralize the defensive enemy weapons, and by rapidly exploiting the success in carrying the battle deep into the enemy lines.

The state of art in tank and antitank weapon development is noteworthy. In the area of tank weapon systems, caliber and weapon performance have increased, along with technical equipment and effectiveness of armor. The vehicle weight—currently approximately 55 tons—has increased as well, but complexity and costs of the armored forces has increased even more rapidly. Although NATO commands an entire arsenal of armored vehicles, there are, nevertheless, insufficient numbers of each item—due to excessive costs—to successfully counteract the threat from the East represented by the masses of heavily armed and armored *T54* and *T62* tanks.

This variety of armored vehicles has different causes and has resulted in tremendous disadvantages and costs. Limitations of tasks lead to special tanks unable to fight independently. Effective coordination in combat is difficult. The effort for training on different weapon systems, as well as supplying and maintaining the diverse stocks of ammunition, spare parts and test equipment, represents an extravagant and unnecessary undertaking in view of NATO's situation today. Therefore, the temptation to specialize should be counteracted, as the total number of battle tanks will always be decreased by the number of special armored vehicles. Battle tanks alone are capable of fighting from the move and from the halt. In view of the Soviet threat and the limitation imposed on us in regard to space, personnel and costs, it would appear more economical and more advantageous to introduce a single battle tank albeit in greater numbers (massive attacks not timid stabs—a principle of General Guderian). Tank armament is the decisive factor. It must be not only selected in view of hit and kill probability but also of logistic aspects and costs.

A smooth bore gun, such as the 115mm cannon of the *T62*, is ideal for the Soviet tank masses. This weapon fires a slug with a very high muzzle velocity, a very wide grazing range, a short time of flight and an unsurpassed kill effect against tanks; exact ranging and electronic computers are of no significance. The only drawback is that their fin-stabilized projectiles require a greater ammunition consumption due to greater dispersion (standard deviation .2 to .3 mil) than the spin stabilized rounds (standard deviations .1 to .2 mil).

Therefore a tank armed with such a gun must carry more ammunition than the magazine of an automatic loader contains. It is necessary to keep replenishing ammunition manually. This would prohibit decreasing the crew to less than three. Thus, the combat weight of 55 tons, the large silhouette and the vulnerability are retained. Changing this situation, especially shrinking of the tank, becomes possible only if the KE ammunition could be supplemented by guided projectiles which would permit engaging enemy weapons effectively at great ranges.

The combat weight of modern tanks—which is currently approximately 55 tons—is excessive. It is doubtful that such tanks will make sense in the future.

URE MAIN

They are too expensive, too easily detected and too vulnerable. Their supply requirements are too extensive to be met in the event that truck transport is put in jeopardy due to enemy air superiority and the danger from mines. But no combat without supplies! Since fuel consumption is almost proportional to weight, halving the tank combat weight could also halve their fuel convoys, not to mention the effects on bridges and engineer equipment as well as transportation media and, subsequently, personnel.

Although this goal will most likely remain wishful thinking for some time to come, a high price for weight reduction is justified. Since the factors of firepower, mobility and protection must be balanced, it would be detrimental if one of the factors were curtailed (i.e. by eliminating the possibility of engaging long range targets). Instead, it becomes imperative to attack other taboos. In order to save weight, battle tanks must be made smaller, since weight is—primarily—a function of volume. A rotating turret appears to be more important than ever before, since in the future, the enemy will increasingly be expected from all sides and must be engaged immediately. By reducing the crew and the numbers of rounds of onboard ammunition, it should be possible to drop below the 40-ton limit with the two-man concept described below and still retain the same hit and kill probability, mobility and survivability as modern tanks—*XM803* or *S-Tank*.

THE TWO-MAN CONCEPT

In keeping with the proven basic concept the tank continues to consist of a rotating turret mounted on a track chassis capable of great acceleration and high cross-country speed and mobility. The low turret houses the previously mentioned armament with fire control, the automatic loader with ammunition and the crew, as well as the controls and displays required for command, firing and driving.

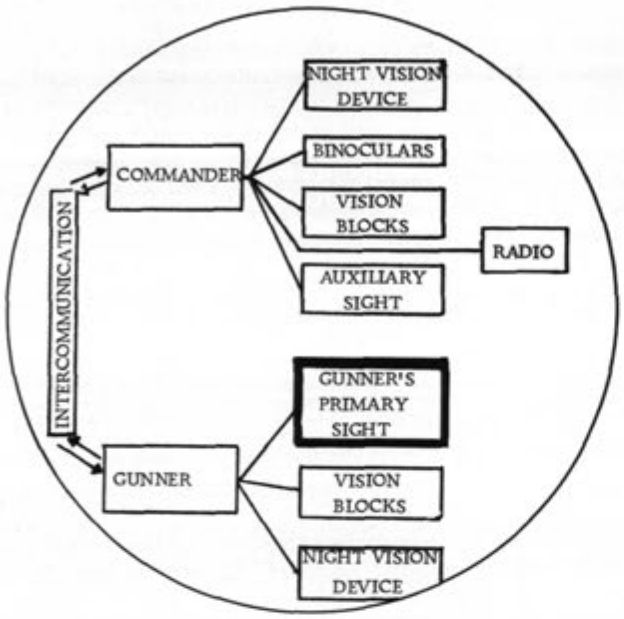
The automatic loader, located in the bustle and separated from the fighting compartment by a bulkhead, contains the tanks entire ammunition supply. The autoloader permits the loading of ammunition more rapidly than by hand even during cross-country movements, and allows quicker replenishment from the outside. The crew, which sits in other tanks as if on a powder keg, is no longer in serious danger should the ammunition in the loader magazine be ignited.

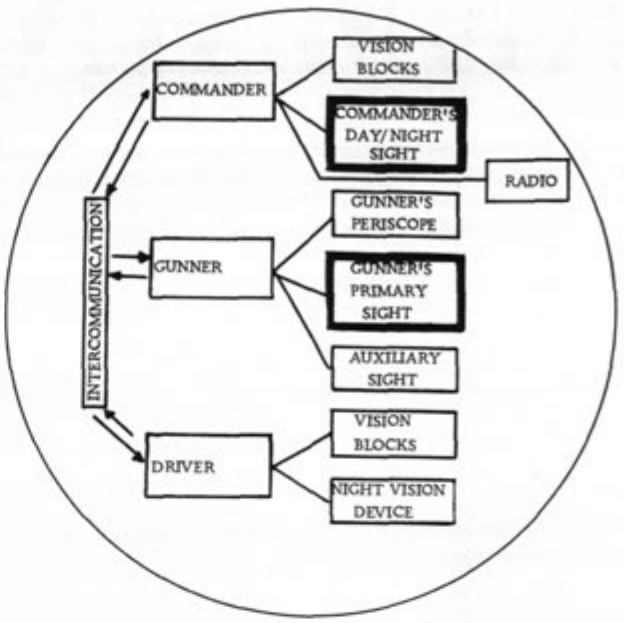
The current replenishment ammunition would best be transported separately from the tank due to the high hit and kill probability of the gun and the necessity to reduce cost, weight and vulnerability of the tank. There will be no manual loading within the tank. The fire control system consists of a stabilized gunner's primary sight (GPS) with laser and analog computer, as is the case with the *XM803*. This system permits an effective fire-on-the-move capability. The auxiliary sight, mounted coaxially with the gun at the commander's station, and the mechanical emergency laying mechanism give the commander the capability to assist and monitor the gunner and to lay and fire the gun manually in event of an emergency or malfunction of the electronic system.

The crew—commander and gunner—sit side by side, one on each side of the gun. This permits the design of the turret to be short, low, light and simple. It also gives the crew the all-important panoramic vision.

The skills necessary for driving, steering, accelerating or braking may be performed by either the commander or gunner on an "as assigned" basis. Since all crew activities during march, security and combat have been largely automated and simplified, it would seem that in addition to the loader, the driver appears to be dispensible as well. The high performance of the engine and suspension system can by no means be fully exploited by a driver subjected to excessive vibration in the hull, but only from a turret position. The gunner drives during a march while the commander exercises his command functions as has been the case in the past. If an enemy target is engaged while on the move, the commander assumes the driving functions to allow the gunner to fully concentrate on firing the weapon. A similar division of duties has long been effective in aircraft and seems to be superior to a functional division into commander (who also doubles as gunner) and driver.

The commander is positioned in an easily rotatable cupola, similar to that of the MBT *T55/62*. He may thus orient himself constantly and has the choice of observing in any desired direction, also by using manually stabilized pendicular suspended binoculars and guiding the gunner on to the target without delay or to remain hull-oriented while the gunner rotates the turret. As a result the driving crew member always faces in the direction of travel, while the other is free to observe or fire in any direction. A rotatable commander's cupola equipped with binoculars is superior





to a panoramic sight, the use of which, although better stabilized, makes orientation more difficult. While fighting on the move all around surveillance and quick reaction time are more important in combat than the commander's capability to fire the main weapon himself.

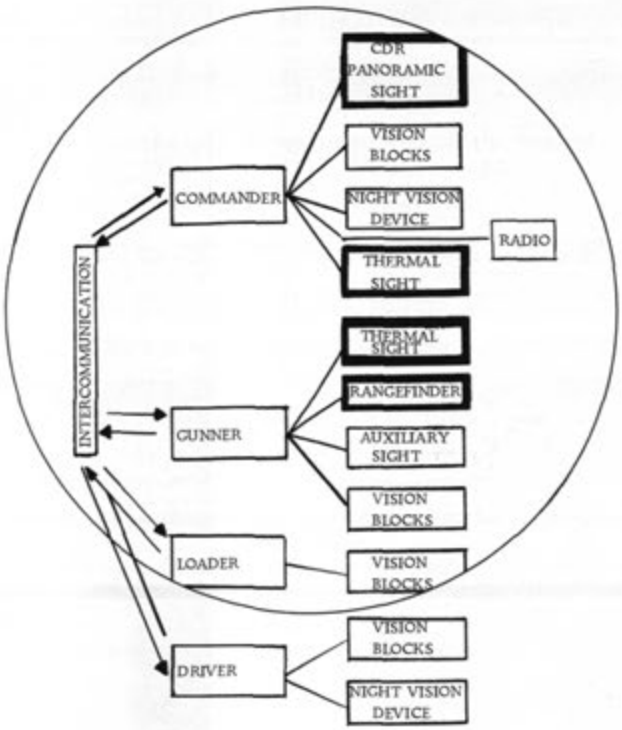
With this arrangement, a two-man crew could be capable of successfully engaging dangerous targets appearing suddenly from unexpected directions and various ranges.

In order to improve survival capabilities, the fighting compartment should be given the form of an armored inner cell surrounded by outer cells and the power-pack compartment. It should only be as large as necessary to allow the crew to handle the controls and displays necessary for command, firing and driving. It is therefore isolated from the combustible materials, ammunition and fuel, which themselves are distributed among the outer cells in such a manner that fire caused by a hit in one cell does not spread to other cells and to the fighting compartment. Such an armored vehicle is relatively invulnerable to the action of shaped charges. As long as the tank is not burning, it remains a danger to the enemy and can be rebuilt to a serviceable condition.

ORGANIZATIONAL CONSEQUENCES OF THE TWO-MAN CONCEPT

The organization of an armored company into platoons, etc., can basically remain the same. It must merely be supplemented with an exchange crew of adequate strength and with vehicles for the ammunition supply. In this way, casualties or fatigued crew members can be immediately replaced and supply activities accelerated. Consequently a great savings in personnel cannot be expected from the reduction in crew strength. A special duty of commanding officers will be to seek even closer coordination between tanks and armored infantry, as well as prompt followup with replacement crews and ammunition. As a result of the small ammunition supply in the vehicle, ammunition must be replaced more often than before. It is necessary to simplify the process of replenishment, to accelerate it, and to develop suitable ammunition vehicles for the armored battalion's ammunition squad. These should be given a special design to protect them against ammunition fires, corresponding to the previously mentioned protection guidelines for tanks.

Such an outlay is appreciably lower and more effective than the storage of ammunition supplies within the tank. The supplying of individual gun rounds is to be preferred to a conceivable exchange of magazines. An easily-carried and handy replenishing aid appears necessary for one-man operation to allow supply of ammunition from another vehicle or from a stack, even under conditions of darkness. We might even conceive of a simple hoist, driven by the tank's electrical system, to convey the cartridges to the loading port, suitably located at the turret bustle for this purpose. As a rule, only fueling from a tanker can be considered, but it should also be possible from barrels and gas cans when supplied by air and in special sit-



uations. Each tank should have an on-board suction pump for this purpose.

The objection that the two-man crew can carry out fewer servicing and maintenance activities than before is undoubtedly justified. At the state of the art in engineering, however, it is more economical and effective to transfer these unscheduled activities to organizational maintenance, to the extent that they cannot be reduced through scheduled inspections, increased reliability of components and preventive maintenance. The activities themselves must be simplified, reduced and automated in such a manner that they can be carried out with a minimum of time and personnel. Tools and test instruments can be standardized so that they are equally adapted to many items of equipment, such as the land combat support system for the *TOW, Shillelagh, Lance* and main battle tank.

A prerequisite is that the crew be able to immediately detect and locate malfunctions which occur and report them to the maintenance unit. Rather than transporting the tank to the shop, a mechanic must come to the tank with replacement parts and test equipment. However, these parts must be accessible in the tank and must be small enough and handled easily enough to allow one man to make the exchange on location without effort and without accessories.

TRAINING

Training must also be reorganized. Since the driver and loader are no longer required, only one MOS remains for training the tank crew, namely that of the gunner. He must be trained in firing and driving. This presupposes a certain degree of selectivity. On the other hand, it does not appear necessary to lengthen training time, since most of the activities such as firing and technical inspection have been simplified or automated. Training should be centralized in a special, suitably equipped training center. A study still remains to be made to determine subject matter required for maintenance personnel and how they are to be trained.

SUMMARY

At the present time, the few tanks in the West are faced with an overwhelming force of enemy weapons of all types. In conjunction with tank destroyers and special armored vehicles, tanks are becoming defensive weapons and are losing their claim to being decisive land offensive weapons.

This situation can only be changed if new approaches are taken and values considered sacrosanct until now are given up. Good tanks in adequate numbers can then be procured and maintained by combining all knowledge and personnel with less outlay in time and money than has been previously possible. The reduction of crew strength leads the way toward the necessary reduction in weight. This is accompanied by a reduction both in the rate of tank-crew losses in combat and in the number of expensive electronic components. Equipping the tank becomes simpler; reliability and survivability increase without drawback. Such tanks can be procured, utilized and maintained more easily and cheaply and therefore in greater numbers than before. The era of the tank has not passed!

COLONEL HELMUT RITGEN, a member of the Army of the Federal Republic of Germany, was a tank battalion commander in the Panzer Lehr Division during World War II. For the past eight years, he has been actively involved with the US/FRG Main Battle Tank Program and is currently the German Liaison Officer with the United States Army Materiel Command.

Advanced Main Battle Tank

by Captain Timothy R. O'Neill

Armor has been granted a last minute reprieve from disaster. On 16 December 1971 the *XM803* was dropped, and an embarrassing chapter in the history of the Combat Arm of Decision ended. The *XM803* was conceived on the basis of questionable premises and doomed by the course of doctrinal and technical limitations to be obsolete long before it could be fielded—this despite all its technical sophistication.

But this last minute reprieve will be short. We have reached the decisive pivotal point in Armor doctrine and materiel development, and unless we take action decisively we will fall still farther behind our potential enemies in the fundamental tools and skills of mobile warfare. It is argued that the tank as we know it has a limited life, but it will certainly stay with us through the critical period of transition 1975-90. Throughout that period, the traditional tank will be pushed to the limits of its technical exploitability; by 1985, give or take a few years, the second generation tank-like vehicle should begin emerging, a system relatively free of terrain restrictions. Merely holding on to what we have until this day comes will not suffice. The *XM803* was not the answer to the needs of that transition period, even in concept. The Army needs a new main battle tank to fill the gap. This system must be available for fielding in the 1978-80 period.

There are pitfalls inherent in this approach, and we have managed to drive two major combat vehicle systems into these traps in the last decade. The most serious is our recurrent tendency to begin extensive development programs before clearly defining the need for the end product. Before the draftsmen set to work, we must state exactly what this system is going to be used for, and how it is expected to do it. The most embarrassing example of this booby trap is the case of the *M60A2*, which went into final test and evaluation before its role had been clearly defined. The *M60A2's* capabilities are awesome, but its sophistication can be neutralized by poor doctrine and organization. The Advanced Main Battle Tank (AMBT) must avoid the soft ground which mired the *M60A2* and the *XM803*.

This article will cover three areas of concern: doctrine, design philosophy, and organization for combat. None of these considerations can be viewed independently, for in that direction lies the fate of the *XM803*. The doctrine will, by necessity of limited space, be given the broad-brush treatment. Design philosophy will be just that, I am not a hardware designer. The organization shown is merely an example of a possible solution. The important point is that no study should be undertaken on any of these three without considering the others. The stakes are too high.

DOCTRINE

The tank began as an infantry support weapon, conceived as the tool best suited to break the deadlock of trench warfare. This was a fine idea in 1918; unfortunately, this early concept of employment became in some ways an *idee fixe* in our Army, though we seldom admit it.

The years between wars were used to great advantage by Liddell Hart and Guderian. The lessons of World War II stare us in the face, but we seem to pay little attention. Like the French, who stubbornly ignored the tank's declaration of independence from the *Poilu*, we are intent on walking down the blind alley of infantry support—a tank role which we categorically deny, yet continue to follow.

The most persistent manifestation of this tendency is the old saw about the tank being the best antitank weapon. This may have been true in a crude, physical sense born of necessity at one time, but since the development of second-generation antitank guided missiles such as *TOW*, *Milan* and *Swingfire*, the only result of our rigid adherence to this dogma is the scattering of our limited tank resources to protect the infantry, instead of using them as they were intended. We have made a wrong turn somewhere.

Added to this problem, and contributing significantly to deficiencies in configuration and tactics, is

the defensive mentality which has pervaded our Army under the overwhelming shadow of the Warsaw Pact. The immense problem of dealing with vast numbers of enemy tanks, which reinforces the tendency to use tanks in antitank roles, coupled with our pernicious inferiority complex, has led to the evolution of the offensive tank into the Army's prime defensive weapon.

This has resulted in the development of very heavy tanks built around guns designed for high accuracy and kill probabilities at extended ranges, despite hard evidence that heavy armor is losing the battle to ammunition technology, that most tank engagements are fought at much shorter ranges, and that the effectiveness that we seek is obtainable at these ranges only by disproportionate outlays in unit cost.

The *M60/M60A1* represented the answer of the 1950s before the advent of second generation missiles. The *M60A1* is essentially a product-improved *Tiger II*—a World War II tank with a dismaying array of add-on gadgets. The answer of the 60s was the *Shillelagh* in its various configurations. It is admirably suited for defense, as is *TOW* in the ground-launched form, and hence its inclusion as a tank main armament makes the system, as a whole, something less than a tank—a contradiction in terms.

SOME REDEFINITIONS

The idea of this article is simple, but it rests on the assumption that precise redefinitions (restating definitions which have gone askew) can be accepted. They are as follows:

Tank: A mobile, offensive, direct-fire weapons platform designed essentially for the missions of penetration, exploitation and pursuit, with the end of disrupting, destroying or neutralizing enemy capability by seizing and maintaining the initiative.

Tank Destroyer: A mobile, defensive, direct-fire weapons platform designed to engage and destroy or neutralize enemy armored fighting vehicles, and provide an attriting, canalizing fixing force which will allow mobile offensive forces to gain the tactical initiative.

DESIGN GUIDELINES

- WEIGHT: 30-35 tons
- MAIN ARMAMENT: 90-105mm tube type gun system designed to engage targets with high accuracy to 1,500 meters, night vision capability (FIRTI), laser rangefinder and fire control system similar to that of the M60A1
- SUPPLEMENTARY ARMAMENT: externally mounted antitank missile kit which can be attached to extend effective range to 3,000+ meters
- COMPLEMENTARY ARMAMENT: .50 caliber remotely aimed and fired antiaircraft machine gun designed to be operated by the loader; 7.62mm coaxial machine gun
- CREW: four—tank commander, loader/antiaircraft gunner, gunner, driver
- ARMOR PROTECTION: frontal—23mm; flank—12.7mm (ballistic skirts of mild steel could increase protection to 14.5mm)
- CBR PROTECTION: positive pressure
- MOBILITY: comparable to the adopted MICV with which it must operate
- RELIABILITY: mean distance between failures of 500 miles
- MAINTAINABILITY: designed for modular test, removal and replacement of components at the lowest support level

Under this definition we already have a fine tank destroyer—the *M60A2*. For this reason, the *M60A2* should in no way be considered an acceptable interim MBT.

The only tank as defined in our Standard A arsenal is the *M60/M60A1*. Yet even these admirable fighting vehicles, while they are more than a match for their opponents on a tank-to-tank basis, are not suited for the missions they should really be fulfilling.

The point which will occur to many is whether it is entirely realistic to expect to be using an offensive weapon in what is admittedly a strategic defensive role in Europe. This argument misses one simple fact: the mobile defense is, in reality, a series of smaller-scale offensive actions, using the tactics characteristic of the offense. We are obsessed with the delay, but the delay is not really mobile warfare—it is an extremely weak defense, used for economy of force and to gain time for some clear objective, not an end in itself. In any case, a defensively-configured weapons system cannot meet the needs of the mobile defense.

Our concept of the tank is not commonly supported. The *Chieftain* is a very slick extrapolation of the same basic idea that created the *M60*—a sort of super-*M60* built around an excellent, highly-accurate, long-range gun. Its offensive role is, like the *M60's*, technically subordinated to the lesser role of defense. This school of thought produces its tanks, figuratively speaking, by suspending from the roof the most awesome gun available as a sort of cornerstone and tacking boilerplate around it.

The other MBTs—*Leopard, T62, AMX30*—are all tanks of a much lighter category but with guns roughly comparable to the *M60A1* and *Chieftain*. The mobility, agility and low profile are considered more reasonable contributions to survivability than heavy armor, which has been rendered a very marginal return in protection from modern antitank weapons when viewed against increased cost and weight. The second generation of infantry antitank weapons have rendered the inches upon inches of armor of the *M60* and *Chieftain* a very expensive ornament.

The problem is this: more than enough armor is provided to protect the crew against small arms and automatic weapons fire of most calibers. There is not enough to provide protection against most antitank rounds, both missile and conventional. This has, amazingly, been used as an argument for the tank's obsolescence. But proponents of this theory are barking up the wrong tree, though they have glimpsed a part of the paradox. The bullet did not render the infantryman obsolete. In summary, the tail—tank defeating gun—is wagging the dog—offensive capability through mobility. It is time for a reassessment of our doctrine and how to fit the tank into it.

"L'AUDACE, L'AUDACE—TOUJOURS L'AUDACE!"

What are our armored forces going to do?

It is easy to state by rote that armored forces achieve success through mobility, firepower and shock effect—not protection. Yet a very brief examination of the history of mobile warfare will inevitably lead to the conclusion that the first two characteristics are really only contributors to the third. Instead of shock effect, I will refer to "encirclement syndrome," not merely to use longer words, but because it is more descriptive of the effect of armor on the battlefield.

When an enemy has been encircled, by penetration or envelopment, three reactions are possible: he may skillfully maneuver to extricate his threatened forces; he may lapse into encirclement paralysis, unable to cope with a dramatic loss of initiative; or, he may suffer from encirclement palsy, the willingness to do something and the inability to do anything right. The greatest victories of mobile warfare were most often by simple collapse of resolve.

The essence of modern mobile warfare is, then, the creation of encirclement syndrome in the enemy

command by aggressive mobility in penetration, encirclement and pursuit. This has also been called blitzkrieg. The logical specific goal of the offense is, then, the act of forcing the enemy to commit his operational reserve at a disadvantage—that is, encirclement palsy—and without gaining initiative. Conversely, the essence of the mobile defense is to retard encirclement syndrome, and to attrite and canalize numerically superior enemy forces, with the goal of regaining the initiative by offensive action of mobile reserves.

Of course, this is not as easy as it sounds. It can be accomplished on the mid and high intensity battlefield only by constant flexibility and movement. This method is the best option open to us. The traditional weakness of the system of operational planning used by the Warsaw Pact Armies is the tendency toward inflexibility and a relative deficiency in initiative. We have been enthralled for years by the idea of neutralizing his numerical and materiel superiority, and need to spend some time and thought on the problem of exploiting his weaknesses.

The most severe limitations which attend this tactical philosophy are:

- Human and mechanical endurance
- Logistical support to forward units
- Requirement for constant, realistic training

The problem of human endurance cannot be engineered into a main battle tank; the question of training could fill several articles of this size. The other problems are fair game.

AMBT—THE UNCOMPROMISING TANK

The mission of the AMBT should be evident; that the *M60A1* does not, and the *XM803* could not, meet this mission should be equally evident. The AMBT must be built from the ground up to meet the challenge and not be another facade of homogeneous steel surrounding an antitank gun. If this can be agreed upon, the design parameters are much easier to develop.

The very high unit cost of over-sophistication, and the fact that the AMBT will naturally be a high-mortality system, contradicted the principle of mass when it was built into the *XM803*. The idea of blithely sticking on gadgets, producing a mythical super-tank of sufficient qualitative superiority to hold the line against masses of "inferior" tanks, is a dangerous piece of self-deception. It is questionable whether such

a tank can be produced in sufficient numbers within cost parameters.

The general guidelines are:

- High mobility
- Highest possible survivability short of limiting mobility
- Main armament adequate to deal with enemy armored fighting vehicles at the most common ranges of engagement
- Reliability/durability high enough to allow extended independent operations

The design characteristics shown are a possible solution. Without discussing the threat in detail, it seemed reasonable to set 23mm as the largest caliber against which to demand frontal protection. The armament suggested seems quite capable of handling the offensive targets likely to be encountered; the *TOW* kit is capable of attachment to allow the AMBT to deal with its secondary defensive mission without degrading the primary role, as the *Shillelagh*, an integral part of the *XM803*, forced severe compromises in that tank's feasibility.

The AMBT should be a light, highly mobile, low-profile fighting vehicle mounting a tube-type main armament. Essential systems should not exceed the logical, predictable state of the art. It should be simple to operate and maintain, and necessarily less reliable systems should be complemented by simpler backup systems, capable of allowing the tank to continue to operate at a lower level of effectiveness.

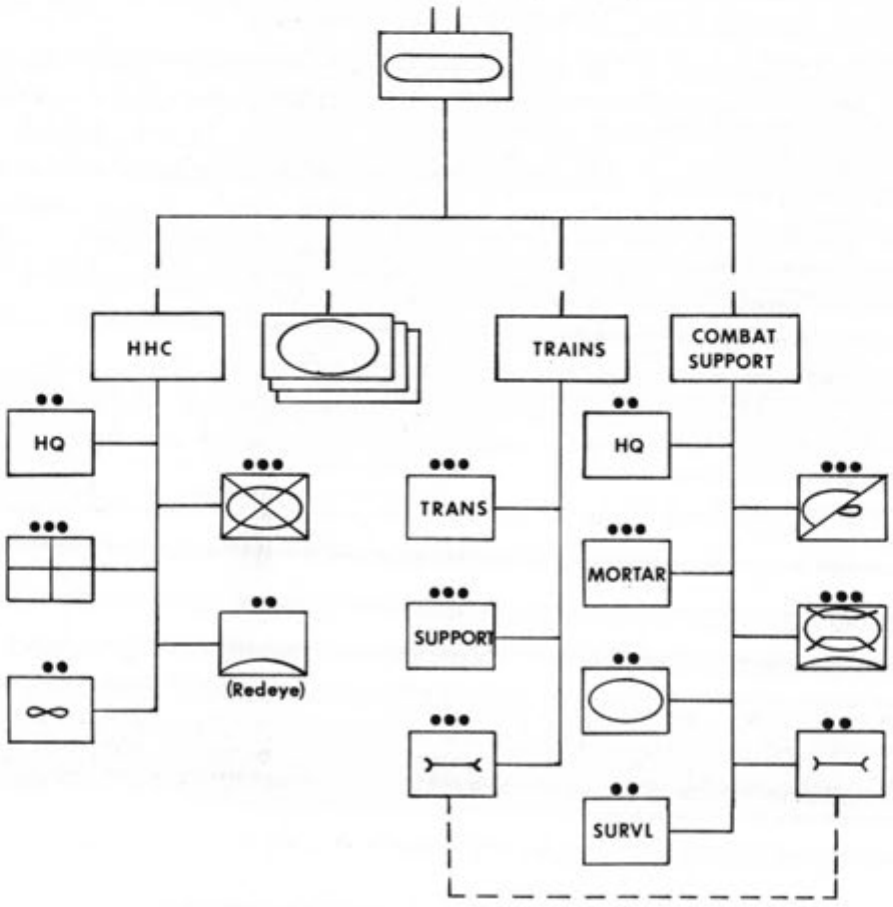
The tank described would be basically similar to the *Leopard*, with the basic armament and fire-control systems programmed for the *M60A3*. The *M60A3* itself will not do, for reasons already discussed. For once, we would have a tank designed ahead of time to fulfill a mission, and the doctrine would be ready and waiting.

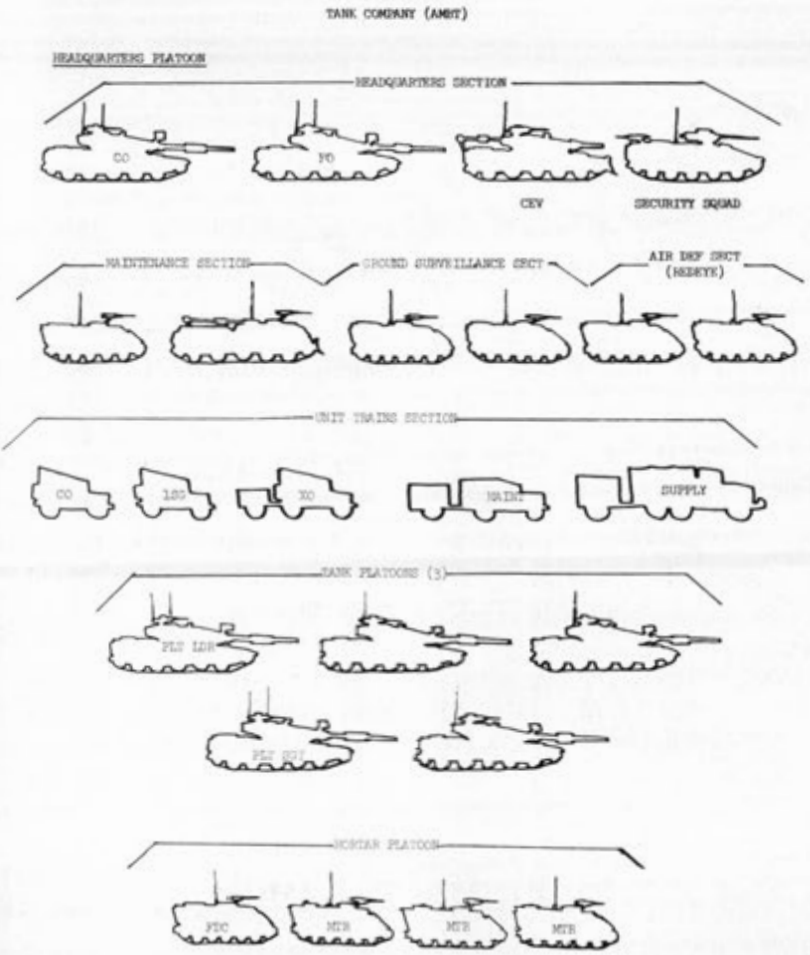
ORGANIZATION FOR COMBAT

The interdependence of materiel and doctrine has already been discussed. It naturally follows that organization for combat must support both. In the sample organizations for tank company and tank battalion I have stressed the need for self-sufficiency in both tactical capabilities and logistical support. While the organizations may seem very similar to the ones currently in existence, note that the following ideas have been stressed:

- Tactical self-sufficiency of team and task force. (Or-

TANK BATTALION (AMBT)





ganic air defense, ground surveillance and indirect fire capability at the company and air defense at the battalion).

• Division of logistical support between combat trains, which accompany the line elements, and field trains, which remain in the rear. This division is made largely organic by creation of a Headquarters Company, including combat trains; companies A, B and C, line companies; Company D (trains—i.e. field trains); and Company E, combat support; comprising most of the actual combat or combat support units now found in the Headquarters Company plus the augmentation of tactical capabilities mentioned before. The same division is also true to a lesser degree at company level.

CONCLUSIONS

This article has been necessarily short. I have confined the discussion to three vital areas: doctrine, design philosophy and organization. Each is worth its own article; but I stress once again that none of these can stand alone.

The most important point is if we are going to pull ourselves out of the hole we have been laboriously digging since World War II, now is the time. The *XM803* is gone, a blessed *fait accompli*. But unless we want to assure ourselves of another armor-plated turkey in the vital 1975-85 period, the Armor Community must pull together. If our views are not made known, someone else less qualified will make the decision to fill the vacuum we have created. A wrong decision will cost us in blood.

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off-route mines

by herbert i. lewis

The *M66* antitank mine, a second generation off-route mine providing a horizontal effects capability against armored vehicles, has been introduced as a replacement for the *M24* antitank mine.

The *M24* mine utilizes a tape switch laid across the road traveled by a target vehicle. Actuation of the tape switch fires a rocket (bazooka round) at the target.

The tape switch was considered interimly acceptable, pending development of a fuzing system for an off-route mine with nothing visible on the road. The *M66* with its *M619* antitank mine fuze meets this requirement. Firing of a rocket requires two related events.

First, the vibration introduced into the ground by the target is sensed and identified as being uniquely associated with vehicles rather than non-targets. Seismic signals are detected by a geophone that converts mechanical motion caused by vehicle vibrations into electrical energy. The seismic system is capable of activating a high percentage of the time in the presence of wanted targets, such as large wheeled and tracked vehicles. Depending upon circumstances such as the particular site and target speed, it may respond a smaller percentage of the time to smaller vehicles, but it will not respond to unwanted targets such as personnel and animals.

The second signal is generated upon interruption of an infrared beam by a target vehicle as it enters the boresight of the weapon. The infrared beam contains radiated energy outside the visible light spectrum in the near infrared range.

The requirement for the two independent events to occur in sequence and within the same time period negates the probability of false firing. The leading edge of the target vehicle, blocking the infrared beam, causes the rocket to be fired at the target. The *M66* antitank mine can readily be set up in the field by one man. The infrared source is battery powered and located on boresight with the receiver at the rocket emplacement site.

Alignment of the receiver and the transmitter is obtained by using sighting grooves located atop each of the two housings. The geophone receiver is emplaced in the ground and its cable connects the data processor. The processor contains batteries, serves as the junction box for the infrared and geophone signals, and provides the rocket firing energy through a cable.

Feasibility of the seismic-infrared concept was demonstrated at Picatinny Arsenal, Dover, New Jersey after extensive vibration signature studies on numerous types of vehicles. A commercially available infrared system used in conjunction with the seismic system design indicated that the concept was sound.

HERBERT I. LEWIS, has worked in ammunition research, specializing in the field of electronics, since 1951. He is currently a project engineer in the Munitions Development Branch of the Ammunition Development Directorate, Picatinny Arsenal, New Jersey.

EER A Major Management Tool for the 70s

by sfc james c hughes

What is the Enlisted Efficiency Report (EER)? The EER, DA Form 2166-4, is the means by which an enlisted individual's supervisor records, in a standardized manner, his judgment as to how well the individual measures up to his overall military responsibilities. The EER reflects how well the individual has done his job, and what his potential is in terms of utilization and career development.

Since 1 July 1970, the EER has become extremely important in the management of an enlisted soldier's career when it became a permanent document in the individual's Official Military Personnel File.

On 1 July 1972, many changes occurred in the EER system. These changes were announced by DA Msg DAPO-EPP-E 151608Z June 1972, Subject: Changes to the Enlisted Efficiency Reporting System, and will be included in AR 600-200 in the near future.

An important improvement in the EER system for the soldier is the requirement that he receive a copy of every report submitted on him, and sign the original report to acknowledge receipt. Submission of regular EERs is now required on an annual basis in accordance with the following schedule:

Pay Grade	Closing Date
E3 and E4	31 August
E5	30 November
E6	31 January
E7	31 March
E8 and E9	31 May

In the case of a change of duty or PCS of either the rater or ratee, a change of rater report will be in order.

Special reports are also authorized but only if the individual is so outstanding or so deficient in his performance of duties for at least 30 days to warrant such a report. Further, a special report must be reviewed by the first field grade officer in direct line of supervision over the rater.

In all cases other than special reports, the rater must have been the supervisor of the ratee for a minimum of 60 calendar days for individuals in grades E6 and below, and 90 calendar days for E7, E8 and E9. This minimum time requirement must be met as of the closing date of the report for a regular report, or the date a change of rater occurs for a change of rater report.

Other new aspects of the EER system include a statement concerning the individual's potential to be a first sergeant for individuals in the grades of E6, E7 and E8. If a negative statement is made, it is not to be

considered adverse to the individual unless he is presently in a first sergeant's position. Also, a statement of whether or not the ratee supports the Army's Equal Opportunity and Treatment (EOT) Program is now required on the EER of any individual who is in a supervisory position.

The EER has a maximum numerical value of 125 points—100 points from Part IIB and 25 points from Part IIC. These numerical values are used to compute an individual's Enlisted Efficiency Report Weighted Average (EERWA).

The EERWA is an average of all EERs in an individual's record since 1 July 1970, giving the most weight to the most recent report, and is used in the computation of an individual's PMOS evaluation score. The EERWA comprises 40 per cent of the evaluation score and the MOS Evaluation Test makes up the other 60 per cent. These two scores are combined and placed against the Army Standard Score Scale which ranks the individual in comparison to all others in his grade, MOS and skill level.

So raters, think twice! Make an accurate evaluation based on overall performance and not aimed at isolated incidents. This report will be around for as long as the soldier, and will affect his eligibility for promotion, key assignment selection, school selection and qualitative management. Also, it is used in the computation of an individual's primary MOS (PMOS) evaluation score. The proper and timely submission of EERs is imperative.

For raters, the philosophy of counseling is of paramount importance. Counseling should not be a *one time* affair at the time of submission of the EER but should be a continuing process so that the individual knows just where he stands at all times, and the ratings on his EER should be no surprise to him.

For the soldier, this document not only plays an important role now, but in months to come it will be used in personnel management actions directly affecting him! So what does he do if he thinks an injustice or violation of the regulations has occurred? With the institution of the new EER system, a means of appeal was provided. An appeal of an EER is a written request by the individual which seeks alteration, replacement or withdrawal of an EER from official military records.

An appeal to an EER must be done in accordance with the following:

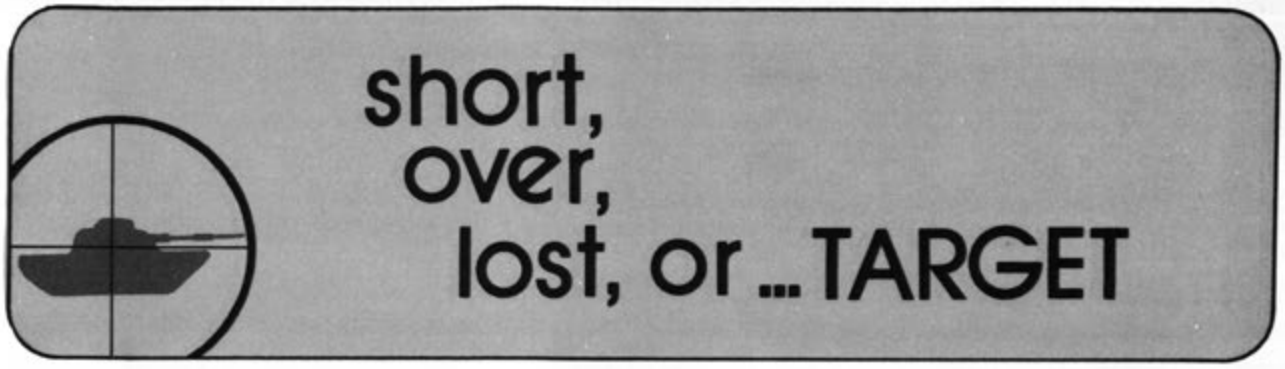
- The appeal must originate with the rated individual and be submitted apart from the EER being appealed.
- To preclude undue delay in processing, appeals should be submitted directly to HQ, DA (DAAG-PSR-EE), TAGO Bldg, Baileys Crossroads, Falls Church, VA 22041. If desired, however, the appeal may be submitted through normal command channels. To insure administrative correctness, see the unit personnel officer for assistance.

EER appeals are given a special detailed review by Headquarters, DA, and the individual is notified of final determination. To facilitate the review and the rendering of the most appropriate decision, appeals should be accompanied by:

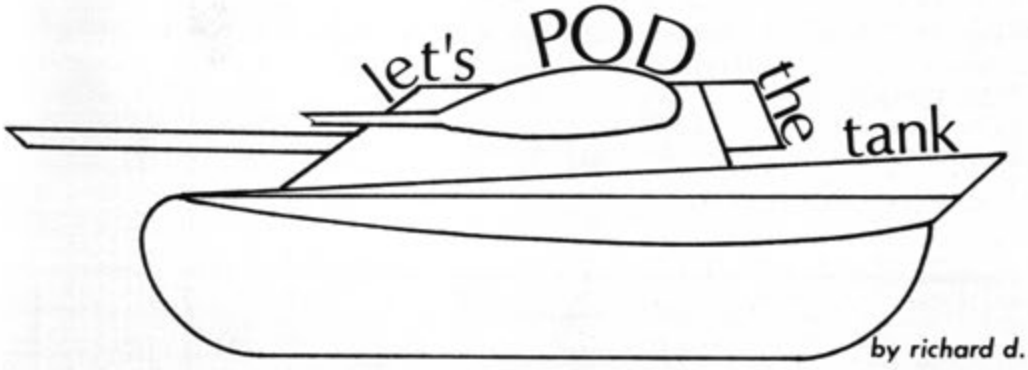
- A verified copy of the Enlisted Qualification Record (DA Form 20).
- Statements from responsible personnel having knowledge of the individual's duty performance during the rating period or the specific incidents on which the appeal is based.
- A copy of the EER being appealed.

The Enlisted Efficiency Report System is an important part of centralized career management—an important part of your career management.

SERGEANT FIRST CLASS JAMES C. HUGHES, a military personnel management specialist, is currently assigned to the Enlisted Personnel Directorate, Office of Personnel Operations.



This department is a range for firing novel ideas which the readers of ARMOR *can sense and adjust. It seeks new and untried thoughts 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!!



by richard d. engler

Modern Armor has a here-and-now requirement for additional increments of mobile firepower. The tank's monopoly upon firepower, mobility and protection is a thing of the distant past. Within the last three decades Infantry has achieved a fantastic increase in firepower and mobility, as has Artillery; and the consequent proliferation of both highly mobile, conventional, kinetic artillery and cheap, easily transportable, shaped charge weapons of all varieties and sizes has greatly decreased the efficiency of armor protection. Indeed, it could be possible that Armor has lost all sides of the gun-armor-mobility race.

Some things have not changed. Firepower remains the most important facet of the tank idea, and the tank is still one of the best gun platforms around. Therefore, even if the tank cannot be made to fly, invulnerable or invisible, it is still possible to progress by concentrating upon what can be achieved in tank armament. Fortunately, the necessary tools are at hand to make significant progress at low cost. All that remains to be added is the application of imagination and certain techniques perfected elsewhere in ordnance.

The main armament systems are a necessary and vital element of the tank's ordnance package. However, these weapons systems are chiefly antitank systems that provide specialized ordnance of limited general utility. The parameters of main armament being more or less fixed by mission requirements, consider the possibilities offered by augmenting and expanding the inventory of weapons now available for secondary armament. This is the area in which versatile new means to gain devastating fire power can and must be provided.

Combat aviation has long known and enjoyed the advantages of the weapons pods concept. Simple, flexible, effective and inexpensive, pod weapons are the bulwark of modern military aviation armament. What this concept can do for aviation, it can do for Armor.

Pods can be provided for tanks in a variety of weapons and calibers, each combination chosen for its

unique advantages: a 5.56mm minigun for conservation of munition space and maximum fire in close terrain; a 7.62mm weapon for general all-purpose use; a 40mm automatic grenade launcher to pry enemy troops out of trenches, from behind paddy dikes and other similar hideaways from direct fire weapons; a multi-shot flamethrower to burn out tunnels and fortifications; a 20-30mm automatic cannon to employ against lightly armored vehicles and similar soft targets; various nonlethal weapons that could be used in riot control or internal consolidation. Such weapons are now available off the shelf or are completing development.

The weapons pods would be attached to the tank by tandem mounts located on each side of the turret. Each mount would be of common design and construction, capable of fitting all pod configurations. The pods are thus interchangeable with a minimum of fuss and bother.

The flexibility of this set-up is enormous. It is obviously impractical under current or foreseeable logistics limitations to envision a full panoply of all types of weapons pods distributed at every command level. Nevertheless, combining specialization of armament with flexibility of selection and employment, weapons pods would give higher commanders the option of preselecting the overall pod configuration of tank units.

Their choice would be guided by considerations of terrain, and enemy order of battle. A commander whose tank units were operating in the counterinsurgency environment of Vietnam might pretailor a basic complement of a 5.56mm minigun pod and a 40mm grenade launcher pod to flesh out the basic tank armament; the commander responsible for conducting conventional operations in Europe might opt for a 7.62mm minigun pod and 20/30mm cannon pod to cope with the ranges, and larger number of vehicular targets found in his area; conventional amphibious warfare in the Pacific might be best served by dual flamethrower pods; the commander of an occupying force would certainly consider equipping at least a portion of his tanks with nonlethal weapons pods. Whatever the first choice of the responsible commander, the easy interchangeability of the pods would facilitate the stocking of limited numbers of other pods in reserve to deal with unexpected tactical situations or emergencies.

At the lowest level, the tank commander must operate within the constraints imposed by higher command selection. But with the possibilities afforded by the addition of a complete pod configuration to his normal main and secondary armament, his capability to fit the right weapon to the right target would be vastly enhanced. No longer need the man working at the tactical level be a victim of Hobson's choice whether he be fighting in jungle, bocage, plains, or desert, in conditions of guerrilla or conventional warfare.

Impossible technical problems? There are none. The mechanics of storage, feeding, cocking, firing and clearing of weapons inclosed within pods have already been developed to the point of near perfection. The provision of a lightly armored shell for the pod is all that is necessary to protect the weapon and provide internal basic storage space for ammunition; the creation of this shell presents no problem for modern machining and casting techniques.

The pods would traverse with the turret. Elevation and depression can be accomplished from within the turret by simple electrical controls. Aiming devices need not be sophisticated, and would require little space. The gunner could handle fire control, or, in exceptional cases, the tank commander could perform this task. Mounting and maintenance need not be complicated. Extra supplies of ammunition could be carried in external storage compartments located at the rear of the turret or hull, lightly armored in a fashion similar to the pods, buffered, vented and equipped with soft tops to prevent sympathy detonation in the event one compartment is destroyed by enemy fire.

The application of the weapons pods concept to new tank designs would restore and validate the *raison d'etre* of the tank—at present—quite worn in the face of its many troubles. With a successor to the ill-fated *XM803* in the works, now is the time to think about it. What other people can do, Armor can do better.

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How Would You Do It?

US ARMY ARMOR SCHOOL PRESENTATION

SITUATION:

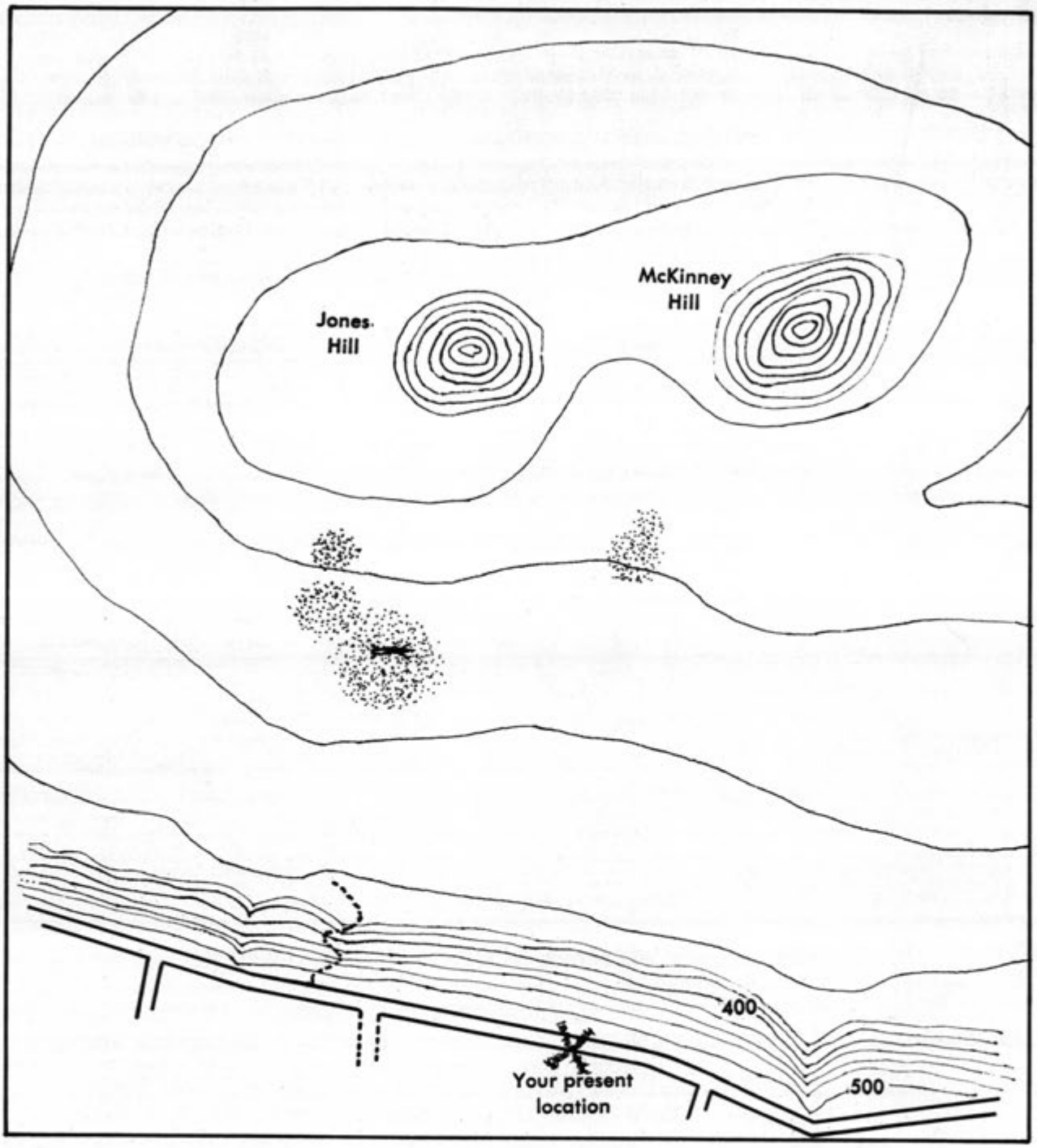
You are an armored cavalry platoon leader. Your present mission requires you to move generally west on a road at or very near the crest of a slope from which you can overlook a large lowland area. Your mission does not include, but does not preclude, your observing activity in that lowland area. You see activity in the low ground a considerable distance from you. Stopping to observe better, you see through your field glasses a mobile missile launching site in the initial stage of installation. From past events, you know that this missile probably has a nuclear capability. The terrain in the lowland area is rather featureless, and you cannot determine the map location of the site by inspection. But you know that if you call for an artillery marking round from which to adjust fire, the installation will be moved out immediately.

PROBLEM:

Friendly artillery has been firing into this general area for some time, and has the capability of delivering accurate fire if the target location is given correctly. You must determine the map coordinate reading of the launching site as quickly as possible, and call for and adjust fire. You are aware of the fact that the only compass in your platoon is inoperative, and that you failed to replace it. The two hills you see in the distance beyond the launching site are Jones Hill and McKinney Hill, as shown on the map. How can you locate the launching site?

AUTHOR: HEWITT, DA CIV

ILLUSTRATOR: R. E. WILDER



SOLUTION:

The solution is quite simple. You move down the road until the launching site is in direct line with Jones Hill. You determine your own location on the road accurately, and then draw a line on the map from your location to the top of Jones Hill. You then move on, until the launching site is in direct line with McKinney Hill. From your exact location on the road you draw a line to the top of McKinney Hill. The crossing of the two lines is the desired location.

DISCUSSION:

This solution is a variation of the old technique of intersection, plus a little common sense. It involves doing on the map what you see on the ground. And this, in essence, is what map reading is all about. Next time, however, make sure you have a good compass with you!

from the Armor Branch Chief

COL Paul S. Williams Jr.

This is my first opportunity as Chief of Armor Branch to take advantage of our professional journal to pass on important personnel policies of interest to Armor officers. In this issue, I will address Armor Aviators, who constitute 25 per cent of our Branch, and approximately 50 per cent of our company grade officers. The following article on the Officer Personnel Management System (OPMS) as it pertains to aviators was prepared in cooperation with the Office of the Deputy for Army Aviation, OPD. But first, I think a brief review of the OPMS will be beneficial.

OPMS proposes a dual track development concept in which all officers will acquire and maintain a secondary skill in one of the Army's staff functional areas or special career programs. This skill will be in addition to Branch qualifications. As an example, a few of the skills which may be developed are personnel, operations, logistics, research and development, and automatic data processing (ADP). During the developmental stage of the officer's career, Branch will assign officers to command or staff positions consistent with the individual's desires and needs of the Army. Certain officers may voluntarily pursue concentrated development of a specialty beginning in the grade of captain or major. These officers will be given appropriate training and education and placed in assignments to enhance their specialty. Other officers, who have retained Branch as their primary skill will be designated for continued Branch, functional staff or specialty development subsequent to selection for promotion to lieutenant colonel.

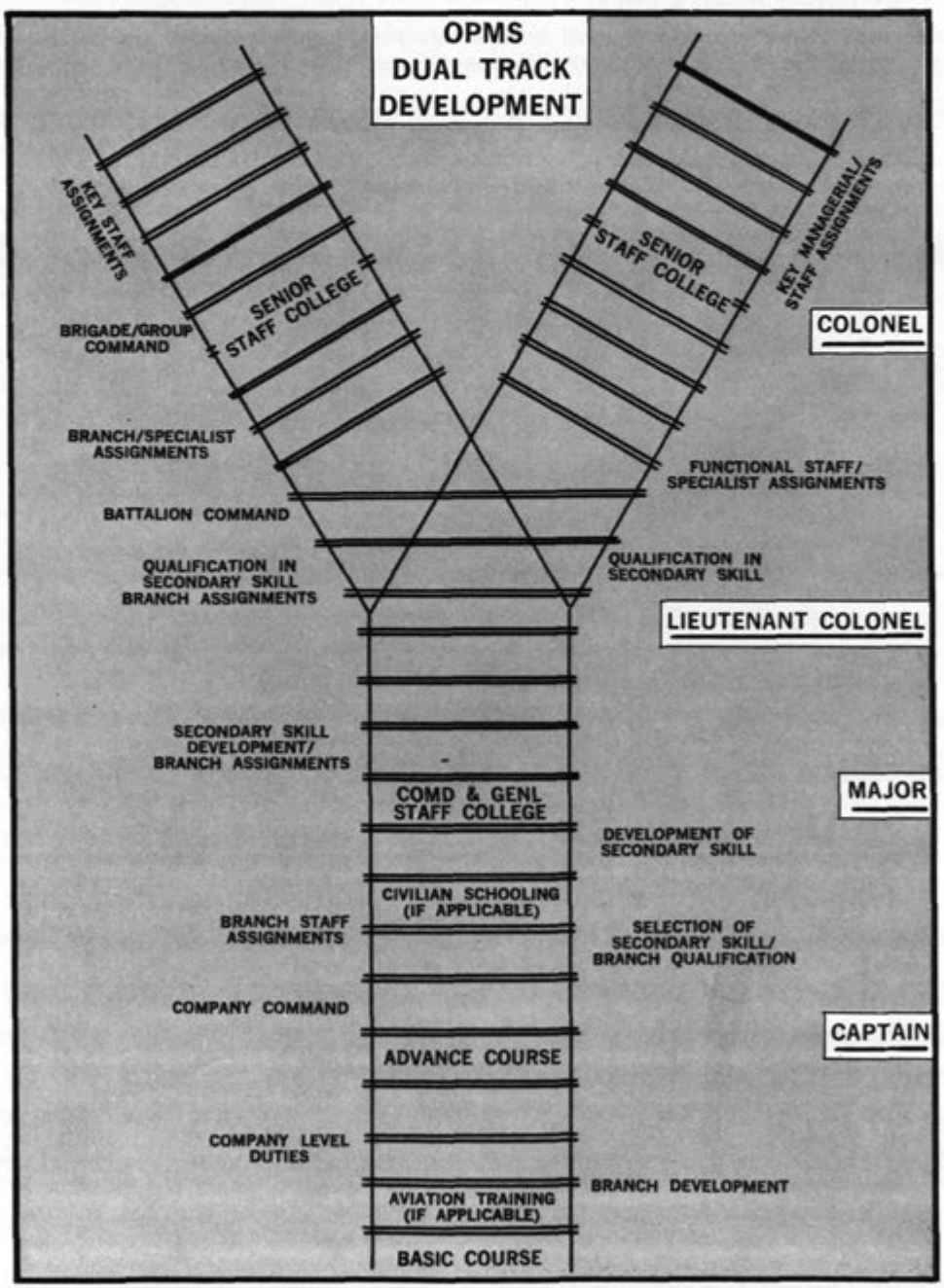
The objective of this management concept is to develop professionally qualified officers to fill the Army's key command and staff positions and permit the officer to do what he does best. With this review of OPMS, let's now see how this new concept will apply to the career progression and ultilization of aviators.

To preclude any misconceptions, let me emphasize there is no "third track" or separate aviation branch proposed in the OPMS concept. The growth and success of aviation during recent years is attributed to the complete integration of airmobility to the lowest unit. Aviation is a tribute to the Combined Arms Team, its strength and destiny is within the Branch. It is not a separate career field, but a Branch skill which compliments both the Branch and the aviator's ability to develop and progress. Aviators will continue to be assigned and managed by Armor Branch and are expected to attain qualifications the same as non-rated officers. In general, aviators will follow a career progression pattern with rotation between aviation and non-aviation duties as requirements and career patterns dictate. Specifically, career progression for aviators includes: development of a specialty skill in one of the Army's functional or specialist areas; training and utilization based on Branch proponency for aviation units; and application of the OPMS command designation system in the selection of aviation unit commanders. Each of these aspects is discussed separately below.

Generally speaking, the potential aviator will attend the basic course and serve in an Armor-oriented assignment before going to flight school. Upon graduation from flight school, he will be placed in an aviation assignment. From then on, he will be rotated between aviation and non-aviation assignments consistent with the needs of the Army and the career pattern for his secondary skill. Branch qualification will be assured by a combination of aviation and non-aviation assignments to Armor units and

attendance at the advanced course. Basically, this reflects no change from current practices.

Development of a secondary skill for all officers is a key element of OPMS. To qualify in his secondary skill, an officer must serve two assignments in the field, or serve one assignment and have a related advanced degree. The career development objective is for an officer to attain qualification in his secondary skill by the time he is considered for promotion to lieutenant colonel. Aviators can fulfill this requirement by serving in aviation assignments, non-aviation assignments or a combination of both. You will note that aviators are expected to develop a secondary skill in addition to their aviation skill. For example, an aviator who chooses personnel might serve as an aviation battalion S1 and as an assistant division G1 to qualify. An aviator who chooses research and development might attain qualification by obtaining a related advanced degree and serving in an aviation or non-aviation R&D assignment. As with non-rated officers, aviators may elect to concentrate their development as a specialist



as is now done by many aviators who are special career program members. These officers would still retain their Armor identity but would serve the majority of their assignments in their specialty field, in either aviation or non-aviation duties.

The objective of aviator training and utilization is to develop professionally qualified Armor aviators to occupy key aviation command and staff positions while avoiding superfluous or "nice-to-have" aviation training. Aviators will be trained in specific flight systems and assigned to units operating those systems using Branch proponency for aviation units as a basis. Future training would normally be limited to like or follow-on systems. For example, an aviator who initially qualifies on an *AH1G Cobra* could expect an assignment to an air cavalry, attack helicopter, or aerial rocket artillery unit. Once qualified in the *Cobra*, subsequent training would be limited to like or follow-on systems, such as the advanced aerial weapons system. Some *Cobra*-rated aviators would also be trained in related skills such as aviation maintenance and safety to meet Army requirements in *AH1G* equipped units. This precludes overdiversification and does away with the misconception by some aviators that skill is measured by the number of aircraft in which qualified. Limiting qualification training to that which is needed to assure professional development reaps economic benefits and provides additional time for the aviator to expand his qualifications in other skills.

The final key feature of OPMS is the system for development and selection of commanders. Under OPMS, Armor Branch will insure that officers displaying a high degree of troop potential are assigned to command developmental positions. Upon being selected for promotion to lieutenant colonel and colonel, Department of Army boards will meet to select officers as troop command designees. Aviators selected for troop command would then be eligible to command either aviation or non-aviation units commensurate with their qualifications and the Army's requirements. Those not selected for troop command will be designated for further service in their secondary skills. In summary, OPMS principles for the development of aviators emphasize the following points:

- Selection of the best qualified for key command and staff positions
- Aviator training and utilization based on Branch proponency for aviation units.
- The development of skills in staff or specialist areas
- The development of proficiency in Branch skills

Fact—Statistics reveal that the field grade aviator has exceeded his non-rated contemporary since 1965 for promotions, Command and General Staff College and Senior Service College attendance on all but three or four selection lists. That's a pretty fair track record supporting our current system for officer development. OPMS will require highly qualified officers for service in key managerial, advisory, or technical positions of great responsibility. These positions are as important to the Army as troop command. It is recognized that many officers fully qualified for command also possess qualifications which enable them to better contribute through functional or specialist type assignments. One of the major objectives of OPMS is to make it possible for officers with valuable functional or specialist skills to be utilized in such career fields without feeling compelled to seek troop command duty in order to enhance their potential for advancement.

Therefore, the aviator under OPMS will not only maintain his front runner position but may widen the advantage over the non-aviator by virtue of possessing an additional skill in his Branch and specialty areas. Future career development will be oriented to capitalize on each officer's qualifications and personal desires, subject to Army requirements, assignments to areas of demonstrated skill and preferences are intended to add to each officer's personal satisfaction as well as to make the most significant contribution to the service. OPMS provides the opportunity for an officer to elect to do what he does best without detriment to his career.

Although OPMS has been approved for implementation, the major features will be implemented gradually so that changes to our present system will be evolutionary. When fully implemented in 1973, the system will provide the Army with the professional officer corps it needs to meet the challenges of the future.

news notes

GENERAL HAIG NOMINATED FOR VICE CHIEF OF STAFF

General Alexander M. Haig Jr. has been nominated to be Vice Chief of Staff of the Army, to succeed General Bruce Palmer. In advancing to the Army's second highest post General Haig will be promoted from major general to general.

General Haig was commissioned in Armor from the US Military Academy in 1947. He has served in numerous command and staff positions, including plans officer in the Office of the Deputy Chief of Staff for Military Operations, Military Assistant to the Secretary of the Army, and as the Deputy Special Assistant to the Secretary and Deputy Secretary of Defense.

Gen. Alexander M. Haig

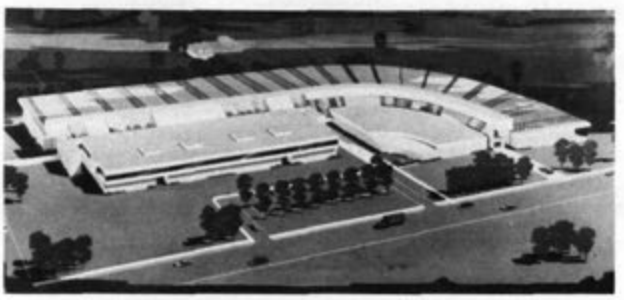
In Vietnam he served with the 1st Infantry Division as G3 and then as a battalion and brigade commander. From Vietnam General Haig was assigned to the US Military Academy where he was a regimental commander and deputy commandant.

General Haig's most recent assignment was Deputy Assistant to the President for National Security Affairs.

NEW WEAPONS DEPARTMENT HOME

In mid-1973, students at the Armor School will encounter a pleasant change when the Weapons Department occupies a new two-story structure consisting of over 200,000 square feet of floor space. When completed, the building will be the largest instructional facility at Fort Knox providing classrooms for formal presentations, large open areas for up to 75 turret trainers and hands-on equipment training, and office space for the department staff.

Midway between School Headquarters (Gaffey Hall) and the new Automotive Department Building, the new structure will replace most of the World War II wooden buildings. The current book store, snack bar and Jones Hall will be moved into a concrete building across from Gaffey Hall.



Ten air-conditioned classrooms equipped with the latest audio-visual devices will be located on the first floor. The seating capacity will vary from level-floor 75-man rooms to tiered-floor 150-man rooms, and will allow for conference-type instruction from the platform, rear-view projection screens, training aids and television facilities. A mall running the length of the building will separate the classrooms from the hands-on equipment training area. Used for small-group training, this area will contain various types of turret trainers, training aids and air cavalry weapons subsystems.

The second floor will contain conference rooms, storage areas and offices for department staff and instructors.

WHITE HOUSE FELLOWSHIPS

The White House Fellows Program offers a unique career opportunity for persons between the ages of 23 and 36. Each year the President's Commission on White House Fellows selects 15 to 20 individuals from industry and the military to serve for a one-year period as special assistants on the White House staff or with cabinet officers. Those selected gain firsthand experience in the process of governing the nation and a sense of personal involvement in the leadership of the society. Since the program began in 1965, nine Army officers have been chosen as White House Fellows.

Army personnel desiring to participate in this program must first request permission (through channels) to compete, in accordance with AR 621-7, Acceptance of Fellowships, Scholarships or Grants, 1 July 1969. Upon receiving approval from Headquarters, DA, individuals

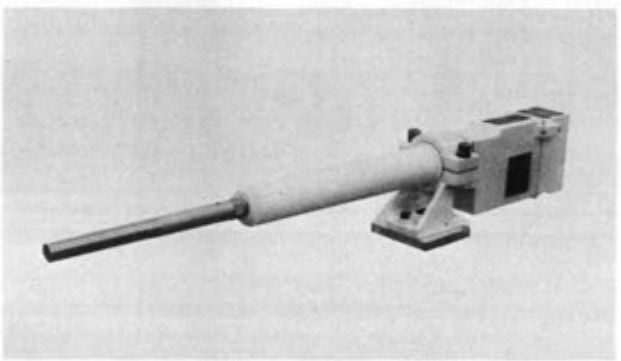
should submit their White House Fellows application directly to the Commission on White House Fellows, The White House, Washington, DC 20500. Official application forms and full particulars may be obtained by writing the Commission.

The application deadline for the 1973-74 program is 15 December 1972. Final selection will be made in May 1973 and the year-long Fellowship begins in September 1973.

PROPOSED HUEY REPLACEMENT

Boeing's Vertol Division has designed a mockup helicopter as part of a proposal to build and test three prototypes for the Utility Transport Aircraft System. Designed to replace the over 20-year old *Huey*, the new prototype is scheduled for flight in November 1974. Boeing and Sikorsky Aircraft are currently in competition for the production contract.

LASER GUN USED FOR GUNNERY TRAINING



A new laser gun is soon to be used in tank gunnery training. The Kollsman Instrument Corporation product is designed to simulate the *M73* machine gun. Scoring is accomplished by noting target reflections, thus eliminating the need for live ammunition.

THE ARMOR SCHOOL DEVELOPS NEW MOTOR OFFICER COURSE

The US Army Armor School was given responsibility for the development and conduct of the Motor Officer Course (MOS 0600). The MOS and course were previously the responsibility of the US Army Ordnance School.

Rather than teaching officers to be maintenance technicians, the purpose of this course is to teach officers of all branches to manage, direct and supervise maintenance at the unit level.

USAARMS is presently systems engineering the course to orient the instruction to the supervisory level. After the systems engineering is completed, the present course will be replaced.

LIFE IN A TANK JUST WON'T BE THE SAME

The first female student to complete the Armor Officer Basic Course at the Armor School, Major Grace M. King, USAR, of Sherborne, Massachusetts, plots a fire mission. Besides the course at the Armor School, she is a graduate of the Engineer Officer Reserve Basic Course, Military Intelligence Basic and Advanced Reserve Courses, and Command and General Staff Reserve and Non-Reserve Courses.

The first WAC to be assigned to an Armor TOE unit is Specialist Four Gloria Hilman. She served with Headquarters Company, 2d Battalion, 77th Armor at Fort Lewis, as a company clerk.

Brigadier General Karl S. Bradford, USA-Retired, the 15th editor of *The Cavalry Journal*, recently passed away in New Hampshire. General Bradford, who was commissioned in Cavalry from the US Military Academy in 1911, held numerous command and staff assignments in Cavalry, including executive officer for the Chief of Cavalry. Prior to his retirement, he served as the President of the War Department Manpower Board during World War II.

General Bradford was Secretary-Treasurer of the US Cavalry Association and editor of its journal, the predecessor of *ARMOR* Magazine, from 1927 to 1928.

SPORTS TROPHY GOES TO QUARTERHORSE

Major General Edward M. Flanagan, Jr., commanding general of the 1st Infantry Division, presents Lieutenant Colonel Allan D. Raymond III, commanding officer of the 1st Squadron, 4th Cavalry, with the Commanding General's Athletic Trophy for outstanding achievement at the battalion level.

AEROSCOUT OBSERVER COURSE

"I was a recent graduate of Aeroscout Observer Course and I was placed in communications." "I am stationed in a unit, and training to be an assistant clerk, I would really like to get back into aeroscout over here." "I don't think the course did me and a few other people any good, because there's at least five of us that are now in infantry units."

These are partial quotations from letters received from recent graduates of the Aeroscout Observer Course.

From the time it was initiated by the Armor School, the Aeroscout Observer Course has graduated over 115 enlisted aeroscouts.

They are all awarded the wings of an aircrewman and MOS 11D2F. These men are all volunteers and take considerable pride in their accomplishment. The Aeroscout Observer Course provides only the basic qualifications in the required skills and knowledges. On-the-job training in an air cavalry troop subsequent to graduation is essential to the attainment of full proficiency as an aeroscout observer.

These are valuable men. Unfortunately, some misassignments occur because current TOEs announce the aeroscout observer in augmentation only. Consequently, personnel specialists faced with an MOS qualified individual for whom no TOE space exists and probably unaware of the significance of this MOS to the air cavalry troop, make an assignment that they believe will best fulfill the needs of the command.

Commanders are urged to take action to get the aeroscout observer into assignments which will permit them to attain and maintain proficiency in their school-trained MOS.

NEW RIBBON BRIDGE

Engineer and service testing has been recently completed and type classification action is underway on an improved floating bridge.

The bridge will replace the current *M4T6* or Class 60 bridges assigned to engineer float bridge companies, and will significantly improve the capability to rapidly cross loads of up to Class 60 over nonfordable wet gaps.

The bridge is constructed from self-contained interior or ramp bays which are carried in a folded position on specially designed transporter vehicles capable of launching or retrieving the bays. The bays are launched, unfolded and then connected to complete a bridge.

A construction rate of 550 feet per hour in a stream velocity of 6.2 feet per second using 49 men was achieved during the testing. This compares with an average time of 5 hours using two combat engineer companies and a bridge company to construct 350 feet of *M4T6* bridging. The bays are air transportable and can be launched directly from medium-lift helicopters. Fielding of the bridge is scheduled for FY75.

SOMETHING NEW IN SPECIALIZATION

There is a change in the wind for Foreign Area Specialist (FAS) and Military Assistance Officer Program (MAOP) members, as well as non-members, who are interested in specializing in a specific foreign area. Concept approval has been given to combine FAS and MAOP into one Foreign Area Officer Management System (FAOMS). The details have not been finalized, but it is envisioned that program administration will be similar to that now followed by FAS and will be compatible with the Officer Personnel Management System objective of having each officer possess a primary and secondary development area.

The FAOMS is concerned with developing top-quality officers to serve world-wide in command, staff, advisory and attache positions requiring them to have area expertise, linguistic proficiency, socioeconomic and political awareness, and a sound professional military background.

The Chief of Staff of the Army has established a steering committee, chaired by a member of the Office of the Deputy Chief of Staff for Military Operations, to coordinate Army staff actions which will be required to implement FAOMS.

THE QUIET ONE

According to the National Aeronautics and Space Administration, The Quiet One, an extensively modified *OH6A Cayuse* helicopter, is 90 per cent quieter than the original *OH6A*. Hughes Tool Company engineers added one blade to the main rotor and two to the tail so that engine and rotor speeds could be reduced to 67 per cent of the normal level without sacrificing lift and thrust. A new muffler and sound blanketing of the powerplant were also added to further reduce the noise level.

SENIOR COMMANDER ORIENTATION COURSE

The Armor School is now teaching a DA directed Senior Commander Orientation Course (SCOC) designed to provide commanders at battalion or brigade levels with an orientation on contemporary command problems, developing professionalism and leadership, and Modern Volunteer Army management practices.

Emphasis is on dealing with racial tension, drug abuse, alcoholism and anti-establishment radicalism. An update on military justice, elimination procedures and the maintenance of discipline is included, as well as an overview of management practices in TOE units, qualitative personnel management and dynamic training and their application in attaining the Modern Volunteer Army goals. Electives permit SCOC participants to visit units and facilities at Fort Knox, thereby extending classroom instruction.

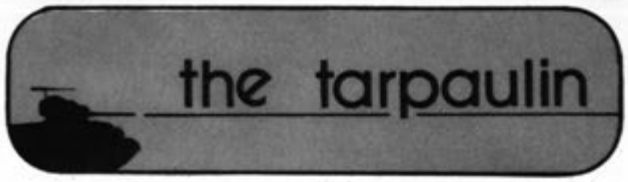
UNITS QUALIFY FOR ARMOR ASSOCIATION AWARD

The following units have qualified for the Armor Association Unit Award. Listed with the unit designation is the commanding officer at the time of qualification.

7th Squadron, 1st Cavalry 194th Armored Brigade	**LTC Leslie A. Layne**
2d Battalion, 37th Armor 1st Armored Division	**LTC Lewis S. Sorley**
7th Battalion, 2d Brigade USATCA	**LTC Joseph A. Levy**
1st Squadron 3d Armored Cavalry Regiment	**LTC Edward H. Bonsall III**
5th Reconnaissance Squadron 2d Brigade, USATCA	**LTC Richard G. Hyde**
1st Reconnaissance Squadron 2d Brigade, USATCA	**LTC Xavia M. Holt**
1st Battalion, 1st Brigade USATCA	**LTC James A. Damon**
5th Battalion, 68th Armor 8th Infantry Division	**LTC John Mason**
1st Squadron, 9th Cavalry 1st Cavalry Division	**LTC James H. Patterson**

To be eligible for an award, all company/troop size units within a battalion/squadron authorized a unit fund must have a minimum of two unit fund subscriptions to *ARMOR* Magazine.

The following organizations are supporting the objectives of the Association through 100 per cent participation of all Armor officers assigned: Armor Branch, COL Paul S. Williams, Branch Chief; Army Maintenance Management Department, USAARMS, COL Robert H. Luck, Department Director; Automotive Department, USAARMS, COL Roland D. Tausch, Department Director; Combat Arms Training Board, Ft Benning, COL John W. Seigle, Board President; Doctrine Development, Literature and Plans Department, USAARMS, COL Carmelo P. Milia, Department Director; Directorate Bravo, MASSTER, COL Charles E. Canedy, Director.



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

TAKE COMMAND

COL Christopher B. Sinclair, CDC Armor Agcy . . . **COL William R. Todd,** 3d Bde, 2d Armd Div . . . **LTC Edmund S. Beck,** SC, 141 Sig Bn, 1st Armd Div . . . **LTC Anthony A. Bezreh,** MC, 47th Med Bn, 1st Armd Div . . . **LTC Archille O. Bourque Jr,** 18th Bn, 5th Bde, USATCA . . . **LTC Richard Cardillo,** 2d Bn, 67th Armor, 2d Armd Div . . . **LTC Vernon E. Ebert,** 1st Bn, 67th Armor, 2d Armd Div . . . **LTC Charles W. Emerick,** 5th Recon Sqdn, 2d Tng Bde, USATCA . . . **LTC Willard C. Goodwin,** 13th Bn, 4th Bde, USATCA . . . **LTC Xavia M. Holt,** 1st Recon Sqdn, 2d Bde, USATCA . . . **LTC Fred B. Hull,** 1st Bn, 35th Armor, 1st Armd Div . . . **LTC Lawrence B. Fitzmorris,** HQ Comd, Ft Carson . . . **LTC Norman D. Kelley,** 7th Bn, 2d Bde, USATCA . . . **LTC Alexander R. MacDonald,** 3d Sqdn, 1st Cav, 1st Cav Div . . . **LTC James J. McLaughlin,** 4th Sqdn, 7th Cav, 2d Inf Div . . . **LTC Charles E. Miller,** 1st Bn, 66th Armor, 2d Armd Div . . . **LTC Leonard L. Miller,** 19th Bn, 5th Bde, USATCA . . . **LTC William R. Moser,** 4th Bn, 64th Armor, 3d Inf Div . . . **LTC Marvin E. Morrison,** 1st Bn, 73d Armor, 2d Inf Div . . . **LTC Charles E. Poole Jr,** 3d Sqdn, 12th Cav, 3d Armd Div . . . **LTC Samuel R. Shalala,** 4th Bn, 37th Armor, 194th Armd Bde . . . **LTC William T. Stockhausen,** EN, 29th Engr Bn . . . **LTC John M. Toolson,** 1st Sqdn, 9th Cav, 1st Cav Div . . . **MAJ Frank M. Murphy,** 2d Sqdn, 107th Armd Cav Regt . . . **MAJ Francis D. Pierce,** Trp B, 2d Sqdn, 17th Cav, 101st Abn Div.

ASSIGNED

MG Clarke T. Baldwin Jr, Chief, USA Element, Joint US MAAG, Spain . . . **MG Frank B. Clay,** Army Audit Agency . . . **MG Donald H. Cowles,** DCSOPS, DA . . . **MG Stephen W. Downey Jr,** HQ 3d Army . . . **MG Ralph L. Foster,** SGS, DA . . . **MG Edward O'Connor,** Amphibious Group 1 . . . **BG Julius W. Becton Jr,** DCG, Ft Dix . . . **BG Richard J. Eaton,** HQ V Corps . . . **BG Ronald J. Fairfield,** DCG, TRAC, MACV . . . **BG John A. Hoefling,** ADC, 3d Armd Div . . . **BG Charles A. Jackson,** DCG and CofS III Corps . . . **BG Joseph C. Kiefe Jr,** Dep CofS, CENTAG . . . **BG Robert L. Kirwan,** Director of Pers, Tng and Force Div, AMC . . . **BG Lee E. Surut,** ADC, 3d Armd Div . . . **BG Charles J. Simmons,** DCSOPS . . . **COL Raymond Battreall,** CofS, Adv Gp, MACV . . . **COL Stanley D. Blum,** USA Element, MAAG, Iran . . . **COL Howard Braunstein,** USATC, Ft.

Ord . . . **COL Hubert Campbell**, REDCOM . . . **COL Charles C. Clayton**, HQ CONFORG, Alexandria, Va. . . . **COL Walter C. Cousland**, USMA . . . **COL Edward P. Crockett**, DCSOPS, DA . . . **COL Robert E. Drake**, COA . . . **COL Samuel K. Duncan**, Ft Knox . . . **COL Earl W. Fletcher**, Asst Comdt, USAAVNS . . . **COL Jack K. Gilham**, CofS, Ft Knox . . . **COL Charles A. Greene**, Ft Knox . . . **COL Norman W. Hammes**, MACV . . . **COL John G. Hays**, Spt Ops TF, Europe . . . **COL Charles K. Heiden**, OPO, DA . . . **COL Thomas J. Heller**, USA Ln Gp, AMEMB, Bonn . . . **COL Frank E. Houston**, OSA . . . **COL Charles S. Johnson**, Mil Stf Com, UN . . . **COL Marvin C. Kettelhut**, S&F, NWC . . . **COL Noel D. Knotts**, CofS, 7th Corps Spt Comd . . . **COL William J. Livsey**, Sr Aide and XO to CofSA . . . **COL Carmelo P. Milia**, Director, DDLP, USAARMS . . . **COL Donald Packard**, CofS, 2d Armd Div . . . **COL Alva Pendergrass**, MACV . . . **COL John P. Prillaman**, Director, Wpns Dept, USAARMS . . . **COL Thompson Raney**, HQ USEUCOM (J3) . . . **COL William T. Rife**, HQ III Corps . . . **COL Benjamin S. Silver**, HQ III Corps . . . **COL Charles Supplee**, MACDC-43, MACV . . . **COL William T. Tanner Jr**, OTIG, DA . . . **COL Milton R. Thompson**, USAAVNC . . . **LTC Craig Alderman**, OJCS . . . **LTC Jack W. Anderson**, Chief, Doctrine Div, DDLP, USAARMS . . . **LTC Charles J. Birt**, 1st Bde, 3d Armd Div . . . **LTC Grail L. Brookshire**, XO, 3d ACR . . . **LTC Champlin F. Buck III**, MASSTER . . . **LTC Leonard E. Carter**, DCSOPS, DA . . . **LTC Peter G. Cei Jr**, 3d Bde, 8th Inf Div . . . **LTC Jack B. Cooper**, Mil Gp, Brazil . . . **LTC Frank Day**, MACV . . . **LTC David Gilpatrick**, HQ CDC . . . **LTC Joseph L. Hadaway**, DCSOPS, HQ USAREUR . . . **LTC Merton B. Hoagland**, GLO, Bergstrom AFB . . . **LTC Richard P. Hoy**, Helena RMS . . . **LTC Philip S. Larkin**, CINCPAC . . . **LTC Wallace Lee**, CDC Armor Agcy . . . **LTC David C. Martin**, G3, 1st Armd Div . . . **LTC Richard G. Parker**, HQ USEUCOM (J3) . . . **LTC John D. Passano**, Armish-MAAG . . . **LTC Frank L. Smith**, DCSOPS, HQ USAREUR . . . **LTC Louis C. Wagner Jr**, Tm 4, MACV . . . **LTC Robert E. Wagner**, XO, 3d Bde, 4th Inf Div . . . **LTC Mowton L. Waring Jr**, 3d Bde, 1st Armd Div . . . **LTC Macon W. Wells**, 3d Bde, 8th Inf Div . . . **LTC Robert N. White**, MACV . . . **MAJ Raoul H. Alcala**, USMA . . . **MAJ John E. Biggio**, S&F, USAFAS, Ft Sill . . . **MAJ James D. Bradshaw**, Log Mgt Cen, Ft Lee . . . **MAJ Justin C. Cash Jr**, 6th Bn, 32d Armor, 4th Inf Div . . . **MAJ William G. Carver**, HQ III Corps . . . **MAJ Robert L. Catron**, USATDA, Orlando . . . **MAJ John Chomko**, MAAG, Germany . . . **MAJ James S. Dickey**, USMA . . . **MAJ Charles B. Fegan**, ACSFOR, DA . . . **MAJ Theodore J. Crackel**, USMA . . . **MAJ Edward R. Garton**, 2d Bn, 64th Armor, 3d Inf Div . . . **MAJ Ronald H. Griffith**, DCSOPS, DA . . . **MAJ Harold W. Healy**, 95th CA Gp, Ft Bragg . . . **MAJ George C. Hollwedel**, XO, 1st Sqdn, 9th Cav, 1st Cav Div . . . **MAJ James G. Jordan**, ROTC Det, Okla St . . . **MAJ Herbert E. Koenigsbauer Jr**, 4th Bn, 73d Armor . . . **MAJ Roger K. Kugler**, Tm 36, MACV . . . **MAJ George Kuechenmeister**, Tm 88, MACV . . . **MAJ William J. Murphy**, ROTC Det, Ind Univ . . . **MAJ Donald Martin**, XO, 4th Sqdn, 9th Cav, 1st Cav Div . . . **MAJ Duane B. Root**, 2d Bde, 9th Inf Div . . . **MAJ Glen O. Ryburn**, MACV . . . **CSM Bobbie R. McGuire**, TECOM, APG . . . **CSM William B. Price**, 1st Bn, 64th Armor, 3d Inf Div.

VICTORIOUS

LTC Neil Creighton has been selected to be a Fellow at the Foreign Service Institute . . . **Kelly Vance** reelected President of Daniel Boone Chapter of the AUSA . . . The best scout crew in the 3d Armd Div belongs to the **1st Bn, 33d Armor**. Finishing number one in the SCQC was **SSG Doyle R. Cowden's** crew with **SP4 Cleo Johnson** and **SP4 Tom Samuelson** . . . The top ADA unit in USAREUR is the **3d Bn, 61st ADA, 3d Armd Div**. They edged out 12 other units in recent firing on the Mediterranean firing range at Crete with a 92.33 percentage average . . . **CPT Marvin V. Swinford**, Trp A, 2d Sqdn, 17th Cavalry, was the recipient of the Fort Campbell Commanding General's Pennant Award for his work in the success of "Project Summer Fun" . . . Newly promoted is the 30th Armd Div ADC **BG Guy J. Gravlee Jr** . . . A recent winner of the National Guard Bureau's Pershing Plaque for rifle qualification was **HHC, 1st Bn, 198th Armor** of Mississippi . . . The top battalion in tank gunnery for the 1st Cav Div is the **1st Bn, 13th Armor**, commanded by **LTC John D. Borgman** . . . Recent graduates of the AWC Nonresident Course include: **COL Raymond B. Cromwell Jr; COL Donald Esper; COL Bruce Jacobs; COL Ernest F. Jacobs Jr; COL Richard V. Krogh; COL Theodore S. Riggs Jr; COL William F. Ward Jr**; and **LTC Robert L. Wicks** . . . The **2d Sqdn, 17th Cavalry** was awarded the Vietnamese Cross of Gallantry with Palm for the period 2 Dec 69 to 8 Jan 71 (DA GO 24-1972) . . . Distinguished Graduate of AOAC 3-71 was **CPT Robert D. Aubry**; Honor Graduates were: **CPT David A. Williams; CPT Patrick H. Neary; CPT Mark B. Daunders; CPT Michael J. Fay**; Armor Association Writing Awards went to: **CPT William C. Ohl; CPT Thomas R. Brackett; CPT Richard M. Kovalchick; CPT Arnold E. Morris**; and **CPT David A. Williams** . . . Distinguished Graduate and Military Stakes winner of 15-72 was **2LT Andrew G. Milburn**, USMC; Honor Graduates were: **2LT Daniel J. Bauer; CPT Robert C. Landry; 2LT Henry L. Hamilton**; and **CPT Edward J. Carter**.

AND SO FORTH

1LT James M. Durkott, who has served as Managing Editor of *ARMOR* Magazine for the past two years, recently returned to civilian life. His dedication and sound business judgment have enabled the Association and its journal to make significant advancements in its financial condition and in the production and circulation of the magazine . . . **SP4 Kirk Morlan** of the 11th ACR was chosen as the only American soldier in the state of Hessen to carry the Olympic Flame as it passed through Fulda enroute to Kiel and the 1972 Olympic sailing events . . . Newly assigned to the 1st Cav Div is the 6th Bn, 68th ADA, commanded by **LTC Archie F. Bassham** . . . Newly transferred to Armor Branch is **MAJ John R. Burden**, assigned to the Avn Sys Test Activity at Ed-

wards AFB, Ca . . . **The R&S Liquors** of Chicago have created a Sherman Tank Commemorative bottle, which is the first of 12 selections that will depict a chapter in the historical events of WWII . . . The newly appointed President of Norwich University is **BG Loring Hart,** a WWII member of the 4th Armd Div . . . The **8th Bn, 60th ADA, 2d Armd Div** has been redesignated the **2d Bn, 5th ADA** . . . Newly organized at Ft Hood is the **162d AHC** with **MAJ Thomas A. Knudzton** commanding . . . **MAJ Shannon Clark** is the new President of the Potomac River Jazz Club . . . **Venezuela** has purchased 142 French AMX30 tanks for $60 million dollars . . . **Co B, 50th Maint Bn, 50th Armd Div,** recently spent two weeks training at the Hohenfels Training Area in Germany . . . The **US Army Warrant Officer Association** has activated their national headquarters in Wash. D.C.; any warrant officer desiring information should contact **CW4 Don Hess, PO Box 3765, Wash. D.C.** . . The **Army Materiel Command** celebrated their 10th anniversary recently . . . **"Chief"** the much-traveled armored car mascot of the **3d ACR** was transferred to the Ft Lewis museum when the 3d Cavalry departed the post for Ft Bliss . . . Armor is well-represented on the recently established **Combat Arms Training Board** at Ft Benning. **Colonel John W. Seigle** is President of the Board; other Armor representatives are: **LTC John C. Bahnsen, LTC Bill T. Thompson; MAJ Lee Allen; MAJ R. William Highlander; MAJ Thomas M. Montgomery; MAJ Wade C. Smith** and **CPT Larry R. Jordan.**

from the bookshelf

PRESIDENT NIXON AND THE PRESS

by James Keogh. Funk & Wagnals. 212 pages. 1972. $6.95.

If it were possible for adult Americans to revert to their school days and the environment of required reading, the first book on the reading list should be "President Nixon and the Press."

This may seem a strong recommendation, and it is. Every adult American today is affected by the news media, whether he realizes it or not. Most are directly exposed to the media in some form. Although there are indications that many media readers, viewers and listeners are suspicious of bias and inaccuracies and have therefore created a media "credibility gap," there is no doubt that many Americans remain unaware of the need to seek out the objective media if they wish to be accurately informed. To be adequately educated as to the objectivity of the media, the public should know, in the vernacular, the true facts of some well-known news stories which have been accepted as fact by most of us in the past, even though the veracity of these stories is suspect, to say the least.

James Keogh, himself a respected journalist and former executive editor of TIME before he joined the White House staff as Special Assistant to President Nixon, has catalogued example upon example of bias, half-truths, whole untruths and just plain misinformation passed on to the unsuspecting public under the heading of news.

Heavily covered in recent news stories was the accusation made by Jack Anderson that Senator Eagleton had been arrested for drunken driving. When supporting documents failed to materialize, Mr. Anderson had the grace to apologize, though he refused at first to retract his statement. Past receivers of his blasts have not fared so well, according to Mr. Keogh.

Consider Anderson's campaign against Donald Rumsfeld. After accusing the head of OEO of cutting funds for the poor at the same time that he lavishly redecorated his Washington office, Anderson visited the OEO office to discover that none of his accusations were true. But, Keogh points out, Anderson did not apologize, nor did he run a retraction, nor did any of the major media bother to quote a Senator who protested Anderson's irresponsible reporting.

The book has special application to those many military men who believe—but cannot specifically prove—that the American news media did a less than adequate job reporting the Vietnam War. Such military readers will find their suspicions strongly reinforced by the mass of evidence provided by the author. For example, Mr. Keogh writes in explicit terms of the media's tendency to write and talk with a negative attitude; of the inflation of the so-called rebellion of youth as a good, righteous and needed occurrence; and of the feeling within the media that it is within its rights to inform the public, regardless of the consequences to the nation or to the individual—too often without checking the accuracy of the information.

Mr. Keogh urges that the media return to its basic job: the essential mission is to inform and to do so responsibly. "The effort," he concludes, "will be more than recompensed by the goal: keeping a free people genuinely informed." To this recommendation, I say, "Amen."

Major General Winant Sidle
Chief of Information

THE HOLOCAUST: FROM A SURVIVOR OF VERDUN

by William Hermanns. Harper and Row. 141 pages. 1972. $5.95.

Etched against the landscape of the most devastating (one million casualties) infantry campaign of World War I—the cauldron at Verdun—William Hermanns experienced the final physical disillusionment of warfare: capture. To other defenders of the Fatherland, capture was inimical to their Prussian military inheritance; to Hermanns, it offered instant relief from a war which he initially embraced but grew, through gradual introspective flashes, to hate.

From the idealistic youth who hungered for uniform and glory and imagined himself returning from the battlefront bedecked with medals to parade "before the eyes of my girlfriend," Hermanns found himself in battle, racked with the shattering despair of suffering the loss of his buddies, yearning to join them, "then it would be all over."

Hermanns' story is legend. Erase the names, throw a mist over the geography, and the sometimes bitter denouncement of men under fire becomes painfully clear and meaningful to those who have trod the uncomfortable path of the infantryman from Cannae to Cambodia.

Major John G. Fowler Jr.
Providence College

HITLER'S BATTLES FOR EUROPE

by John Strawson. Scribner & Sons. 246 pages. 1971. $7.95.

A military genius might be described as having an intuitive feel for projection of military power as to time, location and strength. A strategic genius must combine in proper perspective both the military aspects of power and those which are peculiarly political. John Strawson has carefully researched Hitler's ascendency, his motivations during the apex of his success, and the crumble of the Third Reich, to present in case and point, evidence of Hitler's genius as a strategist. Just as thoroughly, he presents the undeniable failures as a tactician. Mr. Strawson provides, in an enjoyable style, Hitler's successes, which were made possible only by beating down the will of his General Staff, and his critical errors which stemmed from this denial of his professional advisers. Just as usurping his staff led to his initial brilliant victories, it ultimately created the conditions for his destruction.

An interesting aspect of this book is the author's conviction that the opportunity for success for the European armies in World War II was measured by the degree the tradition-bound staffs were eliminated. In this light, Stalinist Russia emerged in the position of greatest advantage.

Should the reader tend to conclude that Hitler did possess periods of unsurpassed brilliance, then the statement he made to Bormann in April 1945, which was quoted on page 239 of the book, must reinforce this opinion. In this, Hitler

foresaw with remarkable clarity the struggle for power between the US and the USSR. Only his view of Germany's role in this competition is yet to be seen.

An enjoyable and educational book which would enhance a library.

Lieutenant Colonel Niven J. Baird
Army War College

GERMANY SINCE 1918

by David Childs. Harper & Row. 208 pages. 1971. $6.95.

A well-balanced look back at the social, cultural, economic and political movement of Germany through 50 years of tumultous history, from the collapsed World War I empire to the prostrate post-World War II Reich. Perceptive, lucid, swift moving history.

DAS

MASSACRE AT MALMEDY

by Charles Whiting. Stein and Day. 198 pages. 1971. $8.95.

Were it not for the My Lai butchery, the story of the Malmedy Massacre that gives this book its title might well be incredible. The author seeks to exculpate the real German soldier and blames "booty Germans"—the name given to German-speaking recruits from other European countries, including France—as responsible for the slaughter of 101 American POWs on 17 December 1944. These young "volunteers," trying to prove themselves equal to Hitler's elite 1st Panzer Regiment, found satisfaction in this and several more incidents during a week's campaign of terror and maniacal conduct.

The book is a day-by-day account of Colonel Jochen Peiper's westward dash towards the Meuse during the Battle of the Bulge. Only 8 pages out of 200 describe the Malmedy Massacre. Leading a regiment of 5,000 men assigned mostly to *Tiger, Panther* and *Royal Tiger* Armor units, Peiper comes within a hair breadth of success against overwhelming odds until, drained of energy, he allows sleep to overtake instinct and he loses his golden opportunity.

Though the book does not cover the entire Battle of the Bulge in detail, it is clear Colonel Peiper's deep penetration was the most successful operation of the battle. While the memory of Peiper's personality and exploits as a commander will undoubtedly wane, the scores of atrocities committed by his ruthless 1st Panzer Regiment will not be forgotten.

It is hard to understand the author's statement that the book "attempts to present no moral—save that we are all in one way or another—guilty." It is obvious who is guilty! An army permitted to use brutality and show no human inhibitions in seeking its objective has no place in the modern world. Therefore, we can only learn from these outrageous cruelties that there are individuals who can, by their brutality, shame the reputation of an army and nation.

LTC Church M. Matthews Jr.
Ordnance Branch-OPO

FAMOUS TANK BATTLES

by Colonel Robert J. Icks (AUS Retired). Doubleday. 365 pages. 1972. $9.95.

"In the early days of World War II in the United States, Armor received a great deal of publicity. It was spectacular and many people, both in and out of the military service, became conditioned to its success. Later, in certain theaters where areas for manuever were restricted or the commander reverted to the time-honored frontal assault and the use of firepower, the same people jumped to the conclusion that armor was obsolete, or at least thenceforth suitable for operations only in small groups or with infantry."

These words with their message to present day observers of the MBT program underline just one of the themes which run throughout Colonel Robert J. Icks' new book, *Famous Tank Battles*. From the birth of the armor concept in the desperate deadlock of trench warfare to American Armor's recent experiences in the counterinsurgency environment, several of these lessons emerge from Icks' detailed narrative. They include the proven consequences of employing tanks in driblets as infantry support weapons, the universality of the principles of war as analytical standards for the study of the tactical aspects of military history, and the understanding that men—their esprit, their teamwork, their employment—not merely their equipment, have provided the great victories.

The book is well researched and well written. The author brings an appreciation of armor as a dynamic concept—the innovative employment of all types of combat power with the tank and now the helicopter as key elements—to the narration of combat detail. His strongest point is his basic understanding of the philosophical basis of the armor idea.

There are some questionable points in the book. They range from some minor deviations from historical fact, such as the improper designation of the 2d Battalion, 34th Armor in Vietnam, to a discrepancy in the recapitulation of tank casualties in his chapter entitled, "A Summing Up." In explaining that there was a 14 per cent monthly attrition rate for armor vehicles on all fronts, he attributes the losses to, "Artillery knockouts, mines, bazookas and miscellaneous," in a chart format. Since the miscellaneous attrition accounts for .5 per cent of the losses, it is unclear what role tanks and aircraft played in the conflict.

All in all, however, the book is theoretically sound and interesting reading for a serious student of armor. It contains some fine insight into the fighting seen from both sides of two major wars and the many smaller conflicts in between. These include, for instance, the Chinese criticism of American Armor tactics in Korea, in Colonel Icks' own words, "the American tendency to organize all attacks on exactly the same predictable pattern." We can all profit from criticism like that.

Brigadier General George S. Patton
USAARMS

WHY DON'T WE LEARN FROM HISTORY?

by B.H. Liddell Hart. Hawthorn Books, Inc. 95 pages. 1971. $3.95.

This little book, first published in 1944 and revised by Liddell Hart shortly before his death in 1970, is a gem. Every student of history would profit from a serious study of its contents. It embodies the essentials of the historical philosophy of the dean of military historians of this century; a man, who in the words of his son, "had the moral courage to pursue and propagate truths which might be unpopular or detrimental to one's own or other people's immediate interests."

He states the object of history as "truth": "to find out what happened while trying to find out why it happened," and suggests that on the positive side, history can show the direction to travel but cannot give us the detailed condition of our route. On the negative side it can show us what to avoid by showing us the repeated mistakes of past generations. History offers, in the widest possible measure, the means to profit by the experience of others. He charges that the scientific study of war (military history) has received too little attention in the universities and too little aid from them or from government

quarters. As for the soldier, since he rarely "practices" his profession in fact, except for short periods of his life, he must perfect his skills in some other fashion and to this end the author states that since history is universal experience—the experience not of another but of many others under manifold conditions—it is of preponderant practical value in the training and mental development of a soldier.

He tells of the difficulties of writing history; the effect of trivial incidents on the course of history, the tendency of men and governments to conceal or evade truth, to alter or destroy documents. The reasons for these actions are frequently well intentioned but, nevertheless, tend to obscure truth and in the end defeat the intent.

He discusses at length "government and freedom", the "conspiracy of mutual inefficiency" to which democracies historically tend is much to be preferred to "the triumph of stupidity" which is the alternative offered by despotism. Both fail to learn from history and thus repeat the mistakes of earlier governments and lead their nations into war.

The causes of war and the hope for peace are discussed in 38 thought provoking pages. The causes of war lie in human nature; the desire for power, possessiveness, competitiveness, vanity, pugnacity and the dishonesty which breeds inaccuracy. Accuracy, in both personal and collective relations, he regards as the basic virtue. He cautions that nations should not make promises to other nations which raise false hopes and warns of the importance of keeping a promise once made. He warns against the shortsightedness of choosing the expedient course of action, and against the illusion of victory "for victory has always sown the seeds of a fresh war, because victory breeds among the vanquished a desire for vindication and vengeance, and because victory raises fresh rivals."

He regards reliance on any plan for peace as not only futile, but dangerous because it will inevitably break down because of human nature. He believes, however, that there are certain principles drawn from the sum of human experience which, in this atomic age, are the only hope for the survival of mankind. "Study war and learn from its history. Keep strong, if possible. In any case, keep cool. Have unlimited patience. Never corner an opponent and always assist him to save his face. Put yourself in his shoes—so as to see things through his eyes. Avoid self-righteousness like the devil—nothing is so self-blinding. Cure yourself of two commonly fatal delusions—the idea of victory and the idea that war cannot be limited."

He discusses at length the problem of limiting war and shows that the course of history demonstrates that war can be limited. He opposes conscription on the grounds that it contributes to unlimited war (which increases the incidence of military atrocities) and because it is a form of compulsion which he sees as alien to democratic institutions.

He concludes that if there is one lesson that should be clear from history it is that bad means deform the end. Second only to the futility of pursuing ends reckless of the means is that of attempting progress by compulsion (the futility of force). Without elaboration those two conclusions may seem a bit obscure. But that is the difficulty of reviewing this book. It is, in itself, the distilled product of a lifetime of study by an astute scholar and a fine gentleman, and every word deserves your consideration. I urge you read it.

Brigadier General Hal C. Pattison
USA-Retired

ROOTS OF WAR
by Richard J. Barnet. Atheneum. 350 pages. 1972. $10.00.

Has the national interest of the United States during the past 30 years demanded war? And the preparation for war through fear? Is the foreign policy that has taken the United States to wars in Europe, Korea, the Dominican Republic and Vietnam a genuine reflection of our national interest? Richard Barnet argues the affirmative in his provocative, stimulating and thoroughly disturbing study of American foreign policy: the "roots of a generation of war."

Barnet's thesis is that war is a social institution created, not by external influences, but internally, from its domestic political, social and economic institutions. America's permanent war, the author asserts, can be ended only by sweeping, radical restructuring of American society and American economy to eliminate "expansionist policies wrapped in the flag and promoted by fear."

Today's society, according to Barnet, who is a former member of the State Department and the US Arms Control and Disarmament Agency, is punctuated by public apathy, the use of mass-media communications to shape public opinion, an aggressive policy of economic expansion, and a bureaucratic elite who have seemingly played musical chairs for critical positions within the national security hierarchy. To support this last contention is the finding that between 1940 and 1967 the top-echelon of the national security establishments has been managed by less than 400 individuals.

His study is carefully structured into three sections: the decision-makers and the decision-making process; a detailed examination of foreign policy and the economy; and finally, Barnet caps his work with a searching look at the domestic aspects of foreign policy. While it is not a book about the Vietnam War, the American experience there shimmers throughout this study, like heat on a summer day. Like other current studies of American foreign policy, this book mirrors the malaise of an unpopular war and argues in favor of multi-faceted solutions, including a radical reduction of "military bureaucracies" and Congressional restoration of "the constitutional prerogatives it gave up so long ago in the area of foreign affairs."

Because of its controversial subject matter and the provocative approach taken by the author toward his material, this book demands its place on your "must read" list.

Major John G. Fowler Jr.
Providence College

ANATOMY OF AN UNDECLARED WAR: Congressmen and Other Authorities Respond to the Pentagon Papers
Edited by Patricia A. Krause. International Universities Press Inc. 271 pages. 1972. $8.95.

Twenty years ago this book would have brought on a new surge of McCarthyism; even five years ago it would have been branded Red. However, now that it is fashionable to give aid and comfort to the enemy through the medium of outraged attacks on United States involvement in Vietnam, it is apparently possible to publish such a book with impunity.

In July 1971, 17 members of Congress sponsored a conference in Washington, ostensibly to air certain implications of the Pentagon Papers on US domestic and foreign policy. They were joined by 19 other participants, non-members of Congress, and together this group spent several days impugning the motives, honesty, dedication and performance of public officials from the President to the Congress to the military.

Nothing new here—a rehash of all the

tired vitriolic attacks the left has made with regard to US decisions about Vietnam; without pretense of objectivity, and in a tone of outraged self-righteousness. Of 271 pages, 148 are devoted to statements by conferees, the remainder being taken up with biographical sketches of conferees, pictures of the proceedings, and an inarticulate foreward by Ernest Gruening. It is, without doubt, the most compressed edition of invective and irresponsible public allegation ever assembled—all for a modest $8.95.

DAS

THE WINDS OF WAR
by Herman Wouk. Little, Brown and Co. 885 pages. 1971. $10.00.

The Winds of War examines the onset and development of World War II up to the time of Pearl Harbor through the long glass of a fictional US Naval officer. The exploits and somewhat implausible adventures of Commander Henry and his family admit the reader to the highest councils on both sides of the conflict, affording insight to the grand strategy of global war. The German view of the war is cleverly introduced at each major juncture by means of excerpts from the "memoirs" of a General Staff member.

The book is Wouk at his best, an obvious product of painstaking research and superb authorship. The military reader will find this book to be an absorbing and instructive refresher of the forces unleashed during the early stages of the greatest war.

Commander Jack E. Geary
Environmental Services Division—JCS

ARMY WIFE IN GERMANY
By Mollie Oliver Mertel. Exposition. 80 pages. 1972. $3.95.

Every now and then an Army wife finds both the inspiration and the energy to put into writing her experiences as she accompanies her military man at home and abroad. *Army Wife in Germany* is the result of just such inspiration and energy.

Mollie Oliver Mertel has put together a delightful, easy to read book relating her adventures as an Army wife. Though by no means a typical Army wife, her enthusiasm for life and love for the Army make her story interesting reading. Unlike most Army wives, Mrs. Mertel was the bride of a senior officer whose first assignment with her was the Army War College. Her introduction to the Army way of life and post living held many surprises but she rises to the occasion.

Again, unlike most of her fellow Army wives, Mrs. Mertel was exceptionally well traveled before her marriage, having made the trip to Europe nearly 25 times. It was nothing new for her to go abroad; but how she went and how she lived when there was new and exciting.

Her lively account of travel, daily life on post and German-American social relations are fresh and fascinating. Hers is no guidebook for life in Germany but rather her own personal recollections of two well-spent years there.

Army wives who have been with their husbands on assignment in Germany will identify quickly and discover that Mrs. Mertel's descriptions of the country and people rekindle their own memories. Army wives who are anticipating a tour in Germany will have a preview of life there as seen by one who reaches out around her to absorb the customs and culture of the country. Those Army wives who have neither been nor expect to go will find this short book an entertaining travelogue, for Mrs. Mertel concludes by highlighting cities of Europe which she especially enjoyed.

Perhaps the real merit of Mrs. Mertel's *Army Wife in Germany* lies in the fact that she, as a new Army wife, so enjoyed her life that she put it in writing to share with the rest of us.

Mrs. Marion F. Leach

SPIRO AGNEW'S AMERICA: The Vice President and the Politics of Suburbia
by Theo Lippman Jr. W.W. Norton. 256 pages. 1972. $7.95.
WHAT MAKES SPIRO RUN: The Life and Times of Spiro Agnew
by Joseph Albright. Dodd, Mead and Co. 295 pages. 1972. $6.95.
WHITE KNIGHT: The Rise of Spiro Agnew
by Jules Witcover. Random House. 465 pages. 1972. $10.00.

No public figure can expect a fair shake from three columnists; and so it is with the Vice President in these three books, each by a columnist—Lippman of the Baltimore Sun, Witcover of the Washington Bureau of the Los Angeles Times, and Albright the "veteran Washington reporter." In scope the Albright and Lippman books, while different in thesis, cover more of the Agnew story from boyhood, parents and school, through political manhood, while Witcover deals almost exclusively with the political Agnew, both in Maryland and as Vice President.

Lippman's thesis is that Spiro Agnew is a product of suburbia, reflecting attitudes resulting from the suburban population shift in the United States. However, Lippman's main purpose seems to be to show, wherever possible, Agnew's very modest political life in the early years; he describes the rise from Baltimore County Executive to governor to Vice President with a tone of wonderment, presumably that after such mediocre beginnings the Agnew star could have risen so rapidly and to such heights.

Albright's scope is about the same without the suburbia thesis. However, he is much more concerned with highlighting the mediocrity of the Agnew career, through his term as governor of Maryland and into the Vice Presidency. Much space is devoted to discrediting public statements of Mr. Agnew, and to casting aspersions on Agnew's motives in dealing with problems ranging from race to county zoning.

Witcover really starts his book with Agnew's political career in Maryland, and of the three is the only one who dwells at length on Agnew's role in the 1968 election, his relationship with Richard Nixon, and his performance as Vice President. The Witcoverage of Mr. Agnew's stewardship as Vice President seems dedicated to showing virtually every act as a miscue of some sort.

Finally, Witcover turns to a philosophical discourse on the Vice Presidency; the innocuous nature of the office itself; its complete dependence on what the President wants the incumbent to be and do; on frustrations of previous Vice Presidents; on the fact that the framers of the Constitution gave little thought to the Vice Presidency.

If you are looking for an objective account of who Spiro Agnew is, what he stands for, and what his performance as Vice President means to the United States and contemporary politics, don't waste your time on Messrs. Albright, Lippman and Witcover.

DAS

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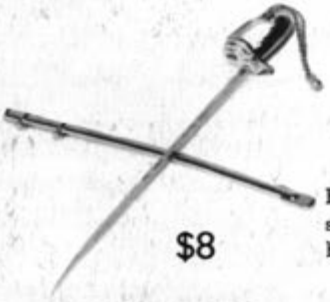

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