

# AIR DEFENSE

JULY - SEPTEMBER 1977

MAGAZINE



ROKAADCOM

38TH ADA BDE



MANGIL SAN

○ UIJONGBU  
○ SEOUL  
○ SHI-HUNG-NI  
○ OSAN

○ ANJUNG-NI  
○ KWANGCHEON

○ DAECHON BEACH  
○ KUNSAN

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PARTNERS IN DEFENSE  
PAGE 6

# AIR DEFENSE

MAGAZINE

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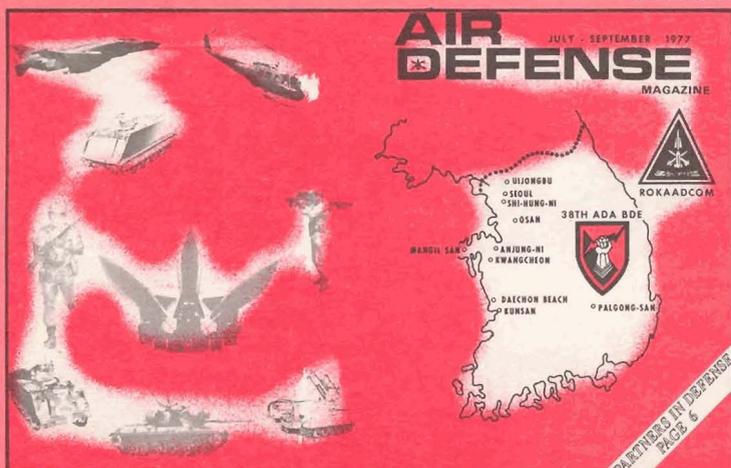
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*COVER: Our front cover symbolizes the joint mission of the 38th Air Defense Artillery Brigade and the Republic of Korea Army Air Defense Command in providing defense against air attack on South Korea. The back cover is symbolic of U.S. air defense weapons in support of ground troops against air attack in the forward battle area.*

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# AIR DEFENSE

## MAJOR GENERAL ROBERT J. LUNN

Recent reorganization activities, together with new developments in both weapons and training, make this an appropriate time to give you a brief update on the US Army Air Defense Center.

The Air Defense Center today is primarily a training installation functioning under the Training and Doctrine Command. Taking a broad view, it has the following five major missions:

- Developing combat doctrine and training material for our air defense forces.
- Conducting basic combat training, advanced individual training, and specialized training in air defense.
- Preparing the members of squads, crews, platoons, batteries, and battalions to work together as integral parts of a unit.
- Maintaining selected Active Army units at a high state of readiness for rapid deployment anywhere in the world.
- And finally, supporting annual service practice on the McGregor Range Complex.

The first three of these five major missions are assigned to the Air Defense School and the last two are assigned to the Air Defense Center.

The combat developments function, performed by the Directorate of Combat Developments, entails formulation of concepts, doctrine, organizations, force structure, and requirements for air defense systems. We stay abreast of any breakthrough in technology and continually search for means of improving currently fielded systems. The enemy air threat is constantly analyzed to determine changes required in our weapons and organizations.

The training developments function, performed by the Directorate of Training Developments, involves establishing the program for individual and unit training within the ADA Branch worldwide. It also involves de-

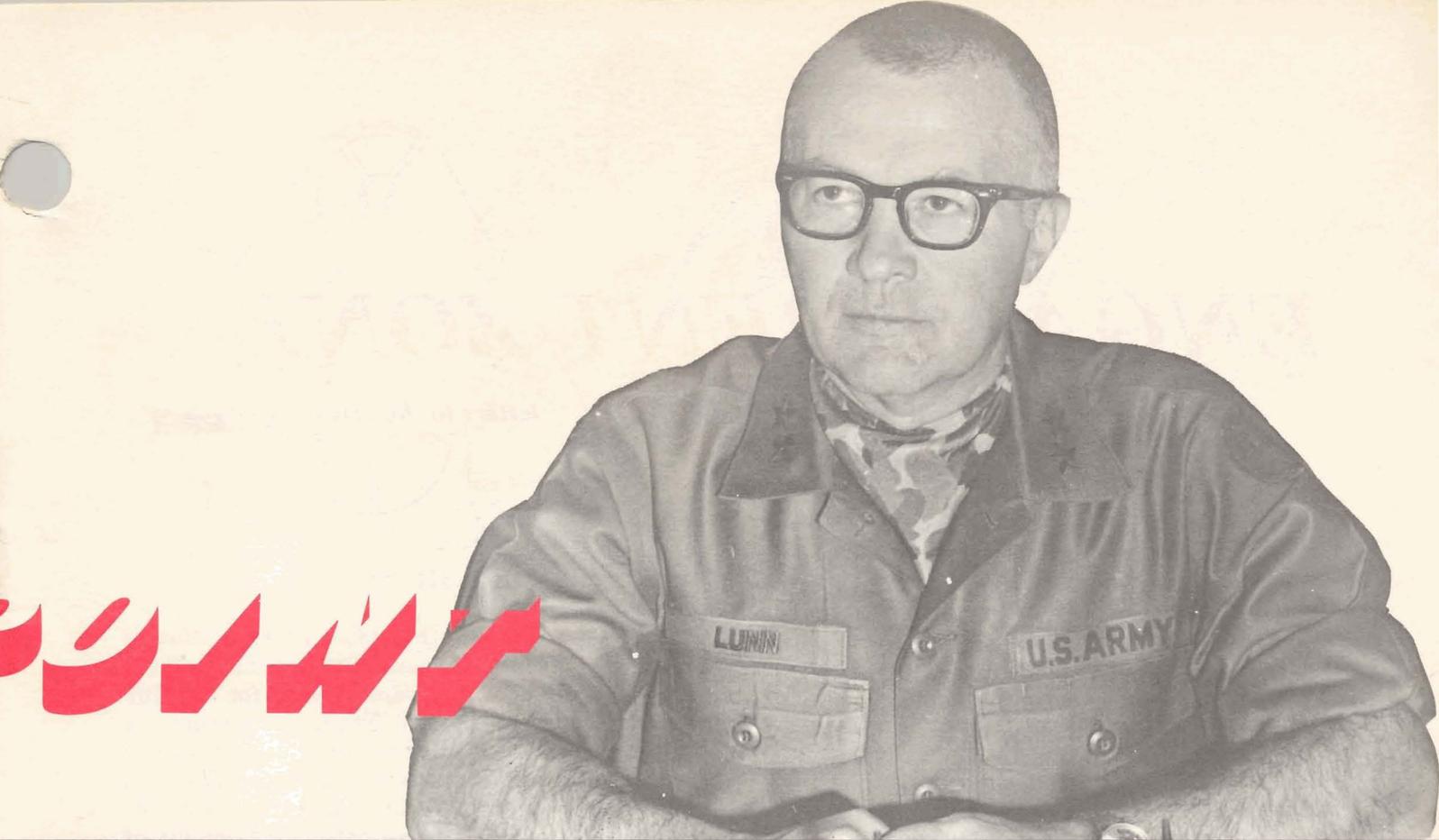
veloping and publishing training literature to include doctrinal and procedural manuals, training circulars, Army training and evaluation programs, commander's manuals, soldier's manuals, and skill qualification tests, as well as supervision of Army-wide extension training.

The Directorate of Training (DOT) conducts and administers all aspects of institutional training. This entails instruction in a wide range of subject areas. Instruction is accomplished within four academic departments and the Noncommissioned Officers Academy, which conducts the Basic and Primary NCO Course Combat Arms. DOT's academic departments provide instruction in tactics, the Hercules weapon system, Improved Hawk, Chaparral, Vulcan, and forward area alerting radar, as well as instruction in electronics, computers, operations research and systems analysis, and electronics maintenance of the various ADA command and control systems.

Effective 6 July 1977, the Basic Combat Training Brigade, which consisted of the reception station, a committee group, and two battalions with five batteries each, was combined with the 1st Air Defense Artillery Training Brigade into one command designated the 1st Air Defense Artillery Training Brigade. The Brigade provides basic combat training for Active Army, National Guard, and Reserve enlistees. The new soldiers then continue their training in the 1st Air Defense Artillery Training Brigade with advanced individual training in a specific air defense field.

The School Brigade has the mission of conducting collective or package training for US and non-US forces. It also provides support for the faculty and students of the School and furnishes Hercules, Hawk, and Chaparral/Vulcan units to support School training in these weapon systems.

Representatives from the Air Force and Marine Corps, and Allied Nations including Canada, France, Germany,



Japan, Jordan, Republic of China, Republic of Korea, Kuwait, The Netherlands, and the United Kingdom work hand in hand with School Staff and Faculty members to insure that our efforts satisfy the joint service and joint nation needs. Most of the Allied Nations represented have students in attendance at the School continuously. In addition, there are significant numbers of students from other friendly foreign nations.

Two of the major commands at Fort Bliss, the 11th Air Defense Artillery Group and the 3rd Armored Cavalry Regiment, are Forces Command units. These organizations maintain selected units at a high state of readiness, and the 11th Group conducts collective air defense training for those units under its command. The Group has a contingency mission to deploy two Hawk battalions and one Chaparral/Vulcan battalion anywhere in the world on short notice. The 3d Armored Cavalry is designated a reinforcement organization for Allied combat units and it continually trains in preparation for that mission.

The Air Defense Board conducts operational and force development testing and experimentation on air defense weapons and related material.

Range Command, headquartered at McGregor Range Camp, is responsible for four range facilities and eight maneuver areas, where approximately 25,000 soldiers from Allied countries, the Regular Army, National Guard, and Reserves participate annually in field training and weapons firing.

The US Army Sergeants Major Academy, located at Fort Bliss, specializes in formal military education. It fully prepares senior NCOs for all the duties higher ranking enlisted leaders may be called upon to perform, including those of the Command Sergeant Major.

The German Air Force Training Command, which includes the school for German air defense personnel, is still in full operation at Fort Bliss. German air defense

personnel receive training as commanders, operators, and maintenance men for the Hawk and Nike Hercules systems. It is advantageous to both the United States and West Germany, as NATO Allies, to have German troops train at Fort Bliss on American weapons that are deployed with the West German armed forces.

Three new air defense weapon systems that you've been hearing about—Patriot, Roland, and Stinger—are in the advanced stage of development and the Air Defense Center is involved in all aspects of plans for training personnel and fielding these weapons. This is also true for the AN/TSQ-73 (Missile Minder), which we expect to be fielded in the near future. We are working on studies and evaluations to bring a DIVAD gun under development.

The US Army Air Defense Center is the air defense man's "alma mater," so to speak. We here at Fort Bliss do our utmost to provide the finest and most effective training for our personnel, but we realize that the current course of instruction or training plan is never the final answer. We must maintain a free flow of information to and from the field as one means of keeping current. Air defense personnel should continue to tap the vast resources and expertise available at Fort Bliss. As always, the Command, Staff, and Faculty elements of the Air Defense Center stand ready to serve the Air Defense community.



# ENGAGEMENT ZONE

## BATTLE HONORS

Dear Sir:

Enclosed is an article I wrote recently showing that an Air Defense Artillery unit is entitled to a Navy campaign streamer. I know of no other Army unit that is entitled to a Navy streamer; only the other various unit awards. A copy of the article is enclosed for your consideration as a possible article in AIR DEFENSE Magazine.

Since the writing of the article, the US Army Vice Chief of Staff has read the item and, as a result, the formal approval of the award of the Navy streamer to the Army unit has been established. A copy of some of the correspondence pertaining to this action is enclosed. I assume that the 3d Bn, 4th ADA, will be given the streamer at a ceremony in the near future. It might be interesting to have a photograph of the streamer being awarded and a note concerning the approval, should you elect to print the article.

WILLIAM K. EMERSON  
Major, ARMOR

*We are pleased to publish the very informative article Major Emerson has written. It is entitled, "The US Army in the Barbary Wars," and begins on page 36 of this issue.*

— Ed.

## KUDOS

Dear Sir:

We find your magazine to be a valuable asset in identifying military weaponry and equipment. The articles are interesting and quite informative. Information derived from your magazine adds a professional touch to our aircrew training program.

Your cooperation in keeping us supplied with the magazine will be appreciated. Keep up the good work.

WILLIAM D. SMITH  
SSGT, A1 ANG  
NCOIC Intelligence  
177th TAC Recon Wing  
Alabama Air National Guard



## IH PIPS

Dear Sir:

As you are aware, the Hawk Project Office is managing the development of several major Product Improvement Programs (PIPs) for the Improved Hawk (IH) system. The enclosure contains the current status and a brief description of four of our near-term PIPs. It is recommended that this information be included in your AIR DEFENSE Magazine to apprise the air defense community of this important aspect of the IH program.

WILLIAM C. WALL, JR.  
Chief, Prog Mgt Ofc  
HAWK Project Office

*The information to which Mr. Wall refers appears in the "Scanning" section of this issue on page 46, under the title, "Hawk Product Improvements."*

— Ed.

## THE ADA S2 IN PERSPECTIVE

Dear Sir:

In September 1977, I will leave the 2d Bn (CV) (SP), 67th ADA, after 3 years as the S2. During this rather long tenure, I have received solid support and guidance from two battalion commanders and executive officers and have increased my professional skills by developing current intelligence reports and threat estimates. However, I have come to the conclusion that air defense units generally underestimate the potential of their S2 sections. By continuously emphasizing and checking only the security side of the shop, commanders usually transform their S2 personnel into security specialists who have little knowledge of, and less capability to obtain, current intelligence.

Before I go any further, let me say that the security requirements of air defense units are real and must be the primary mission of the S2; however, I do feel that Nike and Hawk commanders and S3s need to know more about the hostile threat than what their IFF radars can tell them.

C/V personnel have to be as educated in threat tactics and capabilities as they are in visual aircraft recognition.

After the first few days of a European conflict, air defense commanders would be required to ask their S2s for information regarding the enemy's strengths, weaknesses, and probable courses of action to develop additional air defense plans. At the present time, S2s would not be able to provide that information. For example, I went on REFORGER '74 after being in the battalion for only 3 weeks, not even knowing the difference between a Chaparral and a Vulcan. During his command visit to our battalion operations center, I briefed MG Fitzpatrick, CG, 32d AADCOT, on the Orange Force's order of battle, its past actions, capabilities, and probable courses of action. After I finished, he questioned me on the current air threat. I was crushed. Luckily, the battalion commander came to my rescue and truthfully said that the air threat was constant throughout the problem. I shortly discovered that, as far as the Division G2 was concerned, air order of battle and air threat capabilities were an Air Force responsibility. Standard procedures for obtaining this information at division, much less battalion, level did not even exist. As far as I know, this situation still prevails.

There are several actions that air defense commanders and their executive officers can take to insure that S2s are capable of performing their missions in wartime:

- With the number of Military Intelligence (MI) officers receiving ADA S2 jobs, commanders must insure that their S2s become thoroughly familiar with AD tactical operations. It's not only infantry and armor officers who have to be reminded that the modern battlefield has three dimensions. When MI officers come to air defense units, they are not aware of the unique intelligence requirements of their units; therefore, commanders have to be aware of what their essential elements of information (EEI) and other intelligence requirements (OIR) are.

- The S2 must be required to provide current intelligence to his unit. In Europe, a great deal of current intelligence material is disseminated by both USAREUR and USAFE. Distribution for this material is from the Department of Defense down to battalion level; a great deal of extracting, comparing, and rewriting is required before it can be distributed to unit personnel. Otherwise, commander and staff will be overwhelmed by a mass of classified material, most of which is not really pertinent to them.

- The S2 must be required to develop an intelli-

gence estimate to support his unit's operational missions. Such an estimate, tailored to the unit's mission and area of operations, will be of value to S3 and battery personnel in their operations planning. In addition, the process of obtaining and organizing the material necessary for completing the report will provide the S2 with a great deal of background information that will be useful for other products.

- The S2 must be provided the equipment and personnel needed to operate 24 hours a day in the field. During major exercises, he should be required to maintain not only ground order of battle, but also—as much as possible—air order of battle. When preparing his terrain analysis, the S2 should be required to analyze the low-altitude avenues of approach.

Although the requirement to maintain a 360° defense has to be honored, well-plotted, low-altitude avenues of approach will still help the battery commanders organize their defenses. During the exercise, the S2 must be ready to explain his unit's EEI and OIR to the various supporting MI units and help them analyze the air battle information they collect. At this point in time, air defense S2s must do constant missionary work to obtain the intelligence they need.

Of course, the main thing commanders have to realize is that they are as responsible for the professional development of their S2 officers as they are their platoon leaders, battery commanders, and other staff officers. Unfortunately, the lack of intelligence products in the past has left present air defense commanders with a lack of knowledge concerning the quality of work that can be done by a battalion S2 and the value such work has to the readiness and combat proficiency of their units. Although security should remain the primary duty of an air defense S2 during peacetime, it should be remembered that during a war the S2 will be first an intelligence officer. To develop the necessary professional skills and knowledge for him to accomplish this task, an S2 must devote a substantial amount of time to intelligence functions during peacetime. If the commander's only interest in his S2 section is its security function, the S2 will naturally devote the majority of his section's efforts to that area. If, on the other hand, the commander demands professional intelligence efforts as well as the necessary security expertise from his S2 personnel, everyone concerned will be pleasantly surprised at the results.

WILLIAM D. GIBSON III  
CPT, MI  
2d Bn, 67th ADA



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*In the April-June issue of AIR DEFENSE Magazine, The Director of Enlisted Personnel, MILPERCEN, was indicated as BG Charles K. Heinden, which was in error. The correct spelling is BG Charles K. Heiden.*

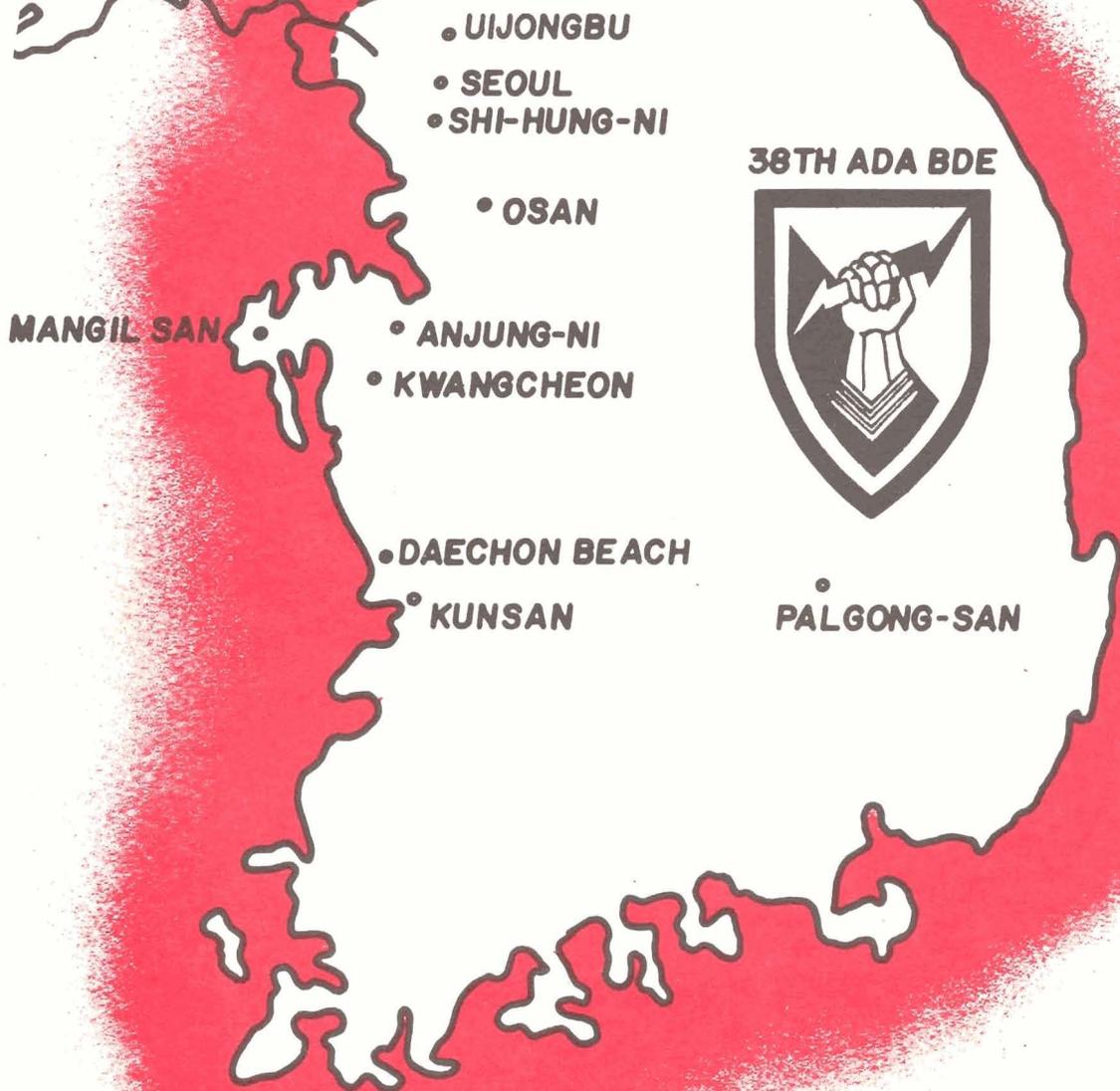
—Editor

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# ARTNERS IN



**ROKAADCOM**



- UIJONGBU
- SEOUL
- SHI-HUNG-NI

• OSAN

**MANGIL SAN**

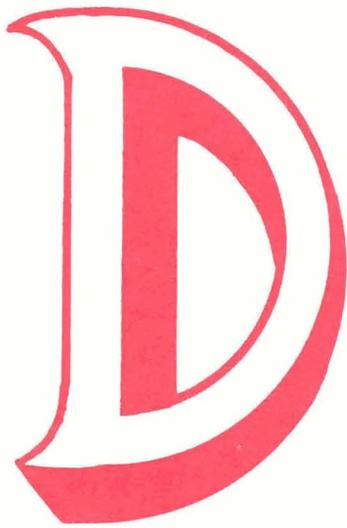
- ANJUNG-NI
- KWANGCHEON

**38TH ADA BDE**



- DAECHON BEACH
- KUNSAN

• PALGONG-SAN



# DEFENSE

## 38TH AIR DEFENSE ARTILLERY BRIGADE

### REPUBLIC OF KOREA ARMY AIR DEFENSE COMMAND

**Captain Pete Roming**

“Two peas in a pod”—that’s a concise summary of the relationship that exists between the US Army 38th Air Defense Artillery Brigade and the Republic of Korea Army Air Defense Command (ROKAADCOM).

Like the individual peas in a pod, each is a separate entity, nurtured by its own chain of command, customs, and language. Yet, by virtue of the fact that they both live in the same “pod,” they are one. They intermingle, work together in harmony, united by a common mission—the air defense artillery coverage of the Republic of Korea. They are different, yet the same. The story of one cannot be told without the other.

#### **MISSION AND ORGANIZATION**

The 38th ADA Brigade is a major subordinate element of the Eighth US Army, while ROKAADCOM is a major subordinate element of the Republic of Korea Army (ROKA).

Command of the US Army air defense units in Korea falls upon the Brigade’s current Commander, Brigadier General Walter J. Mehl. His counterpart, Major General Shin Hak Jin, has commanded ROKA air defense units in Korea since December 14, 1972. Both men act as the staff advisor on air defense matters to their respective superiors. In the American chain of command, that’s the Commanding General, Eighth US Army. The Chief of Staff, ROKA, is next in line in the ROKAADCOM channels.

Headquarters, 38th ADA Brigade is collocated with Headquarters, ROKAADCOM at Osan Air Base, 43 miles south of Seoul. Also headquartered at Osan is the US Air Force 314th Air Division and the Republic of Korea Air Force Combat Air Command. Close coordination between these air-to-air and surface-to-air commands is maintained. In fact, Major General Robert Taylor, the current 314th commander, exercises operational control over the Brigade and ROKAADCOM.

Assigned to the Brigade are three Improved Hawk (IH) battalions. Some Brigade units are deployed north of Seoul towards the Demilitarized Zone (DMZ). Battery

D, 2d Battalion, 71st Air Defense Artillery, at its towering elevation, is the highest US Hawk tactical site in the world. The 1st Battalion, 2d Air Defense Artillery, with four firing batteries, was the first unit in Korea to convert to Improved Hawk. The 1st Battalion, 44th Air Defense Artillery has the distinction, or the challenge—depending on whether you view the fact as a statistician or the commander—of being the most widely dispersed US Hawk unit in the world. All four firing batteries are spread out, with 125 road miles between Alpha and Bravo sites. Bravo is the southernmost unit within the brigade.

ROKAADCOM has two air defense artillery brigades. The 1st Brigade is assigned two Basic Hawk battalions, a Nike Hercules battalion, and a weapons battery. The 2d Brigade has a Basic Hawk battalion, a weapons battalion, and a newly transferred Nike Hercules battalion, which until June of 1977 was a US, 6 battery Nike Hercules battalion.

Both commands are brought together by communications networks and a Combined Tactical Operations Center. Strengthened by their mutually supporting fires and complementary capabilities, the 38th ADA Bde and ROKAADCOM combine to provide a tough protective umbrella over the potential battlefield.

#### **JOINT ANNUAL SERVICE PRACTICE**

To insure the availability of that protective umbrella when needed, 38th ADA Bde and ROKAADCOM units participate in an annual service practice (ASP).

ASP in Korea is conducted from March to June of each year at the Special Eighth Army (SEA) Range on the Coast of the Yellow Sea. Units of both commands travel to SEA Range to test their combat readiness and proficiency. The actual firing of a live missile is the culmination of a week of tactical exercises designed to determine a battery’s ability to successfully engage a target.

In Korea, ASP is a joint happening—ROKA units fire alongside the US units, usually within minutes of each other. The joint aspect of the ASP is reflected in the for-

mal invitations, which are sent to both military and civilian dignitaries, inviting them to attend a "shoot." The invitations are engraved in both English and Hangul (pronounced "Hun-ghoul"), the written Korean language. Invitations are extended jointly by both commanding generals.

The practical experience gained by both ROKA and US units at the Special Eighth Army Range is an invaluable asset in maintaining the high state of readiness so vital to the defense of the Republic.

## IMPROVED HAWK TRAINING

As with all military units throughout the world, readiness is the name of the game. By January 1977, the 38th ADA Bde was fully converted to, and operational with, Improved Hawk. Looking ahead to some future date when ROKAADCOM might receive its own IH or be required to be familiar with IH due to operational necessity, the Republic and the Brigade took steps to maintain ROKA's readiness.

The Korean government sent a cadre of approximately 40 warrant officers, experienced in Basic Hawk, to Fort Bliss, Texas, where they received training in IH maintenance. Upon their return to the "Land of the Morning Calm," the ROKA warrants were temporarily assigned to Brigade units, which enabled them to gain practical experience. The proficiency of these men was evidenced by the fact that several US battery commanders asked for, and received, permission to use the Koreans during ASP.

Realizing the importance of mutual readiness, the Brigade also conducted an on-site familiarization (OSF) program for ROKA operators and crewmen. Two Brigade units, Btry B, 2d Bn, 71st ADA and Btry D, 1st Bn, 2d ADA, were selected to conduct the program. During OSF the ROKAADCOM missilemen learned the difference between such procedures as Basic and IH daily and weekly checks, engagements, crew drills, and preventive maintenance. The OSF program also gave credence to the workability of a joint reconstitution concept which anticipates the possibility of an emergency, rapid deployment of equipment between sites, without regard to site nationality.

## KATUSA PROGRAM

A unique aspect of cross-cultural living encountered by members of the Brigade is the KATUSA (Korean Augmentation to the US Army) program. Begun as a grim necessity during the early days of the Korean conflict, the program has survived to this day as a vital system of mutual benefit to both US and Korean forces.

Brigade KATUSAs are ROKA enlisted men paid by the Republic. However, they wear the 38th ADA Brigade patch. They are assigned and integrated into Brigade units in the same manner as US replacements. They live in the same barracks, eat the same food, and perform their duties and training alongside American soldiers. In short, KATUSAs are a real part of the Brigade.

Today, more than 200 KATUSAs are scattered throughout the Brigade in positions requiring almost

every MOS. During the height of a 1975-1977 training program for Korean forces, more than 900 KATUSAs were incorporated into the 38th ADA Brigade units.

Because the KATUSA's tour is normally 34 months instead of 12, he provides continuity to a job that his US counterpart cannot. Another valuable service performed by the KATUSA is that of interpreter, for he is required to have a working knowledge of the English language. On the other hand, the US soldier who has served with a KATUSA has gained a first-hand knowledge of Korea and its people.

The system furthers mutual understanding and reinforces the already strong ties between the 38th ADA Brigade and ROKAADCOM. It strengthens the operating capability of the Brigade units and provides ROKA with well-trained specialists and skilled technicians.

## NIKE HERCULES TRANSFER

The fruits of previous cooperative efforts blended together in early July of this year when the only US Nike Hercules battalion in Korea was transferred from the 38th ADA Brigade to ROKAADCOM.

Implementing a US Congressional Resolution and Korean Minister of National Defense Agreement, Lieutenant Colonel George O. Evans turned over command of the 2d Battalion, 44th Air Defense Artillery to Lieutenant Colonel Hur Young Wook on July 1, 1977.

The 2d Battalion, 44th Air Defense Artillery, with its headquarters at Camp Humphrey, Pyongtaek, was the largest Nike Hercules battalion in the world. Six firing batteries and more than 1,250 assigned personnel were spread out over 190 miles in a north-south direction and 150 miles in an east-west direction.

The training of ROKA personnel, which began in January, 1975, was the pacing factor in the turnover program. To provide the unit with qualified mechanics in the "hardskill" MOS, a core of 55 ROKA personnel was sent to Fort Bliss, Texas, and Redstone Arsenal, Alabama, where they learned the "ins-and-outs" of the Hercules system. An additional 106 maintenance personnel were trained at the Nike Hercules Training Center in Taegu, Korea.

"Softskill" MOS were provided to ROKA personnel when 734 KATUSAs were infused into the six firing batteries.

Prior to the transfer, each battery underwent a two-phase ASP designed to evaluate and verify the training of the KATUSA operators and crewmen. Phase I consisted of on-site nonfiring tactical evaluations, and took 6 weeks to complete. Phase II was the firing portion, which began on March 3, 1977 and ran for 2 weeks. All batteries successfully completed ASP and were complimented on their success by General John W. Vessey, Jr., Commander, United Nations Command/US Forces Korea/Eighth US Army.

Each new ROKAADCOM battery was activated on site 30 days prior to each transfer as a cotenant with the American unit. During this period, the ROKA unit organized, trained, and conducted the required joint inventories of property and equipment.



A joint 38th ADA Brigade/ROKAADCOM operational readiness evaluation team insured that each new battery was in a proper state of readiness prior to that battery assuming alert status.

American air defense artillerymen who had time remaining on their 12-month tours were either assigned elsewhere in Korea or had their tours curtailed, depending on MOS and time left in-country.

The 2d Battalion, 44th Air Defense Artillery is no more. Upon final transfer, ROKAADCOM redesignated

the unit and assigned it to the 2d Brigade. Today, it is one of two Nike Hercules battalions within the Republic, both under the command of ROKAADCOM.

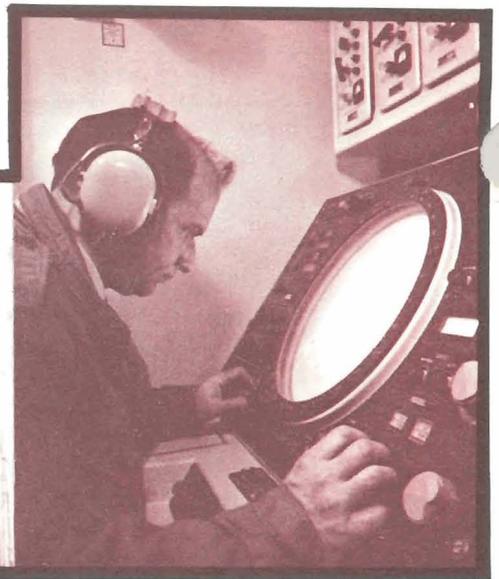
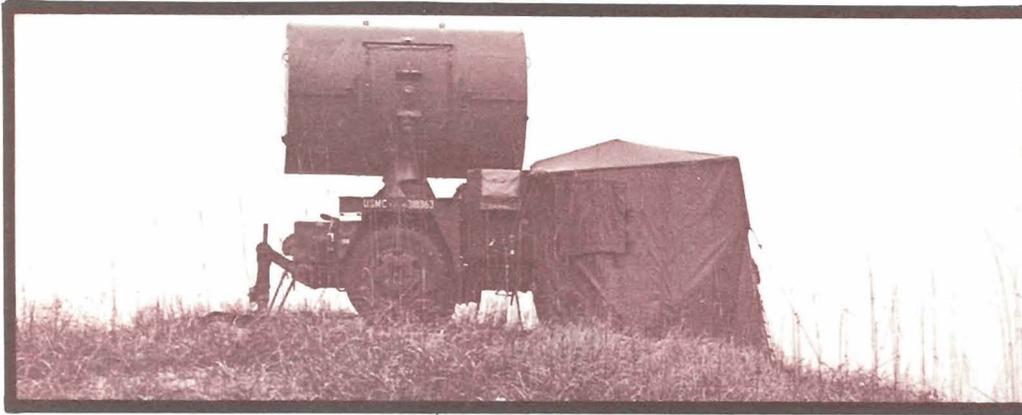
The friendships and spirit of cooperation formed, not only during the transfer of the 2d Battalion, 44th Air Defense Artillery, but during day-to-day operations, truly continue to make the 38th ADA Brigade and ROKAADCOM "two peas in a pod"—partners in defense.



*Captain Roming has experience at battery and battalion level in Basic and Self-Propelled Hawk units at Fort Bliss and in Germany. He also served with the 9th Infantry Division in Vietnam and later as an R&D coordinator for the PATRIOT missile system. He is a graduate of the Defense Information School and is currently working in his alternate specialty as the Public Affairs Officer, 38th Air Defense Artillery Brigade.*



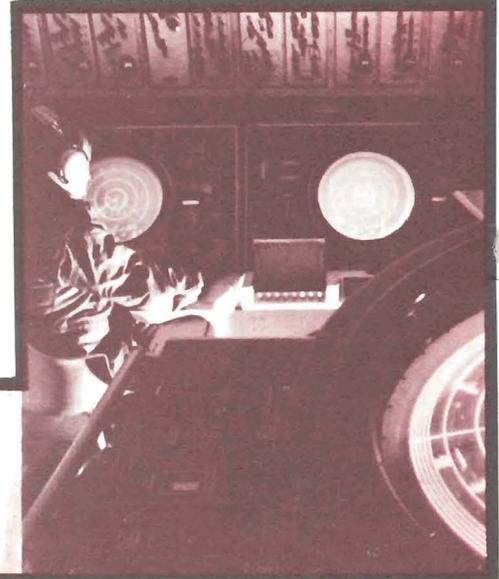
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# UTILIZATION



# OF



# HAWK

## FIRST LIEUTENANT RAY S. APPLEBAUM

*The views expressed in this article by the author do not necessarily represent the views of the US Army Air Defense School or the Department of the Army.*

In these times of tight defense budgets, a major factor in choosing between competing weapon designs is cost effectiveness—the ability to perform the mission at the least cost. When dealing with weapon systems in general, and air defense systems in particular, this is an extremely sensitive area, analogous to cutting a piece of string. If the decision, once made, is found lacking (i.e., the string is too short), the entire effort is wasted. Since,

in the next war, this nation probably will not have the luxury of time to learn from its mistakes, we must insure that our weapons are both fully capable and fully utilized so as to meet current and projected threats.

Even more wasteful than an overly sophisticated weapon system is a system that, through lack of a component, is incapable of being used to the maximum extent possible. No one would think of sending a six-gun field artillery battery into battle with only four firing lanyards, yet this is precisely the situation that Improved Hawk (IHAWK) units are in today.

To illustrate the point, let us first discuss what this author calls a conventional battery from a four-battery battalion and then extend the discussion to include a

triad battery. Considering only missile-peculiar equipment and personnel (i.e., ignoring vehicles, radios, etc.), these two battery types contain (and are capable of) the following:

**TABLE 1. IHAWK BATTERY (PRESENT)**

Rectangular	Personnel/Equipment	Triad
4	Officers	8
3	Warrant Officers	3
122	Enlisted Men	165
1	IBCC	1
(1)*	IPCP	(2)
1	ICC	1
1	IPAR	1
(1)	ICWAR	3 (2)
2 (1)	IHIPIR	3 (2)
1	IROR	1
2 (1)	ILSCB	3 (2)
6 (3)	ILCHR	9 (6)
7 (3)	Generators	10 (6)
2 (1)	Loader-Transporters	3 (2)
2	Simultaneous Engagements	3

\*Items in parenthesis are assigned to the IAFUs when remotely located.

With the improved assault fire units (IAFUs) remotely located, the battery base of the conventional battery experiences severely limited LOMAD and the capability for simultaneous engagements of both battery bases is cut in half (due to the single improved high power illuminator radar (IHIPIR) remaining). Considering the primary mission of IHawk and its limited availability, this situation is intolerable; but it is also unnecessary.

As a pulse radar, the improved pulse acquisition radar (IPAR) has reduced effectiveness at lower altitudes, even with computer enhancement. It is also more easily jammed, and it acts as a magnet for antiradiation missiles (ARMs). If the radar is shut down to avoid the ARMs, then acquisition is lost unless the IHIPIR is put into search mode, an extremely wasteful practice. Command and control in the improved battery control central (IBCC) is designed for two fire sections; the savings in manpower and equipment are not proportioned to the loss of effectiveness if one section is removed. Equipment capability will thus be under-utilized with only one fire section operating. And, finally, the chances of reprogramming the information coordination control (ICC) computer to handle the section as an IAFU (with threat ordering) are remote. Computer processing and enhancement of IPAR signals take a large portion of the computer's capability, and probably will not leave enough memory to make reprogramming worthwhile. To correct these faults, the addition of the following tactical equipment, with the personnel necessary for manning one shift, is proposed:

**TABLE 2. PROPOSED ADDITIONAL EQUIPMENT/ PERSONNEL (CONVENTIONAL)**

Conventional	Personnel/Equipment	Triad
1	ICWAR	0
1	IHIPIR	1
1	ILSCB	1
1	ILCHR	1
1	Generator	1
1	Loader-Transporter	1
2	16 E Fire Control Crewmen	1
1	52 B Generator Operator	1
1	24 C Fire Control Mechanic	1
1	16 D Lchr Section Chief	1
1	16 D Lchr Crewman	1

The addition of the ICWAR to the conventional battery base will return the battery to full capability for the low-to-medium acquisition mission; and for both battery types the addition of the IHIPIR will fully restore the design engagement capability of the IBCC and ICC (i.e., two simultaneous engagements). The single three launcher section can be broken down, with the additional launcher and improved launcher section control box (ILSCB), into two 2-launcher sections. With the present configurations, the conventional and triad batteries are capable of only two and three simultaneous engagements, respectively, utilizing all equipment. Considering the entire battalion (conventional and triad), the number of simultaneous engagements is increased by one-third and one-quarter, respectively, for a much smaller increase in resources. Table 3 is a revised Table 1, showing the breakdown of increased capability and inputs.

**TABLE 3. IHAWK BATTERY (PROPOSED)**

Conventional	Personnel/Equipment	Triad
4	Officers	8
3	Warrant Officers	3
140*	Enlisted Men	202*
1	IBCC	1
1	IPCP	2
1	ICC	1
1	IPAR	1
2*	ICWAR	3
1	IROR	1
3*	IHIPIR	4*
3*	ILSCB	4*
7*	ILCHR	10*
8*	Generators	11*
3*	Loader-Transporters	4*
3*	Simultaneous Engagements	4*

\*Indicates increase over present configuration.

Comparing conventional and triad batteries on a battalion level, it can be seen that the equivalent firepower of two additional conventional batteries can be obtained for one-quarter of the personnel and one-half the equipment of two independent batteries.

The situation with a triad battalion is much the same.

Several questions and potential problems may seem to arise from these new organizations, but they can be handled satisfactorily. For instance, with the conventional battery, if the IAFU is not remotely located, then a lot of equipment will be idled. With present day systems, in this instance, the IPCP will be idle. There is no reason why the IAFU cannot operate within the defensive perimeter of the battery base and continue to operate under locally assigned sectors of responsibility. If the purpose of IHawk is to maintain LOMAD coverage over as large an area as possible, then this new concept is better able to perform the mission than is the present organization. Although each fire section in the battery base has only two launchers, IHawk's effectiveness is measured by how many independent targets it can simultaneously engage, not how many missiles it can launch at any one target. Air defense units will have very high priority in the opening stages of any future conflict, and it is safe to assume that Warsaw Pact nations will throw large formations of attack aircraft at each located site to maximize destruction of the site and minimize their own losses. Site (i.e., unit) survival for air defense must be considered of primary importance. A unit which suffers damage in defending its off-site vital area has accomplished very little. The enemy can destroy the now defenseless vital area practically at his leisure. The proposed organization for both conventional and triad batteries will allow for improved defense of both vital areas and maneuver forces, especially in multibattery defenses. For example, in a battalion defense, a four-battery battalion can position the four battery bases (eight firing sections) in a tight defensive position to provide mutual support and still have four IAFUs that can be positioned along avenues of approach to facilitate early engagement/defense in depth. For the triad battalion, the inner circle will consist of six firing sections, with six IAFUs for early engagement/defense in depth. Use of this example is not meant to advocate the use of only one battery type, although that may seem to be implied. Each type has its advantages.

The four-battery battalion appears to be best suited for defense of a general area, not requiring movement to stay with a maneuver element. The triad unit, especially as augmented here, appears ideal for use in the role of IHawk in direct support of the division. A battery dedicated to a maneuver brigade can locate the battery base with the brigade headquarters and have its two IAFUs provide coverage for the engaged battalions. With two firing sections in the battery base, it will be possible for both IAFUs to move with a base section dedicated to cover each IAFU.

This analysis is, of necessity, brief and does not take into account several factors. The first is that additional support personnel may be required due to the increase in manning crews and equipment. More vehicles and auxiliary equipment will be needed to support the larger units. No spare generators were used in the new organization, where they might be desired or required. And lastly, no investigation was made into the increased personnel and materiel requirements of the headquarters batteries to support the larger line batteries. Despite these factors, the concept discussed here is attractive because it does not present any additional control problems. The additional firing section in the battery is controlled from the IBCC, and much of the support is already present for the one firing section there. With the many demands placed on IHawk for coverage, this method extends that coverage even more with a minimum of additional resources.

*Editor's Note: A draft TOE has been submitted to HQ TRADOC that proposes changes to the conventional (rectangular) battery similar to those suggested in this article. The change would enhance the capability of the second fire unit through addition of an ICWAR, loader-transporter, and generators. Also, augmentation is provided on an as-authorized basis to field a third fire unit. This is not as complete a solution as the author suggests, but it is a step forward within manpower and equipment constraints.*



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# D O P M A



The Defense Officer Personnel Management Act (DOPMA) emanated from the Defense Officer Personnel Management System (not to be confused with the Army's Officer Personnel Management System, OPMS). OPMS impacts on your professional development and assignments in the Army, while DOPMA impacts on your component (Regular Army, Reserve, etc.), your promotion status, your tenure, and your retirement eligibility. You will feel the greatest impact from DOPMA if you are in the grades of 2d lieutenant through colonel. DOPMA's provisions have only slight impact on general officers and warrant officers.

The Act is intended to improve manpower management and establish greater consistency in this area among the Army, Navy, Air Force, and Marine Corps. The goals of the legislation are (1) to allow all Services to meet requirements for officers in the various grades and at such ages as will ensure effective performance,

and (2) to provide career opportunities that will attract and retain the number of high-caliber officers needed and still be reasonably consistent among the Services.

"All well and good," you say, "but we already have a system. Why change?" The existing Officer Personnel Act, which provides our basic laws, has served well since it was enacted in 1947. However, the framers of that act designed its permanent provisions to operate in an environment of lower stable force levels that were expected after World War II. These conditions never materialized. Further, the 1947 act did not have "achievement of comparable career opportunities among the Services" as one of its objectives. DOPMA more closely aligns the Services in numerous aspects of personnel management and more appropriately structures the Services to accomplish their respective missions. The proposed DOPMA legislation was voted for enactment by the House of Representatives during the 94th

session of Congress. The Act will be introduced to the 95th Congress.

### REVISED GRADE TABLE

The proposed single grade table replaces both the grade tables of the Officer Personnel Act of 1947 and the Officer Grade Limitation Act of 1954. The new table is designed to assure promotion flow and career progression. Generally, the table reduced colonel authorizations and increased authorizations for majors. Lieutenant colonel authorizations remain about the same. The reduction of authorizations at the senior level is in compliance with Congressional guidance.

### SINGLE PROMOTION SYSTEM

The proposed single promotion system under DOPMA eliminates the separate management of a permanent and a temporary grade structure. In other words, you will be promoted once to each grade; no more concern over an Army of the United States (AUS) temporary promotion and a Regular Army (RA) permanent promotion to each grade.

For the purpose of promotion, and for other personnel considerations, all officers, RA and other than RA, will be entered on a single seniority listing the day they come on active duty. For officers currently on active duty, transition to the single listing will occur within 6 months after enactment of DOPMA. To understand the seniority listing better, picture the Army Register with the regular officers in Volume I and the nonregular officers in Volume II integrated into a single list with all officers renumbered in order of seniority.

When should you expect promotions under the single promotion list system? Phase points, or the "time of commissioned service" criteria, are not being established in the proposed legislation; however, expected criteria were forwarded to Congress for their review in considering the proposed DOPMA legislation. The expected criteria are shown below:

To Grade	Years Commissioned Service
Colonel	21-23
Lieutenant Colonel	15-17
Major	9-11
Captain	4-5
1st Lieutenant	2

While you might have expected promotion to the grades more rapidly during our involvement in Vietnam, the promotion points cited above are more nearly commensurate with the timing of promotions today and prior to the Vietnam conflict.

Below-the-zone selections for promotion will be no more than 15 percent of the total selections from the primary zone in each competitive category (examples of competitive categories are Chaplains, Nurse Corps, Army Promotion List—the same as our current pro-

motion lists). Under the current legislation, there is no "below-the-zone" percentage fixed in law. In the past, percentages have varied from 5 to as high as 20. The proposed legislation fixes an upper limit of 15 percent—there is no lower limit.

Promotion eligibility is to be regulated by the Service Secretary based upon a minimum "time-in-grade" established by law. The minimums are 1 year from first lieutenant to captain, 3 years from captain to major, 3 years from major to lieutenant colonel, and 3 years from lieutenant colonel to colonel. There is no minimum "time-in-grade" in today's law.

As before, the membership or selection boards will consist only of officers equal or senior in grade to the grade to which candidates for promotion are being selected. Date of rank and pay and allowances will be as of the first day of the month. The change from current policy affects only date of rank, which is effective during the preceding month.

### ALL REGULAR FORCE

The law provides for an all-Regular force of officers with over 11 years active Federal commissioned service except those on active duty for training, involved in training and administration of Reserve programs, or involuntarily recalled to active duty for not more than 24 consecutive months.

Although most officers will be under the provisions of the single promotion system throughout their term of service, new Army accessions will enter on active duty as Regular Army, Reserve, and other categories. Officers who are other than Regular Army may apply for and be integrated into the Regular Army during their first 11 years of service. DOPMA provides, however, that officers must be integrated into the Regular Army by the completion of their 11th year if they are to continue on active duty.

### TENURE UNDER DOPMA

Changes to the mandatory retirement points are shown below:

Grade Holding	Proposed Mandatory Retirement (Years- of-Service		Current Provision
Colonel	30		30
Lieutenant Colonel	26		28
Major	20		21

Current tenure provisions were established based on a promotion forecast that foresaw promotions much later in an officer's career than has been experienced to date or is forecast under DOPMA. The revised tenure more closely aligns with the forecast under DOPMA.

Transition from current tenure features to the revised

tenure provides that officers in the permanent grades of major, lieutenant colonel, and colonel, before enactment of DOPMA, will be governed by the current provisions. As an example, if you hold a Regular commission as a lieutenant colonel prior to enactment of DOPMA, your mandatory retirement date as a lieutenant colonel will remain at 28 years instead of the DOPMA proposed 26 years. Officers selected or promoted to lieutenant colonel after the enactment of DOPMA will acquire the tenure of a lieutenant colonel provided by the new law (26 years).

Regular Army officers serving in a temporary grade on the date of enactment will acquire the tenure of that grade, be entered on the active duty list at that grade, and will be subject to the continuation provisions of that grade. As an example, if you have a Regular promotion to major, but a temporary (AUS) promotion to lieutenant colonel at the time DOPMA becomes law, effective at the passage of DOPMA, you are integrated on the active duty list as a Regular Army lieutenant colonel with tenure of 26 years as a lieutenant colonel.

The proposed tenure under DOPMA is subject to selective continuation provisions. Continuation boards may consider for continuation on active duty all majors and lieutenant colonels twice not favorably considered for promotion to the next higher grade and similarly all colonels with 4 years in grade. At least 70 percent of colonels and lieutenant colonels who are considered for continuation must be continued to mandatory retirement, and those officers selected for continuation will be subject to continuation board review every 5 years. There is no mandatory minimum for continuation of majors who have twice failed selection for promotion. However, except in the event of a forced reduction of officers, it is unlikely that the Secretaries would release a large number of these majors. A provision of the Retirement Modernization Act, which is not directly related to DOPMA, would provide discontinued officers a return on their invested years in the form of separation pay and option to draw a deferred retirement annuity at age 60.

### CONSTRUCTIVE CREDIT

The proposed DOPMA legislation includes constructive service credit provisions for specialist officers (physicians, lawyers, etc.). The constructive credit impacts on entry grade, entry position on the active duty list, seniority in grade, and time in grade for promotion eligibility purposes. The award of constructive service credit is an administrative determination of the longevity accruing to an officer based on a period in which no creditable service was actually performed. As an example, officers who require education beyond the baccalaureate degree as a requirement for appointment to commissioned status will receive constructive service credit for attendance in the higher education institutions. A general rule for applying constructive credit is to establish the officer's seniority to that which it would have been had the officer entered directly on active duty

after receiving the baccalaureate degree. The proposed provisions under DOPMA are similar to current provisions for constructive credit; however, the proposals more clearly define the provisions for all Services and more closely align the provisions for all specialist officer skills.

### EQUITY FOR WOMEN

Several statutes of Title 10, United States Code, are repealed to provide greater equity for women. For example, the DOPMA proposed legislation repeals Section 3311, Title 10, which restricts Regular Army appointment to the Women's Army Corps (WAC) for women managed by the Officer Personnel Management Directorate (OPMD). Separate WAC promotion lists are to be discontinued and women will be considered with all officers on the Army promotion lists and other lists. Action has already been initiated by the Army to achieve this objective.

### TRANSITION TO TAKE 2 YEARS

Upon enactment of DOPMA, it is planned to spread the transition to the new provisions over an approximate 2-year period. Many of the transitional features have been addressed earlier in this article. Included in the transitional phase are the revisions to the single seniority list, revision to the new tenure provisions, and revision to the single promotion system. Special features are also accorded Reserve officers on active duty.

Upon enactment, Reservists with 16 or more years of active Federal service toward retirement eligibility will have the option to retire if eligible, continue to mandatory retirement, or seek integration into the Regular Force.

Other Reserve officers having greater than 11 but not more than 16 years active Federal commissioned service will be automatically considered for integration into the Regular Force during the transitional phase. Those officers who might not be qualified for integration into the Regular Army may have disqualifications waived by the Service Secretary depending on the needs of the Service. It is likely that most officers who have remained on active duty beyond 10 years of active Federal commissioned service, and who meet the active duty standards at the time of DOPMA's enactment, will be integrated into the Regular Force if they desire to remain on active duty.

### WHEN DOPMA?

Congress still must review DOPMA's provisions, and the date of passage is difficult to forecast. Interest groups, pro and con, are expressing their sentiments to Congress and to the media. Regardless of the actual date of passage, the foregoing are facts that should help you to evaluate the comments of the interest groups and give you an insight into your military future under DOPMA.





# AS A MATTER OF COURSE- -

SA-8 TACTICAL OPERATIONS AND PHILOSOPHY

## LIEUTENANT COLONEL THOMAS E. BEARDEN (USA RET.)

**W**ith the appearance of the Soviet SA-8, air defense analysts are confronted with a novel amphibious SAM system having no counterparts in the West. To understand the tactical requirements for the SA-8 system, and to formulate its tactical doctrine, it is essential that its function be viewed within the overall integrated Soviet combat doctrine.

### SOVIET OPERATIONAL CONCEPTS

The major features of Soviet operational and tactical philosophy, which involve SA-8 (Figure 1) operations, appear to be as follows:

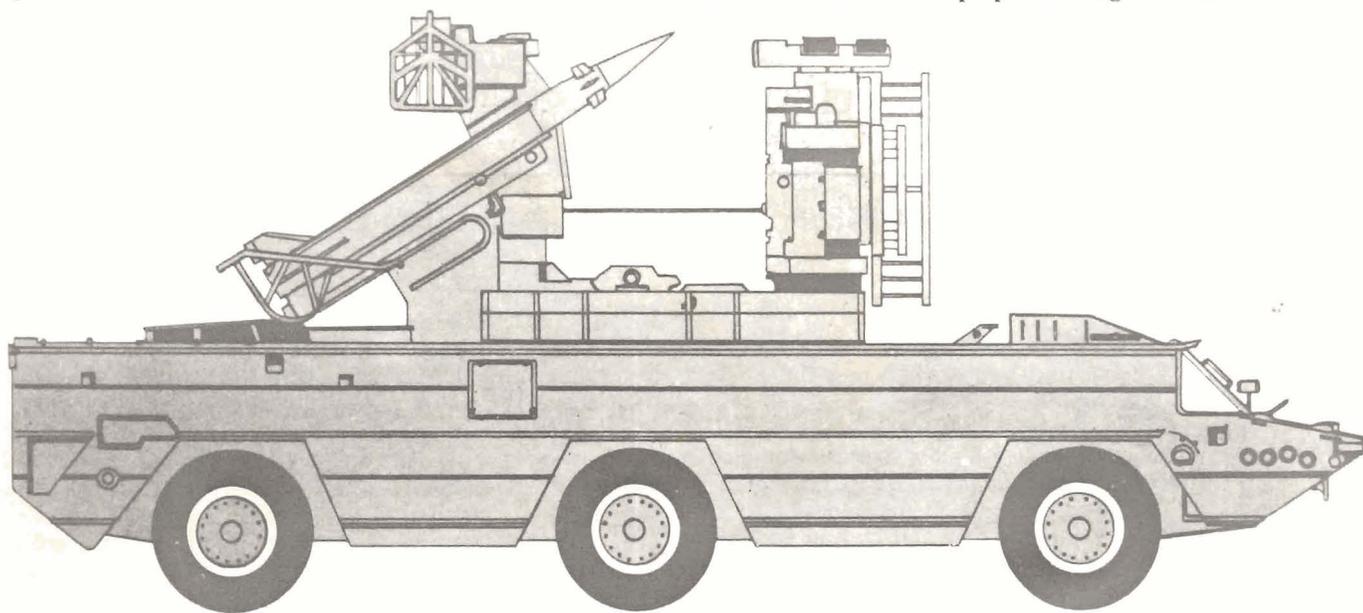
*Massive attacks.* Massive, coordinated air and ground attacks will be launched by the Soviets against the opposing forces on the front. Surprise or near surprise will be obtained if possible. The planned rate of advance of Soviet ground forces on the offensive is 80 to 100 kilometers per day. This necessitates three to seven hasty river or stream crossings per day, two or three of which are expected to involve major river crossings under strong defensive fires.

Figure 2 shows what might be a typical frontal situation in a European environment. Rivers with their associated defense lines provide the major barriers against Soviet ground offensive actions in NATO Western Europe. The number of major stream crossings to be incurred by the Red offense can be appreciated at a glance. The large number of river crossings requires that Soviet forces be capable of quickly crossing streams and assaulting under fire as a matter of course in normal operations.

*Sustained exploitation.* To attain the doctrinal rate of advance, a shattering initial breakthrough followed immediately by sustained, massive exploitation is required. If this initial tactic is successful, the war then becomes one of continued Soviet attacks and exploitation until the total collapse and defeat of the enemy. Technically, the Soviet philosophy is to place the opposing field force in a continuous rout from the very beginning and maintain it. For such a blitzkrieg action, assault and exploitation are of decisive importance. For that reason, overwhelming Soviet forces are required, both in the air and on the ground. In the Soviet view, the first 72 hours (the initial period) of the war decides its outcome, and their forces are structured for maximum effort during this period.

*Two fronts.* The presence of two fronts on the same continental land mass with the Soviet heartland provides an impelling need for quick and complete Soviet wins on both fronts. If the war is at all protracted or if the Soviet advance is delayed on either front, the enemy will have time to regroup and bring additional forces to bear. Severe loss on one front will ultimately prove catastrophic to the other front. In the Soviet view, a modern enemy possessing weapons of mass destruction must not be allowed any recovery time, or else an initial Soviet victory could conceivably be turned into a subsequent defeat, or at best unacceptable destruction to Soviet forces could be incurred.

*War to the hilt at any time.* Soviet doctrine requires that her forces must be prepared to fight all-out nuclear,



**SA-8 MISSILE SYSTEM.** NATO code name GECKO. The SA-8 SHORAD air defense missile operates by command guidance and is effective at altitudes of from about 150 to 20,000 feet. It is fully self-contained with acquisition, tracking, and two missile guidance radars mounted on a six-wheeled, amphibious vehicle which is about 29'6" long. Four missiles, each about 10' long, are carried in an integrated mount. The system contains an electro-optical tracker, probably television. With a slant range of approximately 10-15 kilometers, the highly mobile SA-8 can provide close support to armored and mechanized forces.

**FIGURE 1.**

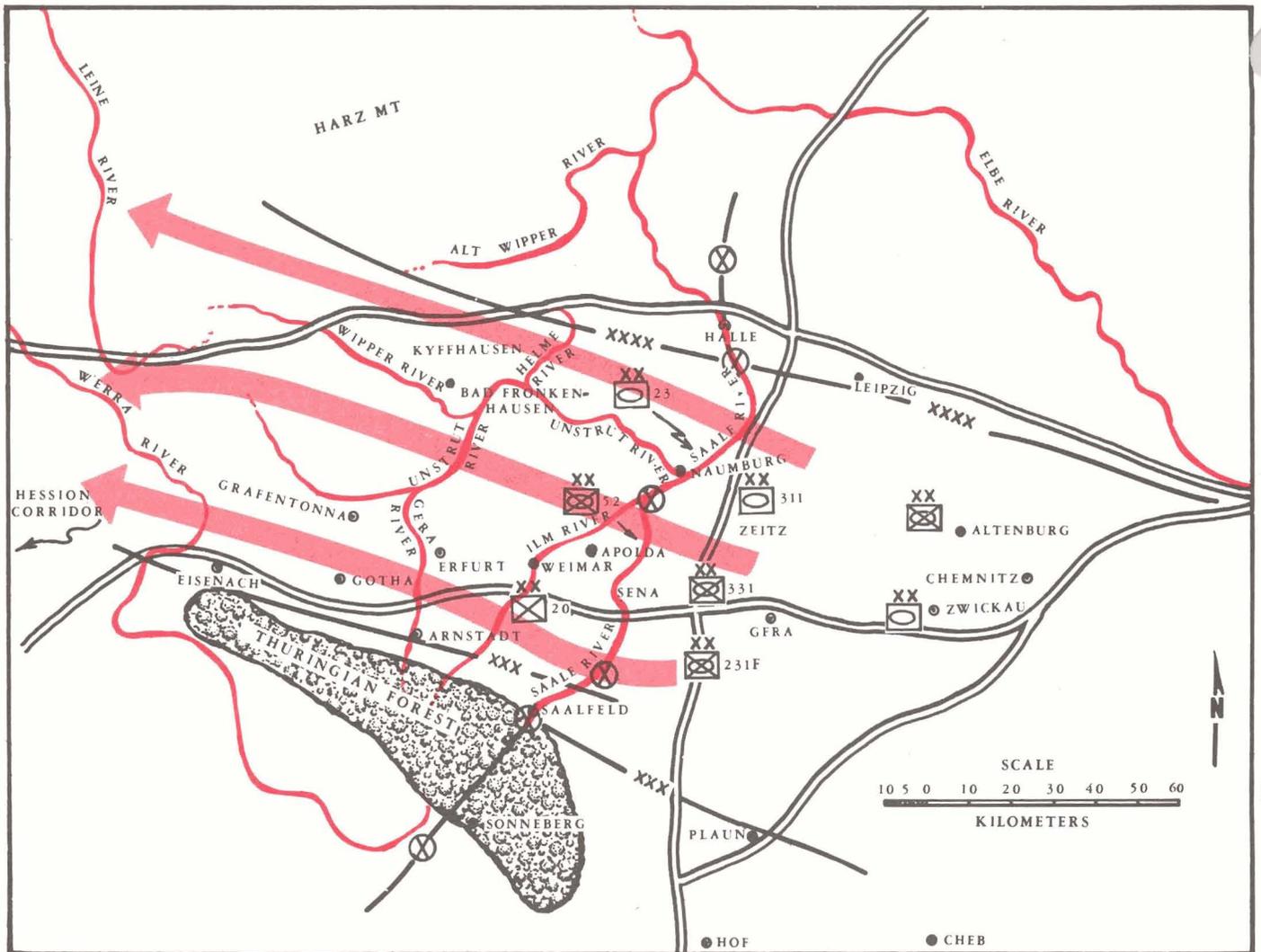


FIGURE 2. RIVER BARRIERS IN A TYPICAL SOVIET FRONT OPERATION.

biological, and chemical warfare at any time. Although the initial period may be non-nuclear, it is assumed by Soviet tacticians that nuclear war may inevitably follow, as soon as the opponent perceives that he is losing heavily and being beaten. This expectation of nuclear war dictates highly mobile forces, necessitates strong nuclear, biological, and chemical (NBC) training of troops, and favors tank-heavy and mechanized forces for mass, momentum, speed, survivability, and endurance in an NBC environment. All these requirements have been met by Soviet troops, equipment, and training.

*Dense firepower.* The Soviets equate firepower to the principle of concentration. For years, Soviet field artillery has outranged its Western counterpart, and dense employment of artillery is a standard Soviet practice. If the war goes nuclear, substantial nuclear firepower is required to win it. For over a decade, the Soviets have maintained about 500 IRBMs capable of inflicting devastation throughout Western Europe, an uncomfortable fact usually ignored by Western analysts in analyzing the so-called "limited tactical nuclear war." Recently, the Soviets have begun deploying the modern SS-20

with MIRV warheads targeted against NATO. A clear intention to win the nuclear war in Europe, whether or not a strategic exchange between the US and the USSR occurs, is evident.

*Defense used as offense.* In furthering the goal of quick obliteration of all effective enemy resistance, the Soviets have elevated defense to a separate concept, equally as important as offense. Historically, they have repeatedly witnessed successful mass attacks peter out against strong defenses and, in fact, they have turned the tide of most of their own wars with this tactic (e.g., against Napoleon, and against the Germans in WW II). The Soviets, therefore, deploy regiments and even divisions of forces and, in the Soviet Union, air defense forces are equal to the Army, Navy, and Air Force. Aircraft, SAMs, and guns are integrated into a "single service" air defense. The air defense of a Soviet front is centrally organized and controlled, and it also contains aircraft, SAMs, and guns in an integrated single command. In addition to the separately organized air defense forces, organic air defense units and weapons are assigned to Soviet divisions in the front.

Soviet defenses are intended to be so strong that the enemy's offense or counterattack is contained and quickly destroyed or seriously depleted. Defensive forces are regarded by the Soviets in the same light as the US regards offensive forces; i.e., as primary destroyers of enemy forces and capabilities.

*Totally integrated war.* There is no sharp separation between field (operational) warfare and strategic warfare in Soviet doctrine comparable to the sharp separation of theater war and strategic war in US doctrinal thinking. Since the time of Genghis Khan, any great enemy breakthrough against the Soviet field forces (the front) has led to an immediate strategic invasion of the Soviet heartland by the enemy forces. This held true for Napoleon and also for the Germans in WW II. The Soviet requirement for defense of the front is thus elevated to strategic importance to the Soviet Union.

By contrast, the US land defense of the heartland has not been required in modern wars. Hence, US land combat doctrine stresses offense and relegates defense to a somewhat subordinate role. US land combat doctrine is shaped by the heretofore natural heartland fortress (great barriers on East and West, no strong enemy on North or South) and by the strategic security of the heartland provided by a strong Navy and Air Force. In WW I, WW II, the Korean War, and the Vietnam War, even if US forces had lost the land war in the field, there would have been no overland threat to the heartland. Therefore, in modern US land combat doctrine, there exists a sharp separation between field warfare and strategic warfare and, in its own view, the United States is not nearly so desperately compelled to win the field war on the ground as is the Soviet Union.

*Accent on "fightability."* There exists no exact US counterpart to the concept intended, although occasionally the phrase "tactical suitability" is applied. In Soviet historical experience, the rear has been much less secure than it has been in US experience. This results in Soviet doctrine allowing for an insecure rear being under repeated attack, providing for less support of the forward elements, constituting a greater percentage of forces as combat elements, and accenting such things as direct exchange replacement cannibalization, field expedients, endurance, simplicity, ruggedness, etc. Soviet armored forces are estimated to present a much lighter logistics burden than do US armored forces. The Soviet logistics problem in the European theater is also materially eased by the Soviet Union being on the same continental land mass as potential adversaries, while the United States must exert a much greater support effort due to the distance of the European theater from continental United States (CONUS) bases.

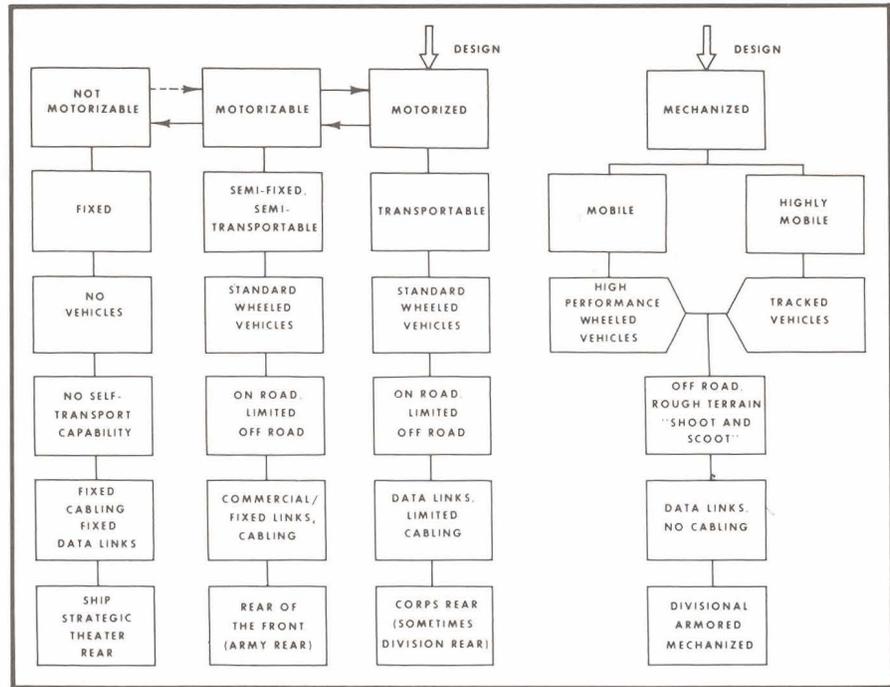


FIGURE 3. SOVIET GROUND MOBILITY CATEGORIES.

## PHILOSOPHY OF SOVIET DEFENSE

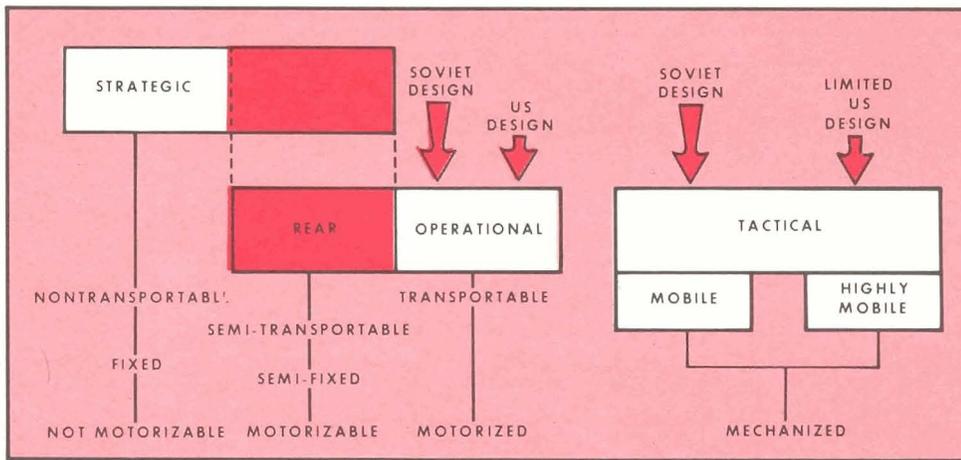
The Soviets accent massive defense. For example, there are over 10,000 SAM sites in the USSR. In the 1973 Mideast War, Egypt alone deployed more major Soviet SAM systems than are in the entire US Army active inventory.

The Soviets also accent defense overlap. Air defense planners think in artillery terms—heavy, medium, and light artillery, and organic and other field pieces. In SAMs this translates to heavy SAM (HIMAD/LORAD), medium SAM, light SAM (SHORAD), etc. To translate into artillery terms, overlap includes both mutual support and the combined arms concept.

Very high emphasis is placed on mobility. The Soviet concept of ground mobility for air defense systems is shown in Figures 3 and 4. Two separate air defense families are required; a highly mobile family (tracks or specialized wheels) for the fluid forward area and a wheel-mobile family (ordinary wheeled vehicles) behind the divisions in contact. As shown in Figure 5, the mobility of Soviet SAM systems has been specifically designed to support a two-family air defense in the field.

The high-mobility air defense family is mounted on tracked vehicles or specialized wheeled vehicles adapted for off-road movement. The family consists of SA-4, SA-6, SA-8, SA-9, ZSU-23-4, ZSU-57-2, and the SA-7. This mechanized family goes forward with the armored and mechanized offensive forces, and it can keep pace with the tanks and furnish complete air defense. It has a mandatory requirement to be able to cross rivers as a matter of course and without delay.

The wheel-mobile family contains heavy and medium SAMs, mounted on ordinary wheeled vehicles, and light SAMs. These systems move mostly over roads but may



**FIGURE 4. SOVIET CONCEPT OF GROUND MOBILITY vs OPERATIONAL AREA.**

travel short distances off the road in terrain that is not too rough. However, even in the rear, the light SAMs must be highly mobile (tracked or specialized wheels) because they still must be able to reach hilltops and cross steeper slopes for proper siting because of their short range.

After an area is secured, the armored/mechanized forces move on forward, accompanied by the forward echelon of the high-mobility air defense family. The wheel-mobile SAM/gun family moves up and relieves the rear echelon of the high-mobility family in place. The rear echelon of the mechanized air defense weapons then continues forward with the offensive forces. Because of the high doctrinal rate of advance, even wheel-mobile systems must move frequently, and they must be readily emplaced and march ordered.

*River crossing as a matter of course.* In the framework of Soviet tactical doctrine, the role of the SA-8 can now be seen explicitly. A typical operational area to be expected in European operations is shown in Figure 2. As can be seen, in 1 day the attacking Soviet divisions will have several (three to seven) river crossings to make in an 80-kilometer advance. A reasonable tactical scheme for rapid river crossing may be essentially as follows:

The secured side of the river will contain strong firepower deployed by the Soviets. For air defense, ZSU-23-4s, ZSU-57-2s, SA-7s, and the SA-9 (which is also an amphibian and functions similarly to the SA-8) can be deployed in the treelines at the river's edge. A few SA-6s can be deployed in cover at the river's edge or on dominant terrain overlooking it. The SA-4s will furnish medium- and high-level coverage over the river action area from farther back (about 15 kilometers). The SA-8s will be in cover from 1 to 2 kilometers from the crossing site, as will be contingents of motorized barges.

Heavy suppression fires, tactical air strikes, and artillery preparations will be delivered across the river and sustained during crossing operations. Leading tanks—swimmers (amphibians) and bottom crawlers (normal tanks equipped with snorkels)—will plunge into the water and cross first behind the covering fires. Armored personnel carriers will follow. The tanks will emerge on the opposite side behind heavy protective fires and engage the enemy. Defending enemy (Blue) tactical aircraft attempting to attack the assault tanks will be heavily engaged by the Red air defense forces. Red interceptors will operate well beyond the river crossing, but

they will normally not operate in the immediate vicinity of the crossing itself, so that the SAMs and AD guns are freed for action. SAMs and guns have the primary mission of defending the airspace over the crossing and within 5 to 10 kilometers of it.

The Red assault forces will establish an initial bridgehead across the river and clear an area of automatic weapon fires (say 1½ to 2 kilometers deep). At this time, the first echelon of SA-8s will move up and, together with the SA-9s, will

plunge in and swim across to take up positions in the bridgehead. Motorized barges move up and prepare to enter the water. The second echelon of SA-8s will move to the treelines at the river's edge on the Red side to give direct coverage of the crossing site and the bridgehead. The SA-4s will move forward in echelon to within 2 to 3 kilometers of the crossing. Bridging operations (boats and pontoons) begin at high speed. Motorized barges move into the water. After the assault forces expand the bridgehead across the river to a depth of 3 to 5 kilometers, the second echelon of SA-8s will then cross the river to reinforce the SA-8s, SA-9s, and guns organic to the division of the bridgehead. A few SA-6s, ZSU-23-4s, and ZSU-57-2s cross on motorized barges at this time, along with armored and mechanized serials. Additional SA-6s move to the treelines on the Red side at this time. As soon as the pontoon/boat bridges are established (which takes a matter of minutes), additional armored and mechanized serials begin pouring across. Interspaced with them at intervals are ZSU-23-4s, ZSU-57-2s, and SA-6s. Rear echelons of SA-4s now move up, and the forward echelon of SA-4s approaches the crossing site. Forward SA-4s move across (first echelon) when the assault forces have cleared a bridgehead of about 10 kilometers depth. Rear SA-4 echelons cross when the bridgehead is expanded to 15 to 20 kilometers depth.

SA-2s/SA-3s move forward and replace rear SA-4s when the bridgehead is about 30 kilometers deep (i.e., SA-2s/SA-3s should be out of direct Blue artillery range).

As can be seen, the mix of Soviet air defense weapons can fully support the Soviet concept of high rate of advance and rapid assault river crossing as a matter of course, and the SA-8 plays a major role in the defense of assault river crossings against air attack.

### IDEALIZED SYSTEM REQUIREMENTS FOR SA-8 FOR ITS RIVER-CROSSING MISSION

Several direct requirements for the SA-8 system emerge from its mission.

- Self-contained (single-vehicle) amphibious weapon system. Since the SA-8s must cross the river at a very critical time before bridging is completed, and while the crossing site is still under heavy indirect fire, the sys-

tem must be amphibious. It must also be self-contained so that when the vehicle makes it across the river, an operational weapon system is on the bridgehead side. For example, a two-vehicle system (radar/control vehicle and launcher/missile vehicle) would suffer severe degradation of operational availability due to the loss of one vehicle or the other in crossing.

- An amphibious single-vehicle command and control (C<sup>2</sup>) capability is highly desirable. The C<sup>2</sup> command post must also cross under heavy indirect fire. A non-swimming vehicle could not be available on the bridgehead side at the time of most critical need.

- Quick reload. Since the SA-8 vehicle must swim with its weapon and crew, it will not be able to transport many missiles because of weight limitations. Therefore, it must reload "in the heat of action," and that necessitates a capability for quick reload from a separate missile transporter vehicle.

- Ability to move short distances under full operational status. Ideally, the vehicle must be able to "shoot on the

move" when in the water and must be able to "shoot immediately after stopping" when moving on land. Such a capability, however, could probably be maintained for only short distances—probably less than 1 kilometer. For longer moves, march order would be required, but quick-shot capability is not necessary since such moves are not ordinarily made under direct fire. If there is danger of air attack on longer moves, site-hopping by echelon can be used so that emplacement procedures can be accomplished.

- Salvo capability. Since the SA-8 will function "in the teeth of the action" so to speak, a salvo capability is highly desirable. To survive in short, close-in, intense combat requires a "first shot kill" with high probability; in a SAM system this can be attained by salvo fire, as is available for example in Improved Hawk.

- Very short dead zone. Again, because it is in the "teeth of the action," the SA-8 must be able to intercept very close targets. This requires a quick boost to good intercept velocity and then sustaining thrust to get to longer range/high altitude beyond minimum intercept.

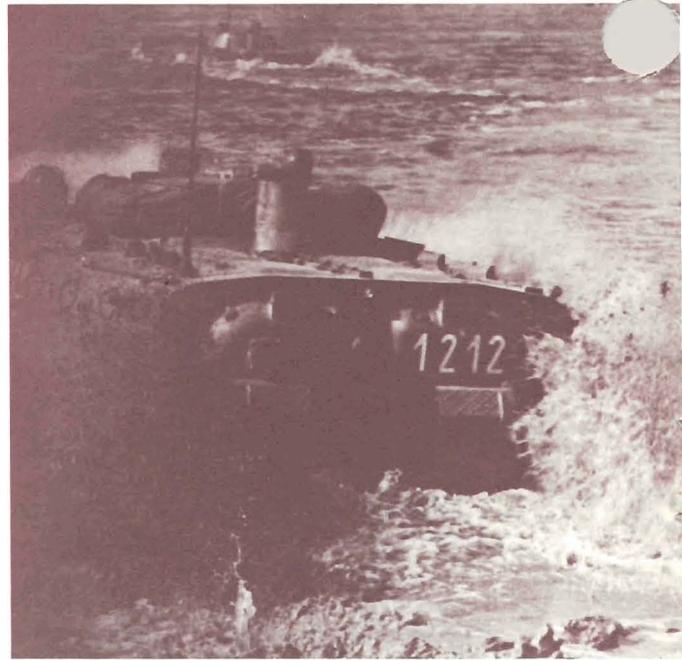
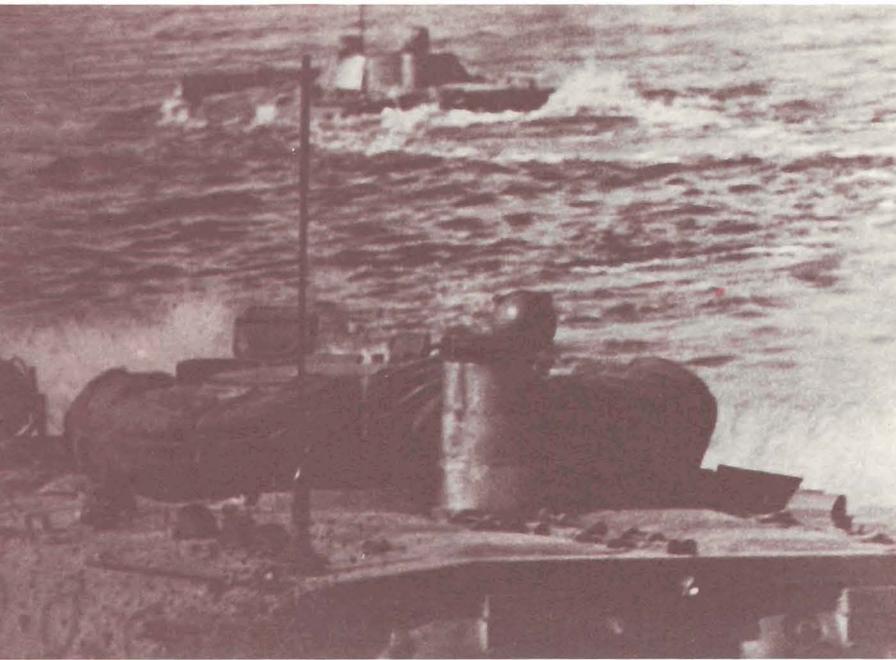
NOT MOTORIZABLE	MOTORIZABLE	MOTORIZED	MECHANIZED	
MANPADS (SA-7)	SA-7	SA-7	SA-7	SA-7
GUNS (GUNS)	(TOWED GUNS)	(TOWED GUNS)		ZSU-57/2 & ZSU-23/4
SHORAD (SA-3's)	{ (SA-3)	{ (SA-3)	SA-8 & SA-9	
MEDSAM	{ (SA-3)	{ (SA-3)		SA-6
HIMAD (SA-2's) SA-1	{ (SA-2's)	{ (SA-2)		{ GANEF
LORAD GRIFFON	{ (GRIFFON)	{ (SA-2)		{ GANEF
MANPADS (REDEYE/STINGER)	REDEYE/STINGER	(REDEYE/STINGER)	REDEYE/STINGER	REDEYE/STINGER
GUNS SHIPGUNS				VULCAN/40MM
SHORAD				CHAPARRAL & ROLAND
MEDSAM		HAWK/1HAWK/SP HAWK*		
HIMAD { (HERCULES) (PATRIOT)	(HERCULES) (PATRIOT)	HERCULES/PATRIOT**		
LORAD { AEGIS				

\*Cable Limitations  
 \*\*PATRIOT was originally designed as a mechanized system on tracked vehicles, but was changed to wheeled vehicles.

FIGURE 5. COMPARISON OF US AND SOVIET AIR DEFENSE MOBILITY



SA-8s move to cross river.



These requirements, plus a requirement for missile simplicity, would favor a dual-thrust propellant grain and an integral booster/sustainer in the same casing, similar to that of the Improved Hawk missile.

- Optical alternative guidance. Since the SA-8 engages in close-in combat against tactical aircraft, optics are desirable for ECCM. This is a standard Soviet doctrine for most SAM systems.

- Performance envelop that ensures at least 5 to 7 kilometers or greater high  $P_K$  range against close-in maneuvering targets.

- Very good low altitude capability.

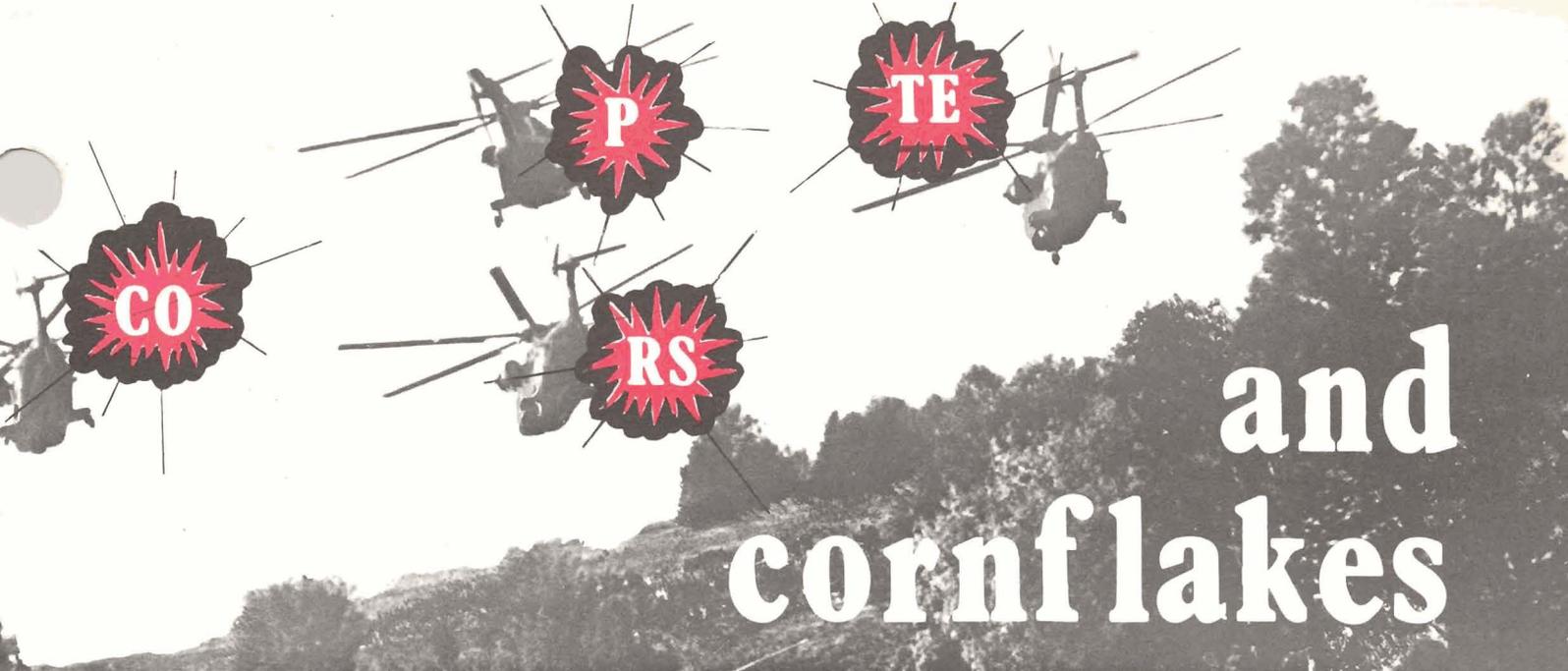
- Dual vehicle drive system, one for land and one for water.

- High missile  $P_K$  due to the criticality of the river-crossing operation for which air defense is being furnished. The lethality of the air defense is critical; and air attackers must be immediately destroyed before they can seriously disrupt crossing/bridgehead operations. High engagement  $P_K$  requires good single missile  $P_K$  and salvo capability.

In summary, the SA-8 represents a formidable air defense capability precisely tailored by the Soviets to fit the tactical requirement for rapid river crossing of assault forces as a matter of course. It is a potent addition to the battlefield, and it has no counterpart at present in the West. Western analysts would do well to reexamine their concepts of barriers and hasty river crossing, in view of the Soviet doctrine of assault river crossing as a matter of course and the appearance of numerous specialized systems, such as the SA-8.



*Lieutenant Colonel Bearden has authored numerous articles on a variety of subjects, at least six of which have been published in this journal. Being the prolific writer and researcher that he is, we expect to be publishing more of his work in future issues. He is presently connected with the US Army's Patriot Program at Redstone Arsenal.*



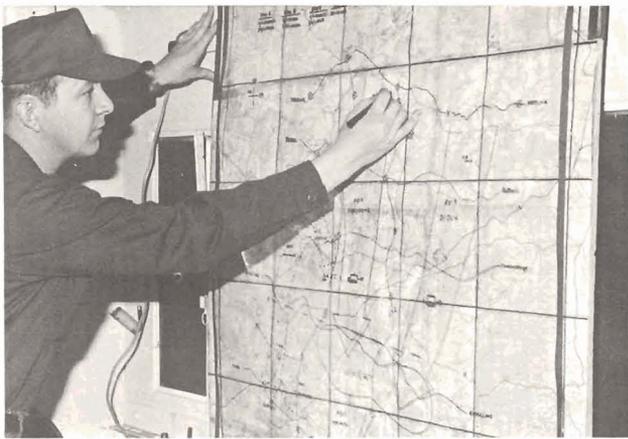
# and cornflakes

LIEUTENANT COLONEL R.N. MATHIS AND MAJOR STEPHEN J. KEMP

**T**he squad leader glanced confidently at his men and then back to the lush German countryside sliding slowly by below his helicopter. Three minutes ago his small flight reached the rendezvous point behind the Orange Force lines and merged with the other aircraft in his assault wave. As the flight headed north up the valley, the sergeant was thinking, "This is it! This is what we came to Germany for—mass airmobile assaults." Mentally, he reviewed the mission of his unit—secure the little valley so the artillery could come in and set up to fire in support of the division's main assault on the Orange Force logistics center. As the flight began landing in the valley fields, the sergeant spotted the battalion's exercise umpires on the edge of the landing zone. "Great!" he thought, "Right on schedule. We'll link up with our umpire and head out to secure our end of the valley." He led his squad off the helicopter but was stopped by the umpire—"Hold it, Sarge, take your men over to the road with the rest of the battalion and wait for the trucks to pick you up." "Why?" "Well, half your flight was shot down coming up the valley, and as for the rest . . .?" He waved his arm toward the woodline 300 meters away. There, the sergeant began to pick out the hulking shape of camouflaged tanks and armored personnel carriers. All over the division area the same thing was happening, except that the "reception committee" on each LZ varied—a ranger battalion in one area, four SP (self-propelled) Vulcans in another, and an SP 155 battery at point blank range at yet another. On the truck the sergeant kept asking himself, "What happened? *What* happened?"

Here's *what happened*. Months before the exercise, the Commanding General of the 8th Infantry Division had directed the Division's Chaparral/Vulcan (C/V) Air Defense Artillery (ADA) Battalion to develop an aerial defense and division-wide early warning system to defeat airmobile operations in the division rear area. The C/V Battalion began initial efforts in three areas: detailed terrain analysis of the area of operations, design of a simple early warning location reference system to be used by all divisional units, and realignment of existing and initiation of new comms nets to enhance all source spot reporting.

The terrain analysis was compiled from studies of the area conducted by the Division G2 and Division Aviation Officer, as well as flights over the area by the ADA battalion CO and S3 and terrain walks by ADA elements down to squad leader level for weapons and radar position selection. The terrain analysis identified all low-level, nap-of-the-earth (NOE) flight routes into and within the division area. A study of the critical assets/areas in the division rear that would be lucrative targets for airmobile assaults high-lighted critical choke points, logistics and command facilities, and the NOE routes leading to them. Based on the opposing force's tactic of using NOE routes to avoid radar detection and ADA missiles, the defense was designed as an air version of the active defense with aerial ambushes along the NOE routes. Chaparrals with some Vulcans were deployed along NOE approach routes and predominantly Vulcans were deployed in the areas of most probable landing zones (LZs) near the critical assets. The Vulcan



*The Spectrum X system made possible a language common to all users of the air defense nets.*

units were also ready to deploy to other LZs and areas based on early warning information. After determining where the supporting Hawk batteries and radars would be positioned, the C/V battalion positioned its organic forward area alerting radars (FAARs) *in the valley* to cover the NOE routes rather than in normal hilltop positions. They thus complemented and augmented the Hawk radar medium-altitude coverage and provided early warning and location of aircraft using the NOE corridors.

All the FAARs, in addition to passing digital early warning data to the target alert data display sets (TADDs) of Redeye, Chaparral, and Vulcan gunners in their immediate area, also passed all observed visual and electronic aircraft tracks by voice to a central reporting center located in the division's Army air defense command post (AAD-CP) at the C/V battalion tactical operations center (TOC). This gave a real-time picture of all major aerial activities and flight patterns in the division area.

Radars were only one source of information, and to integrate all the spot reports from various units, the division used the Spectrum X (read as 10) system. This method of locating aircraft and air assault activities to within a 1-kilometer grid square was designated by the ADA battalion S3 as a simple means of allowing all members of the division to render quick, accurate reports in a common, easily understood manner (see p. 28, Apr-Jun 77 issue of AD magazine). The system uses the slightly darker 10-kilometer grid lines on the regular tactical 1:50,000 maps with each 10-kilometer grid square named with a color. To pass the location of aircraft or airmobile insertions, the observer merely located the position on his map and then counted the number of 1-kilometer squares to the right and the number up. Thus, "Black 2, 7" indicates a location in Black square at 2 kilometers to the right and 7 kilometers up. Authentication of spotting



*Pathfinder air defensesmen keep a hawks-eye watch over nap-of-the-earth approach routes.*

was required only if the report was of enemy troop landings or pickups. The system, far faster than finding and transmitting grid coordinates, allowed fast, accurate data to be received at the AADCP, analyzed, and transmitted to ADA fire units, headquarters, and reaction forces. Spectrum X was used for early warning, reporting enemy insertions, airspace coordination, and coordination of ADA fires. The centralized collection of spot reports from FAAR, radars, ADA battalion fire units, and other divisional elements gave the division ample warning of all major enemy flights, their routes, and *most probable targets* because of detailed knowledge of the configuration of the low-altitude NOE corridors and their exit points. Throughout the exercise, division units were responding to airmobile insertions before the lead helicopter had landed.

The communications needed for the division-wide reporting network, ADA command and control, airspace coordination, and fire distribution required establishing new nets, changing the functions of others, and testing innovative approaches in equipment use. The FAAR platoon command net was used to pass all aircraft track data to the ADA battalion S2 who was collocated with the S3. The two quickly analyzed the data and, while still watching the flight patterns develop, the S3 broadcasted the intelligence information on the ADA battalion FM command net, while the S2 broadcasted the same information on the division's AM early warning net monitored by all major division headquarters sections. ADA elements located at the Division main CP, tactical CP, rear area protection (RAP) CP, and the battalion operations center monitored the ADA battalion FM command net and quickly passed early warning information to the ground force commanders and staffs in their respective CPs. The airspace management element (AME) located at the division main CP received friendly air information from collocated USAR and division aviation staff members and broadcast friendly air advisories using the



*Seconds after an alert is announced, these air defensemen ready their launch rails to receive missiles.*

ADA battalion command net. The net quickly evolved into a "common user" information pool that all ADA units and major division headquarters monitored and contributed to when necessary, and the function of the net changed from command to early warning and fire control. All data passed were in Spectrum X format; therefore, all elements monitoring the net received a constant real-time situation on all aerial airmobile activity.

In an attempt to provide faster early warning from division to the ADA gunners, 28 small, pocket-sized, civilian transistor radios were modified to receive the division AM early warning net. Preexercise testing indicated that the small radios had the potential of providing Redeye, Vulcan, and Chaparral gunners direct AM early warning without going through the multitude of command links from division to individual gunner. Although the radios proved to be limited in actual use to distances of 2-km from the transmitter, the problem appeared to be one of antenna design, which can be solved, and further testing is continuing.

The results achieved during the exercise proved much better than expected. The detailed terrain analysis revealed the possible NOE flight routes. The on-the-ground reconnaissance resulted in the selection of radar positions that were precisely sited to detect aircraft using the routes, and the selection of well-camouflaged weapon positions from which to ambush them. The Spectrum X system made possible the passing and analysis of information, control of fires, and early dispatch of reaction forces. The communications nets tied the whole system together.

Now, the sergeant has the answer to his ques-

*Lieutenant Colonel Mathis assumed command of the 1st Bn, 59th ADA on 2 February 1976. He is a 1958 graduate of the US Military Academy and holds a Masters Degree in Nuclear physics from Tulane University. Previous assignments include Executive Officer, 8th Bn (C/V), 60th ADA, 2d Armored Division and, later, G3 Plans of the 2d Armored Division.*

tion, "What happened?" As his flight joined the others at the rendezvous point, a FAAR miles to the north up the valley was notifying the ADA S2. The S2 yelled at the S3 and, while scanning the map, the S3 picked up the radio handset. "All stations, this is 83. Small flights merging into large multiple flight at Brown 3, 7 and heading north . . . All stations, this is 83, large multiple flight now at Black 3, 1, still headed north." Up the valley, four Vulcans swung their muzzles to the south and three Chaparrals pointed their muzzles in the same direction, their gunners remembering the division commander's challenge—"I've seen you shoot. You're the best in Europe. I want you to give me shredded helicopters for breakfast. You've heard of shredded wheat—well, I want shredded helicopters." A few minutes later, the gunner of a camouflaged Vulcan carefully moved his power controls to place the glowing orange gunsight over first one helicopter and then another, as he simulated firing engagements under the watchful eye of an exercise umpire. Across the valley, sunlight poured through the clear canopy of a Chaparral as a grinning gunner heard the deep missile tone that indicated to the listening umpire that his number one missile had a solid lock on an unsuspecting Cobra gunship. As the ships moved on to the north and out of range, the exercise umpire was talking over his jeep radio and the gunner was yelling to his NCO. "What a great position. We really ambushed them. Wait 'til they land and talk to the umpires. They won't know what happened." The NCO just nodded his head as he said into his radio handset, "This is 72, I have engagements to report. Are you prepared to copy? . . ."



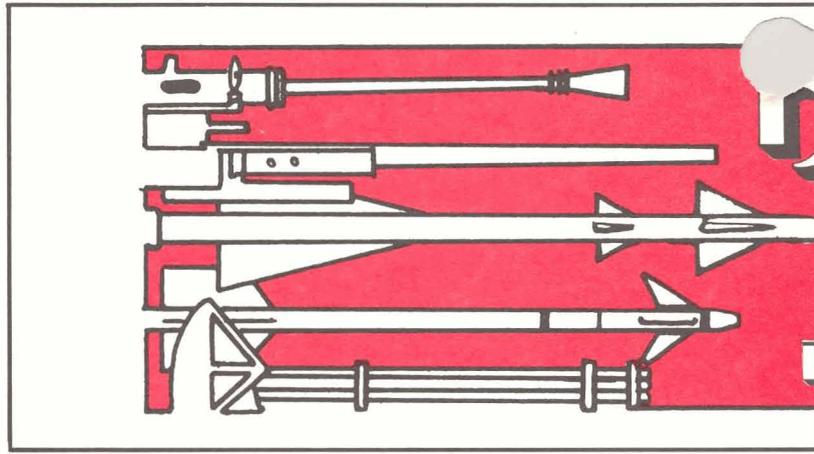
*Major Kemp, S3, 1st Bn, 59th ADA, 8th Infantry Division, is a 1965 graduate of the US Military Academy and holds a Masters Degree from the University of Minnesota. Major Kemp has previously served in Hawk units in Europe and as a tactical officer at the Military Academy. He has been in the 8th Infantry Division since July 1975.*

**W**hile the war continued in Europe, the war clouds gathered and darkened in the Pacific. While the Germans overran country after country on the Continent, engaged in the Battle of Britain, attempted to drive British forces out of North Africa, and invaded Russia, the Japanese were attempting to complete their conquest of China and were planning military campaigns to extend their control over Southeast Asian countries and the Dutch East Indies. With their homelands overrun by the Germans, the former French and Dutch colonies appeared ripe for the plucking, and the United Kingdom was too busy defending its homeland to provide reinforcements for garrisons in the Pacific. The United States, while attempting to forestall further Japanese expansion by diplomatic action, was trying to reinforce its Army and naval forces in Hawaii, the Philippines, and the rest of the Pacific.

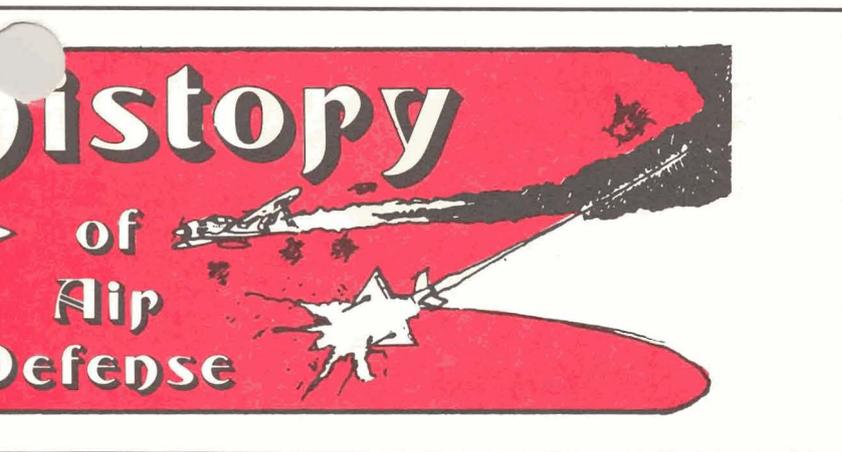
The Japanese strategic plan for seizure of the British and Dutch possessions in Southeast Asia called for the early elimination of United States interference by the destruction or elimination of United States Pacific Fleet elements at Pearl Harbor, elimination of United States forces from the Philippines, and the seizure of Guam and Wake Islands to cut off United States lines of communications across the Pacific. The Japanese Combined Fleet was charged with neutralization of the United States Pacific Fleet, and the Imperial General Headquarters organized the Southern Army under General Terauchi to carry out the land operations. The 14th, 15th, 16th, and 25th Armies, comprising 10 divisions and 3 mixed brigades, were assigned to Southern Army for this undertaking. Southern Army charged the 14th Army with the seizure of the Philippines, 15th Army with taking Thailand, 16th Army with taking the East Indies, and 25th Army with seizing Malaya and Singapore. Air support for these operations was to be provided by two air groups and an independent air unit. The 5th Air Group (Army) and the 11th Air Fleet (Navy), with a combined strength of about 500 combat aircraft, provided air support and the 3d Fleet provided naval support for the Philippine operations of the 14th Army and its two divisions.

On 7 December 1941 (8 December west of the International Date Line), the Japanese forces initiated their campaign with a well-trained and thoroughly rehearsed naval carrier task force, launching a surprise air attack upon the United States naval and air forces in and around Pearl Harbor, Hawaii. Japanese naval and air attacks were made almost simultaneously in British Malaya, Thailand, Singapore, Hong Kong, Guam, Wake, and the Philippines. These air attacks were followed by the landing of Japanese troops in all areas except Hawaii. Guam fell on the first day and, by 25 December, the Japanese had occupied Hong Kong, Wake, and Thailand. The Malaya-Singapore campaign ended with the fall of Singapore on 15 February.

The Pearl Harbor attack, catching US forces completely by surprise with 94 vessels in the harbor, sank 4 US battleships, capsized another, and seriously damaged 4 other battleships, 3 light cruisers, and 3 destroyers, plus other miscellaneous vessels. Ninety-



two US Navy planes were lost and 31 damaged plus 96 Army planes lost; the Japanese carrier task force had crippled the US Pacific Fleet Battle Force and had effectively isolated the Philippines.



In the Philippines, the Japanese 11th Air Fleet achieved tactical surprise, caught most of the US Far East Air Force planes on the ground refueling, and destroyed 18 B-17s, 53 P-40s, 3 P-35s, plus some 25 or

30 miscellaneous aircraft (B-10s, B-18s, and observation planes). Thus, at a cost of seven fighters, the Japanese had succeeded in 1 day in cutting the Far East Air Force in half. Ground operations continued in the Philippines until the surrender of United States and Philippine forces on 6 May 1942.

In 5 months, the Japanese had achieved most of their objectives, with operations in the Dutch East Indies continuing. US forces in the Western Pacific had withdrawn to bases in Australia, West China, and India to regroup, reorganize, and prepare plans for subsequent campaigns to recapture the areas lost and to defeat the Japanese forces.

## THE OFFENSE

### *Japanese Bombers*

Japanese bombers at the start of the war were obsolete in comparison with Allied bombers operational in Europe, but they proved highly effective against the relatively weak opposition encountered during the early period of the war. Japanese bomber design was initially weak in protective armament and provided little protection against aggressive enemy fighter action. Hence, Japanese bombers required strong fighter escorts, especially as the quality and strength of Allied fighters increased. Repeated attempts were made in modifying designs to increase the bomber's protective armament, but such attempts failed to keep abreast of Allied developments.

The principal Japanese bombers of World War II are briefly described in the following paragraphs.

The Mitsubishi K1.21 (Sally) heavy bomber had a maximum speed of 247 mph at 13,120 feet and a range of 1,680 miles with a maximum bomb load. Armament consisted of five or six 7.7-mm machineguns, and it carried 1,654 to 2,205 pounds of bombs.

The Mitsubishi G4M (Betty) heavy bomber had a maximum speed of 292 mph at 15,000 feet and a range of 2,670 miles. Armament consisted of six 7.7-mm machineguns and one 20-mm cannon, and its bomb load was 2,000 pounds of bombs or one large torpedo.

The Nakajima K1.49 (Helen) heavy bomber had a maximum speed of 305 mph and a range of 1,490 miles. Armament consisted of five 7.7-mm machineguns and one 20-mm cannon, and it could carry 1,654 pounds of bombs.

The Mitsubishi K1.67 (Peggy) attack bomber had a maximum speed of 334 mph at 19,980 feet and a range of 2,360 miles with a bomb load of 1,764 pounds. Armament consisted of four 12.7-mm machineguns and two 20-mm cannon, and it could carry 2,000 pounds of bombs at shorter ranges.

The Mitsubishi G3MI-3 (Nell) attack bomber had a maximum speed of 230 mph at 10,000 feet and a range of 2,800 miles. Armament consisted of seven 7.7mm machineguns. It could carry 2,200 pounds of bombs or one torpedo.

The Kawanishi H8K1-4 (Emily) patrol bomber had a maximum speed of 285 mph at 10,000 feet and a range of 4,410 miles. Armament consisted of several



*The Kamikaze bomb Baka.*

7.7-mm machineguns and two 20-mm cannon, and it could carry 4,411 pounds of bombs.

The Kawasaki K148 (Lily) light bomber had a maximum speed of 313 mph and a range of 1,490 miles. Armament consisted of four 7.7-mm machineguns. Its bomb load was 1,100 pounds.

The Suisei D4Y1-3 (Judy) carrier dive bomber had a maximum speed of 360 mph and a range of 940 miles. Armament consisted of three 7.7-mm machineguns, and it could carry 1,103 pounds of bombs.

The Aichi A3A2 (Val) carrier dive bomber had a maximum speed of 266 mph and a range of 838 miles. Armament consisted of three 7.7-mm machineguns, and its bomb-carrying capacity was 823 pounds.

The only example of the application of jet propulsion to aircraft in World War II by the Japanese was the Baka bomb. This famous infallible weapon of the heroic Japanese pilots was modeled after the German jet-propelled glider bomb, which was taken to Japan in 1944 by U-boats. The Baka bomb had a one-man crew who took it right up to the target and sacrificed himself for the Mikado. The Baka bombs, like the V-1 at the end of 1944, were taken by carrier aircraft near the target and released at a suitable distance. They were 6 meters long and had a wing span of 5 meters. The thrust of the jet propulsion was so great that the bombs reached speeds of 1,000 km/hr during powered flight.

#### *Japanese Bomber Tactics and Techniques*

The Japanese Army was patterned directly on the German system and reflected the fact that it was organized and schooled by German officers. The offensive against the unprepared American and British forces was directly in keeping with the policies advocated by the Axis partners in their blitzkrieg tactics. The relative smallness of the Japanese islands,

the density of population, and the concentration of war factories within range of heavy bombers operating from Wake and Guam undoubtedly were the main reasons for Japan's early concentrated assaults on Wake and Guam to eliminate them as possible bases of operation for the US air forces.

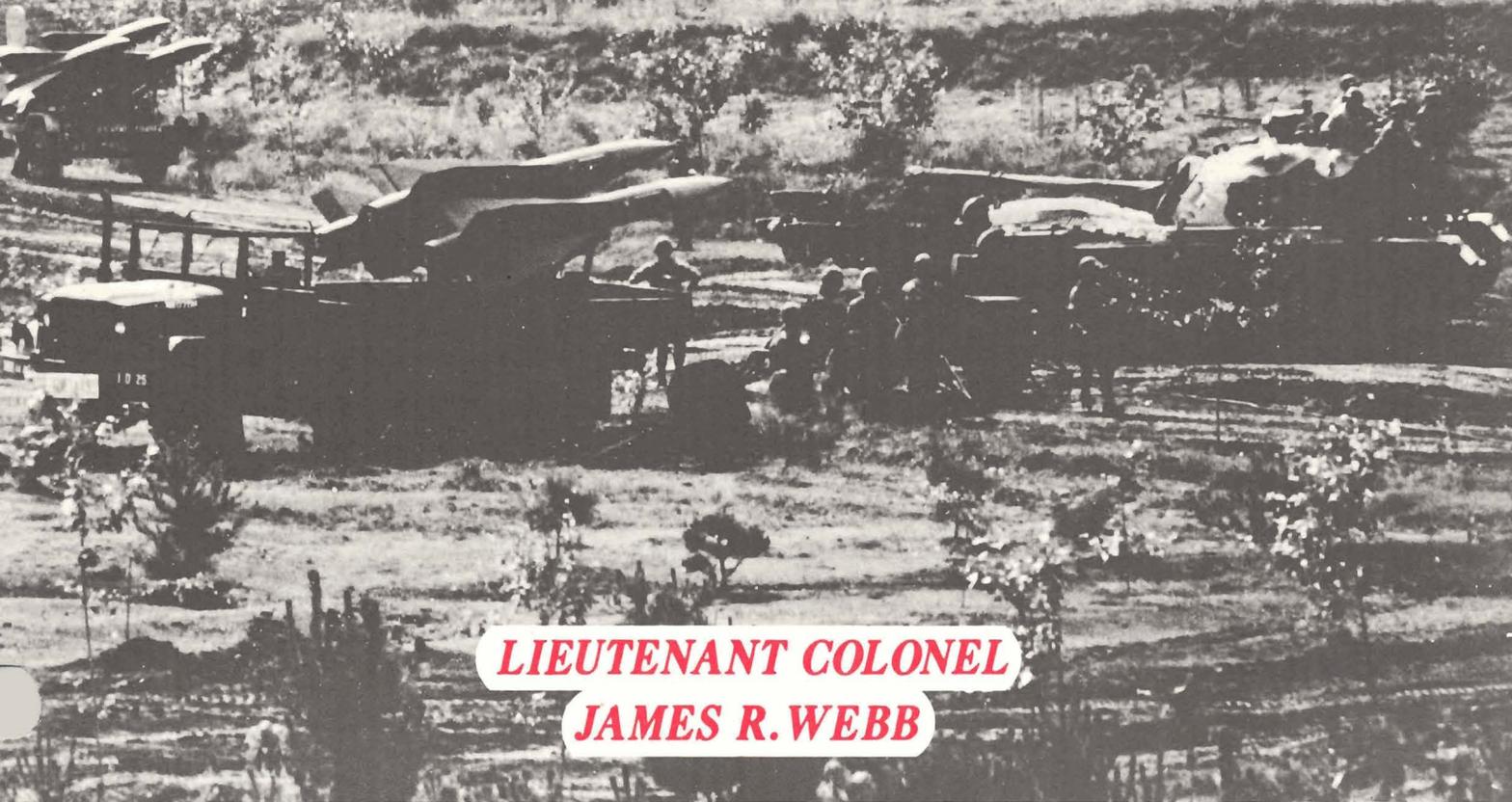
The primary mission of the Japanese air arm was the destruction of enemy aircraft at their bases. To accomplish this mission, bombers normally made short-run raids of no more than 250 miles past their front. Usually, attacks were made by 30 to 40 bombers escorted by fighters. They would approach at 6,000 to 12,000 feet altitude and make a run over the target, dropping test bombs. The flight would then break into groups and attack its assigned targets. If attacked by enemy interceptors, bombardiers would release their bombs on the initial run to inflict maximum damage with minimum risk. When attacked by enemy fighters, the bombers maintained a close formation to provide mutual fire support. Evasive maneuvers that would risk separation of planes from the formation were seldom attempted.

Japan had 16 Army aviation regiments of 4 squadrons each. This total of 64 squadrons was probably made up of one-third fighter and two-thirds bomber and bomber reconnaissance types. Eight Army squadrons were located in the vicinity of Tokyo in addition to four Navy squadrons equipped with seaplanes. This was probably the largest concentration of military aircraft that any power had gathered around a capital city.

In addition to the original 64 squadrons, others had duties of flight training, aerial fighting, tactics and reconnaissance, air defense, and boys training. The Army Air Force regiment was the highest tactical unit. It had its own fields, ground service, and training school and consisted of from 2 to 5 squadrons of about 10 planes each.



# FROM COVER TO CONQUEST



**LIEUTENANT COLONEL  
JAMES R. WEBB**

**I**t was a beautiful, balmy summer night. There wasn't a cloud in the sky, and a great, monstrous, yellow moon beamed down in casual indifference to the scenes of destruction and stealthy movement that went on with grim determination beneath its passive gaze. CPT Peters, A Btry, 6th Msl Bn, 71st ADA, was one of many on that bloody battlefield who saw little beauty in the big, yellow moon. He reflected instead on its revealing light as he prepared to move his Hawk battery forward to support the division offensive planned to kick off at 0400 tomorrow.

Since his battalion was in direct support of the division, it would be required to provide the low- and medium-altitude air defense that was so essential if the division was to break out of the grinding, mankilling, static defense it had maintained since the enemy had launched that first, almost overwhelming, assault. LTC Smith, the division air defense special staff officer and C/V battalion commander, with the concurrence of LTC Kelly, the Hawk DS battalion commander, had briefed all of the air defense battery commanders several days ago on the operation. He had carefully explained the division plan of operation and

had stressed the absolute necessity of close and effective air defense to dissuade the swarms of close air support aircraft the enemy had deployed to cripple the division maneuver elements. LTC Smith's Vulcan guns would stay right up with the forward attack elements and move with them into the exploitation if they succeeded in breaking through. His Chaparrals would remain back to defend the command and control facilities and the logistics elements. This, however, left one hell of a lot of people and things still to be defended, and the division was depending on the Hawk battalion to do just that. The Vulcans would only be able to deploy with the two lead battalions and certainly couldn't be expected to knock down anything above 1,200 meters. This meant that the Hawk would have to stay up close to overwatch the guns, while at the same time insuring that the Chaps were assigned with the critical rear area installations.

It was a big job, and CPT Peters had thought long and hard about how his battery would best be able to successfully accomplish his portion of it. He didn't delude himself that the enemy was going to calmly accept all this and meekly turn and run at the first

shot. He knew by this time that the enemy's reaction in the air would be to try to destroy all of the accompanying air defense so that those sleek, deadly Fitters and Fencers could then turn their undivided attention on the tanks and APCs as they attempted to shake loose from the line of contact and break to the rear. The early days of the war had shown just how effective this system could be when the enemy had air superiority and the air defense forces must, at all costs, insure that it didn't happen again.

To prevent it though, CPT Peters and his battery, along with the rest of the air defense forces, had to first survive that initial, concentrated action from the air. They must not only survive but exact such a toll on the attacking aircraft that the enemy would be unable to counter the armored/mech forces effectively as they began their powerful rush to the rear of the enemy lines. CPT Peters had carefully studied his lessons on countersuppression techniques back at hot, dusty Fort Bliss and had religiously followed them since taking up his assignment here in the war zone. His equipment was pattern-painted to conform with the environment. Every vehicle and piece of equipment had its camouflage nets right with it and, most of all, his men had been trained to think camouflage and concealment and to practice the concepts he had so carefully taught them.

The first order of business, of course, was to get the battery where it could do some good. It would have been nice to move the whole battery up early, but for a number of reasons it just wasn't feasible. First, there was the problem of road space. A division attack takes lots of both fighters and supporters, and Peters had found when he requested his road clearance that he was vying with ammo convoys, POL trucks, reserve forces, and all kinds of other folks for the precious road space needed to get the division going. Another reason it would be necessary to move only the Improved Hawk assault fire unit up was survivability. The Improved Assault Fire Unit (IAFU) would have to move at night at extended intervals, and it must be in position and camouflaged before the first light. CPT Peters had found that it took at least 5 hours to effectively camouflage the whole battery, and there just wasn't that much time available. Then, too, Peters knew that he had to have mutual support. If the enemy fighter-bombers found one part of his battery, it was absolutely essential that the other part be able to engage them, for it was only in this way that CPT Peters could assure the division that he could survive to cover all those things they looked to him to defend. He had learned early in the war that an air defense unit just couldn't take on a concentrated air attack all by itself. It needed other units to help it out while the enemy aircraft were in its dead zone. So, for all of these reasons, they were moving the IAFU forward about 15 km tonight, and

if all went well they would move the rest of the battery up tomorrow night.

Promptly at 2200, LT Knight, the IAFU commander, gave CPT Peters the thumbs-up signal and moved out. The vehicles cast ghostly shadows as they eased out of their hiding areas at extended intervals. They were completely blacked out and carefully arranged in the proper order to facilitate their move into the new position. The ICWAR fell in behind LT Knight's jeep with the generators, launchers, and IHIPIR trailing behind. The advance party had left at the last trace of daylight and LT Knight strained his eyes to pick up the flickering flashes of light of the road guides as he crossed each checkpoint. Everything went exactly as he had so carefully planned, except for an unexpected invasion of their precious road space by a friendly tank platoon at the last intersection before reaching the new position. Things like this, though, had also been foreseen, and the convoy swiftly and efficiently pulled to alternate sides of the road without changing interval, and the crews rapidly deployed to perimeter positions some 50 meters on each side of the road. Almost without thinking, so carefully were they trained, they put their two MGs out and tied in with the crews of the vehicles ahead and behind. Two quick flashes of LT Knight's flashlight brought them as swiftly back to their vehicles when the way was clear, and the dimly seen cats' eyes were soon bobbing down the road again.

Their entry into the new position area was just as efficient. Carefully rehearsed guides picked up each vehicle as it hit the release point and led it over a carefully planned entrance route into its preselected position. Each vehicle peeled off the common traffic pattern and slowly followed the engineer tape into its position. When the guide signaled for it to halt, each driver immediately cut his engine and released the air guard so he could assist in the unloading along with the remainder of the crew. When the equipment was off the truck and carefully stowed in the locations designated by the guide, and the equipment was uncoupled, the driver and the guide carefully followed the exit route back to the road where the truck was dispatched to its prearranged assembly area 1-km back. When the last truck was checked off and on the way out of the tactical area, the assembled guides picked up the branches they had cut earlier and began sweeping the area to obliterate any telltale tire tracks that would give away their position when dawn arrived.

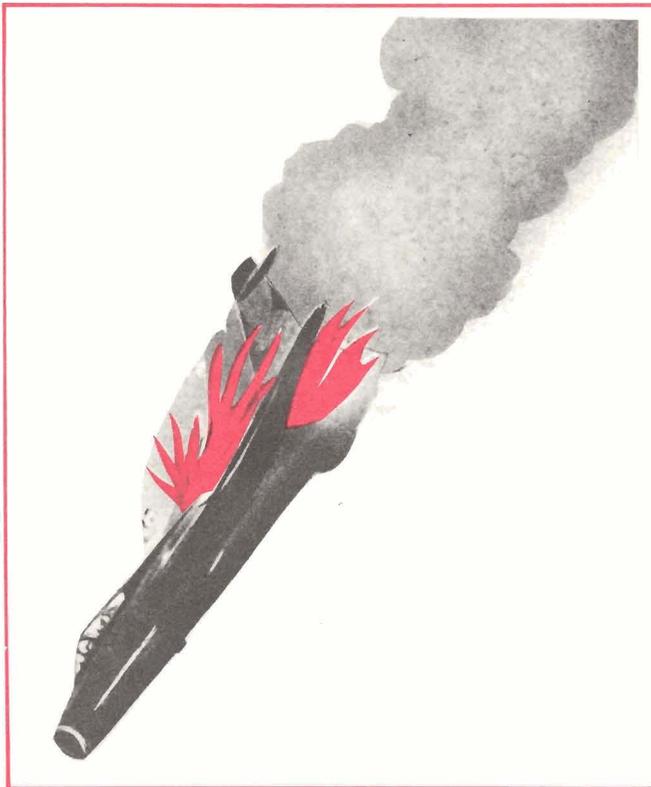
While all this was going on, LT Knight and the rest of the IAFU crews had also been busy. LT Knight, after a quick one-word radio message to inform CPT Peters of their safe arrival, had conferred briefly with SGT Bradford, the IAFU section chief, to insure that the precious MGs had been moved to their new positions covering the most vulnerable access routes into

the area, that the scatterable mines and claymores had been prepositioned, and that the listening posts were out and had comms wire into their positions. He then moved quickly to the IPCP. When he arrived, the cables were already being hooked up prior to being buried. A quick check assured him that all orientation and alignment had been completed with the radar antennas pointed away from the enemy. The muffled roar of the generator told him it was in its prepared position, which had been dug the previous night, and was ready to supply power when needed. Having checked to see that SGT Brown was getting the IPCP ready for operation, LT Knight set out to tour the other positions. It was a long walk since the equipment, where terrain permitted, was dispersed to its full 114-meter cable length, and Knight stumbled frequently despite the light provided by the full moon. The ICWAR, from its commanding position, was proceeding nicely and had already been aligned, and the IHIPIR was oriented. The crew was ready to apply power and had laid out the nets for use as soon as the battery completed its operational checks. The missiles were still being transferred to the launchers, but that was to be expected since they were always the big delay. Having satisfied himself that all was proceeding nicely, LT Knight once more returned to the IPCP, carefully laid down his M-16 in its prearranged spot and, with a sigh of relief, slipped out of his helmet and flak vest and laid them next to his rifle. Putting on his headset and turning to the console, he got ready to complete alignment and run his operational checks. By 0100 the IAFU was ready. There had been a small problem with the IHIPIR but WO Trovinsky had quickly slammed in a new chassis and they were ready to shoot. Only 3 hours remained before that magical time of BMNT and the attack time, however, and the crews worked frantically to complete their preparation. The nets went up and were carefully garnished with the greenery the guides had cut earlier. Foxholes were dug, the extra missiles and the loader were concealed, the perimeter was strengthened, and the Redeyes and decoy transmitters were deployed. By 0315 all preparations were completed and last-minute operational checks were performed. When the

checks were completed, the generator was shut down and refueled and LT Knight ordered everyone under the concealing camouflage nets. A quick message to CPT Peters informed him that they were ready and would be depending on him for early warning. With that completed, the IAFU team settled down for a quick breakfast of C rations and to prepare itself for what would probably be a busy day.

The hour of 0400 was signaled by the quick bark of tank fire some 10 km to the front and by the deep-throated roar of artillery fire around them and to the rear. At that ominous signal, LT Knight roused himself and ordered the generators into operation, but left the radars in standby. No need to take a chance on the enemy picking up radar emission until transmission

was necessary. The volume of fire to the front began to pick up in crescendo and the IAFU crews, in the growing light, quickly checked the foxholes and camouflage they had laboriously prepared in the dark. At 0415 the radio in the IPCP crackled and LT Knight's call sign came over the air. One word told him that enemy air was on the way. His radars began to search the skies even as CPT Peters gave him the heading, speed, and size of the enemy attack formation. The Hawk launcher crew could see the tracers of the Vulcan crews up forward as they scrambled to complete their crew drill, but the radars were still blindly searching as the enemy completed his low-level approach to the battle area. It was not until



the aircraft climbed for altitude to begin their attack run that the corresponding dots of light jumped up on the scope LT Knight was scanning so closely. Forewarned by the battalion early warning, however, the IAFU crew was ready and as the illuminator almost instantaneously flashed the lock light, LT Knight hit the engage button. With a flash a Hawk was on its way, while Knight was already preparing for another target. When the destroy light flashed, he was ready and once more initiated the engagement process by hitting the assigned pushbutton. This process was being repeated in two other IAFUs across the division zone and in three other partial batteries. There was little time for careful target selection, so each TCO

fought his own battle but reported the results back to battalion who monitored the overall battle and planned for what was to come. As the crescendo of attacks slackened, LT Knight was given the command to change the method of control to centralized. The reason for this change of status was soon apparent as the air over their heads was filled with the roar of their own aircraft as they blasted low over the battery on their way forward to help the beleaguered tanks. Now, LT Knight carefully interrogated each aircraft and reported back to battalion for permission to engage. His scope was alive with video but most of it was the marks of friendlies as the US aircraft blasted the front line units and the enemy air defense forces. The jubilant voice of CPT Peters came up on the FM net and advised LT Knight that it looked as if our air defense had been successful. Everything forward was chaos but he had been ordered to be prepared to move forward (not to the rear as they had done so often in the past) and right away. The IAFU, despite its exposure in the early stages of the battle, was to remain in place and cover the area while the main battery pursued the battle. "It must be going well," thought LT Knight, "If we are going to move in daylight." His elation was short-lived, however, because even as he was talking to CPT Peters, two blips were ominously approaching his position across the scope. He interrogated them with one hand while holding the FM radio headset with the other, but no answer or response came back. He abruptly cut off Peters' happy voice and frantically contacted the Bn OC. His quick report was answered with an even quicker "Engage! Engage!" A quick check of his launcher status told him he had only two ready missiles left, but the illuminator under the alert hand of SP4 Jones was already locked and ready. Almost as a reflex, he had Jones ripple both missiles as fast as the launcher would cycle. One blip quickly disappeared but the other continued to bore relentlessly forward. Just as it seemed the hostile aircraft was bound to see their carefully camouflaged and dispersed position, it too disappeared, and the elated voice of PVT Montgomery,

manning the Redeye far forward of the battery, reported in a most unprofessional manner, "I got him! I got him!" Hardly had they taken a deep breath, however, when another radar blip appeared from the direction of the enemy lines. This one was moving much faster and, as the altitude meter indicated, much higher. "Kelt," thought LT Knight, and his hand was already on the way to the decoy activate button as Bn gave the warning, "ARM." From its direction LT Knight surmised it must be locked on CPT Peters' PAR and he quickly told the battery to dump the load and try to turn the antenna; but CPT Peters had already done just that. He knew there was little time, however, and he silently prayed that the decoys would be able to divert the ARM. As everyone watched in fascinated horror, the blip suddenly began a slow arc away from the battery. For all its speed, it seemed to move away slowly, not much, but enough. To the joy of the PAR crew, but the dismay of a couple of soldiers manning the perimeter, it impacted 300 meters to the left of its intended target, decoyed there by the decoy emitter LT Knight had emplaced the night before.

Having survived this most feared of all attacks, CPT Peters' battery became a beehive of activity. Nets were thrown aside, equipment march ordered, and within 15 minutes the battery was ready to join the stream of movement forward to support the attack, which was rapidly becoming a rout. Under the protection of LT Knight and his IAFU, the roads soon became a snarl of traffic as the support elements moved forward. It was to continue far into the night, and Knight and his weary IAFU team were to join it as soon as the main battery was in position to relieve them of their air defense duties. The tanks and infantry teams raced forward with their Vulcan protection while the artillery and Hawk units toiled after them, insuring that whenever their support was required it was ready in a never-ending game of attack and support: each element doing its part to insure the success of the attack, each element essential to the other, and each knowing the others were always there when needed.



*Lieutenant Colonel Webb has commanded batteries and served as battalion operations officer in both Hawk and Nike Hercules units. He holds a Masters Degree in Educational Administration and Supervision. He previously served as the Tactics Division Chief in the Tactics Department at the US Army Air Defense School and is now TRADOC Liaison Officer to the German Army in Cologne. He has been selected to command a Nike Hercules Battalion in Germany.*

# Strategic Defense

## LIEUTENANT COLONEL WILLIAM O. STAUDENMAIER

**T**HE BASIS FOR WORLD PEACE SINCE Russia exploded its first nuclear weapon over 20 years ago has been deterrence based on assured destruction; that is, the unquestioned ability of the United States to inflict unacceptable damage on the Soviet Union *after* absorbing Russia's strategic nuclear attack. Today that concept is imperiled by the rapid buildup of the USSR's offensive and defensive strategic nuclear forces. Although Russia's progress in strategic offensive nuclear forces from a position of inferiority in 1965 to the very brink of superiority today is well known, the great strides that the Soviets have made in all aspects of strategic nuclear defense are only now coming to public attention.

Strategic defense—ballistic missile defense (BMD), conventional air defense (AD), and civil defense (CD)—could tip the existing delicate strategic nuclear balance in Russia's favor, with all of the dire implications for American security policy that derive from that statement. Consider:

Since the ABM Treaty, the Soviet Union is developing the capability to field a BMD system rapidly. Consequently, their new BMD system (according to Clarence Robinson of *Aviation Week and Space Technology*), using phased-array radars and terminal interceptors, could be operational around key Russian cities in less than a year if they stockpile components and follow their normal method of not hardening their BMD sites.

The Soviets continue to modernize their air defense forces with new SAMs and with new interceptors such as the Foxbat and Flagon.

The Soviet Union is pursuing a dynamic high-priority civil defense effort that features the training of the entire population in CD procedures, the protection of critical industry, the evacuation of the population during a crisis, the stockpiling of grain and other supplies in underground shelters, and an extensive personnel shelter program.

The contrast between the dynamic Russian strategic defensive program and the sagging US effort is stark. The net result of the comparison is summarized below.

### BALLISTIC MISSILE DEFENSE

At the same time that the USSR is developing the capability to field an advanced BMD system within a year, the United States has reoriented its prototype SITE DEFENSE BMD system into a more deliberate technology testing program. The US FY 78 budget for BMD of about \$215 million, divided almost equally between advanced technology and systems technology, is considered by some to be about one-third of the estimated Soviet BMD expenditures. This modest technological effort on the part of the United States has had an adverse impact on the civilian industry team that was working on BMD, because there is little expectation that such a system will be deployed in the near future. Nevertheless, in the R&D field the

United States has maintained its lead in BMD technology. The United States is pursuing research in directed energy systems and in optical sensors. The Soviets are also working on directed energy technology. The net result is that America is ahead in BMD advanced technology research, and the Soviet Union may have the edge in systems technology.

## AIR DEFENSE

The US air defense effort in CONUS has been reduced to essentially a surveillance and warning posture, because of the small Russian bomber fleet and the US belief that conventional air defenses are virtually worthless against an enemy armed with strategic missiles. However, the introduction of the BACKFIRE bomber into the Russian inventory is causing some defense analysts to have second thoughts concerning the value of continental air defense because of the possible intercontinental mission of that bomber. But the fact remains, as a glance at Table I will show: the Soviets outstrip the United States in this aspect of strategic defense.

Table I. Strategic Defensive Posture

Strategic Defensive Forces	US	USSR
Personnel	25,100	600,000
BMD (missiles)	0	64
SAM Launchers	*330	9,500
Interceptors	396	2,700

Source: US/Soviet Military Balance, John Collins, *Congressional Research Service*, 1976.

\*Hawk, Hercules, Bomarc

## CIVIL DEFENSE

The USSR annually spends an estimated \$1 billion on civil defense, while the United States, in FY 78, will spend \$91 million, or less than the estimated cost of one B-1 bomber. The Soviets accord their CD program high priority and it is unified at the highest level of their government. The US program, on the other hand, is fragmented between federal and state agencies. Considering the two CD programs, and assuming that the Soviets evacuate their cities before an attack and the United States does not, many military analysts believe that the net result will be that the Soviets might suffer only an estimated 10-12 million casualties from a US second strike, while the United States could suffer about 90 million from a Soviet first strike.

## INTERACTION BETWEEN STRATEGIC DEFENSIVE AND STRATEGIC OFFENSIVE FORCES

Comparing the opposing strategic defensive forces is perhaps enlightening, but the comparison becomes meaningful only when looked at more comprehensively in the context of the total strategic picture. The United States views nuclear war as a cataclysmic event that

must be avoided at all costs, since no one can "win" a strategic nuclear war. The Russians, however, take a different view and apparently not only believe that a nuclear war can be won, but also intend to be the winners, if it comes. Because the United States believes the way it does, its strategy is one of deterrence based on assured destruction (see Table II).

Table II. US General War Deterrence Strategy

- Assumes USSR will use strategic nuclear weapons first.
- Based on second strike assured destruction capability.
- Provides for limited, flexible option attacks.
- Maintains essential equivalence with USSR mainly for political purposes.

Therefore, the United States must insure that its retaliatory forces can survive a preemptive attack with sufficient capability remaining to inflict unacceptable damage on the Soviet Union. To do this essentially requires survivable offensive strategic forces; defensive forces can be a component of this force structure and are important to protect the country against an accidental launch of an Nth country intercontinental ballistic missile or sea-launched ballistic missile attack. Defensive forces are also relevant to the United States when the retaliatory force is threatened and when it becomes more cost effective to protect strategic offensive forces with strategic defensive forces (SDF) than to add offensive forces. Today, the USSR is increasing the accuracy of its offensive forces and in the future might achieve the capability of a disarming first strike. To counter this threat, the United States could build more offensive missiles to maintain its assured destruction capability (at the risk of beginning another arms spiral), try to resolve the problem through arms control, implement a comprehensive strategic defensive program, or a combination of the three.

Traditional arguments against the implementation of a strategic defensive program are that SDFs are expensive and under certain attack profiles might be technically infeasible. Ballistic missile defense R&D activities are designed to overcome the objections relating to active defense. Passive civil defense programs just are not taken seriously by the American public. So strategic defensive programs in the United States have budgetary, technological, and psychological hurdles to overcome. Moreover, certain types of strategic defensive programs (e.g., heavy defense of population) may be destabilizing because they could, by providing relatively effective protection to the population, free the people from their "hostage" status, which is the basis of assured destruction. Parenthetically, some types of strategic programs are stabilizing; e.g., ballistic missile defense of Minuteman or thin protection against an accidental or Nth country attack.

The USSR believes that a war-fighting posture will enhance deterrence. Although the Russians realize the

devastation that would accompany a modern nuclear war would be without precedence, they also believe a nuclear war can be won—and they intend to be the winners if it should erupt. From the Russian perspective, therefore, SDFs appear to have utility. That is, if they can reduce the effectiveness of an American second strike to acceptable proportions through the deployment of an effective BMD system, and through an effective civil defense program, the USSR will have created the conditions necessary to “win” a nuclear war.

This situation, wherein the strategic balance might be tipped in Russia’s favor because of her lead in strategic defensive systems, begs the question, “What is to be done to meet this challenge?” Certainly, there are alternatives open to the United States to upgrade its offensive forces, but since the focus of this paper is on the strategic defense, I will limit my comments to BMD, air defense, and civil defense.

#### BMD

■ The United States should focus its efforts toward developing the capability to rapidly deploy a BMD system. It is certain that if future events should require a BMD capability, it will be needed much more quickly than it could be presently provided. Such a capability would be a hedge against either a Russian technological breakthrough in BMD or against the abrogation or unilateral Russian termination of the ABM treaty.

■ It is also clear, I think, that the costs of BMD systems must be dramatically lowered. Therefore, a portion of the R&D program should be devoted to seeking breakthroughs in technology that would result in cheaper and better ways to accomplish the BMD mission.

■ Finally, the feasibility of the development of nonnuclear kill technology should be investigated. The recent furor surrounding the report that the Russians are developing such a weapon is an indication of the impor-

tance attached by strategic analysts to this type of capability.

#### CONUS Air Defense

■ The need for greater CONUS air defense should be re-examined from the perspective of its contribution to military operations *after* a nuclear exchange has occurred and the war continues.

■ It should also be reviewed from the perspective of new Soviet “strategic” weapons (i.e., Backfire).

#### Civil Defense

■ Civil defense must receive more emphasis in the United States because of its deterrence value and its war-fighting (i.e., damage limiting) capabilities, but most importantly for humanitarian reason. Protecting its people is the most fundamental social service a government can provide.

■ The civil defense program must be unified and receive White House emphasis. In that regard, emergency preparedness and nuclear disaster organizations should not be fragmented.

■ The American public should receive some measure of civil defense training.

■ All aspects of civil defense, particularly post-attack recovery operations, should be included in an intensive R&D program.

The strategic equation as it relates to the United States and the USSR includes not only strategic offensive forces but strategic defensive forces as well. But most of all it includes *perceptions* of strength and weakness. If this is so, a serious weakness, either actual or perceived, offensive or defensive, in the elements of the strategic equation could tilt the balance of power. The United States must take immediate steps to redress the overall strategic balance, particularly the strategic defensive balance, or risk Russian nuclear adventurism with all of the dangers that it would entail.



*Lieutenant Colonel Staudenmaier has been writing on subjects of air defense and balance of forces for some time. Several of these articles have been published in leading service magazines. Following a recent tour of duty at Headquarters, Department of the Army, LTC Staudenmaier is now an instructor with the Strategic Studies Institute of the Army War College.*





## The US Army in the Barbary Wars.

The US Army Flag carries 167 battle streamers in 15 different designs. Each design represents a theater of operation or war, and each streamer carries the name of a campaign or battle in that theater or conflict. Perhaps the Army Flag should also carry one streamer representing the US Army participation in a naval war. After all, General of the Armies, John J. Pershing, while Chief of Staff in 1922, authorized "A streamer with the word 'Algiers' " for selected Army organizations with oversea service between 2 March 1815 and 30 June 1815. The only Army unit entitled to such a decoration was inactive at that time, and the streamer was never awarded.

On 3 March 1815, Congress declared war against Algiers, as a result of continued problems with the Barbary pirates. A squadron of 10 ships of the US Navy, commanded by Commodore Stephen B. Decatur, was dispatched to the Mediterranean in response to the declaration. The squadron attacked the enemy in his home waters and Decatur soon forced the Dey of Algiers to accept U.S. terms. Decatur was joined by a second squadron under Commodore William Bainbridge and the two squadrons then

visited Tunis and Tripoli to collect indemnities for past damages.

Among those ships assigned to Decatur's squadron were the *Macedonian* and the *Guierriere*, the latter a former British ship captured by the US during the 1812 War. Before these two ships could leave the United States, crews were needed to man their guns. The Marine Corps could not

supply contingents for these two ships because of the many vessels involved. To fill this void, CPT Samuel B. Archer's company\* of US Artillery was assigned to Decatur's squadron. Captain Archer and First Lieutenant Luther Scott, with about 40 men, were

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**The Certificate of Lineage and Honors from the Center for Military History indicates that the 3d Battalion, 4th Air Defense Artillery, descends from the artillery unit that fought at sea in 1815.**

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aboard the *Macedonia*; Second Lieutenant Francis Byrd and Third Lieutenant James Monroe (nephew of ex-President Monroe), with approximately 50 men, were on the *Guerriere*. Contact was made with the enemy off the Spanish coast on 17 June 1815. The Algerian ship *Mashouda*, commanded by Admiral Rais Hamida, had 30 men killed and many wounded. During this battle, Lieutenant Monroe was wounded and one of his artillerymen was killed by hostile fire. It is interesting to note

that the one soldier killed was the only United States death as a result of this engagement. This particular battle is important because the defeat of Admiral Hamida was a prime reason the Dey concluded a treaty with Decatur.

The importance of the Algerian battle was evidently recognized in 1922 when General Pershing directed the streamer for the Algerian Campaign. The subject of campaign credit arose initially after World War I when campaign streamers and other unit decorations were under study. The Commanding General of the Army War College personally wrote to General Pershing citing the various sources of information which showed that the Army unit had participated in the Barbary War. This resulted in a change to the official list of battles in which Army units had participated and a streamer was added for Algeria. Since the unit entitled to the credit, then the 38th Coast Artillery Company, was inactive, no further action was taken. (When a company alone is entitled to a campaign participation credit, a silver engraved band is carried on the unit's guidon staff rather than a campaign streamer.) The 38th Coast Artillery Company was activated in 1924, having been redesignated Battery C, 4th Coast Artillery. Inactivated in 1926, it was reactivated again in 1932. The battery requested a campaign credit and a silver band for Algeria in 1940. The Army's historical office concurred in the request for a battle credit, but for reasons now unknown, perhaps the

pre-World War II buildup, the appropriate orders were not issued.

The Certificate of Lineage and Honors prepared by the Center for Military History indicates that the 3d Battalion, 4th Air Defense Artillery (now assigned to the 82d Airborne Division), descends from CPT Samuel Archer's company of artillery which engaged the enemy aboard the US Navy ships. In 1970, the US Navy adopted a streamer with four campaign stars for the Barbary Wars. The first three stars represent the exploits that occurred in 1802-1803. These are familiar to US school children, and include the incident in which Decatur gained fame by destroying the captured frigate Philadelphia. The fourth Navy campaign star represents the 1815 Algerian Campaign. The Navy recognizes the campaign with a streamer and, in its official description of battle streamers, states that this action "gained widespread respect for the new American nation." It seems incredible, therefore, that when the only US battle death in that War was suffered by a soldier, the Army has not cited the participating artillery unit.

*\*The term "battery" was informal until the late 19th Century when "battery" came to mean a field artillery company-sized unit, and "company" was used by the Coast Artillery. In 1901, these names became the only clue as to the function in any artillery title. For example: The 10th Artillery Company was coastal defense, the 10th Artillery Battery was field artillery. This continued until after World War I.*



30 March 1977



DEPARTMENT OF THE ARMY  
OFFICE OF THE DEPUTY CHIEF OF STAFF FOR OPERATIONS AND PLANS  
WASHINGTON, D.C. 20310

REPLY TO  
ATTENTION OF:  
DAMO-ZXA

8 MAY 1977

Dear Major Emerson:

A copy of your research paper on the participation of the US Army in the Barbary Wars was forwarded to me by your father. I must commend you on this comprehensive and interesting paper.

A recommendation has been forwarded to the Secretary of the Navy requesting that a streamer with one star be authorized to the 3d Battalion, 4th Air Defense Artillery. You'll be informed of the results of our efforts.

Sincerely,

  
WALTER T. KERWIN, JR.  
General, United States Army  
Vice Chief of Staff

Major William K. Emerson  
US Army Mobility, Equipment, Research  
and Development Command  
ATTN: DRD-ME-R  
Fort Belvoir, VA 22060

Major William K. Emerson  
US Army Mobility, Equipment, Research  
and Development Command  
ATTN: DRD-ME-R  
Fort Belvoir, VA 22060

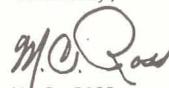
Dear Major Emerson:

General Kerwin has asked me to inform you that the Navy has authorized the 3d Battalion, 4th Air Defense Artillery, to procure and display a Navy Battle Streamer (with one star), Barbary Wars. This authority, granted as an exception to policy, occurred only as a result of your effort.

Your contribution to Army history is indeed noteworthy. I am enclosing a copy of our correspondence leading to approval for your personal files.

Please accept my sincere appreciation for your dedicated effort.

Sincerely,

  
M. C. ROSS  
Major General, GS  
Assistant Deputy Chief of Staff  
for Operations and Plans

## RED AIR DEFENSE TASK FORCE Jim Lemmons



Unfamiliar tracked vehicles have been seen lumbering over the streets of Fort Bliss in recent months. Casual onlookers stare in bewilderment for they are indeed curious looking machines.

Are they new weapons destined to join the arsenal of our already sophisticated air defense missile and gun systems?

Hardly!

They are replicas of foreign air defense weapons that will make up a newly created special "regiment" called "Red Air Defense Task Force." This unusual task force, equipping itself with full-scale models of foreign weapons, was organized with the purpose of providing a realistic threat environment for testing Army aircraft.

Plans for the ambitious project took shape in 1974 when the Threat Division of the Air Defense School's Directorate of Combat Developments was tasked with developing and producing operational models of foreign air defense systems. Through information gathered from photos and intelligence estimates, models of gun systems, missile systems, and associated radars are being developed.

To date, the Red Air Defense Task Force has reached about one-third of its planned weapons model strength and, by year's end, it is expected to be more than one-half complete. When the regiment reaches full strength, it will boast a representative of all known foreign air defense systems. Life expectancy of all models will span many years for they are being designed and built to easily accommodate updated changes.

Designed to uncover both defensive and offensive weaknesses in techniques and equipment in Army aviation, pilots flying test missions will experience the rare opportunity of engaging foreign weapons — under simulated battle conditions — that are using actual tactics of the represented weapon.

Simply stated, a contest between the foreign air defense weapon and an Army aircraft works like this: the foreign weapon model, instrumented with lasers and video recorders, and the aircraft are linked to a master computer. When the ground weapon's gunner presses the firing mechanism, a laser beam or video recorder (instead of a projectile) is triggered. If a hit is scored on the aircraft, the master computer evaluates the direction of fire and signals the aircraft of the simulated kill.

Experts then study possible causes for the aircraft's vulnerability and, if practicable, modify defensive techniques or redesign protective equipment. Already, some changes in aircraft defensive tactics have been made as a result of testing.

Manned primarily with soldiers on a loan basis from tactical units at Fort Bliss, the task force will require an operating strength of 54 people. At present, its ranks number less than half that figure.

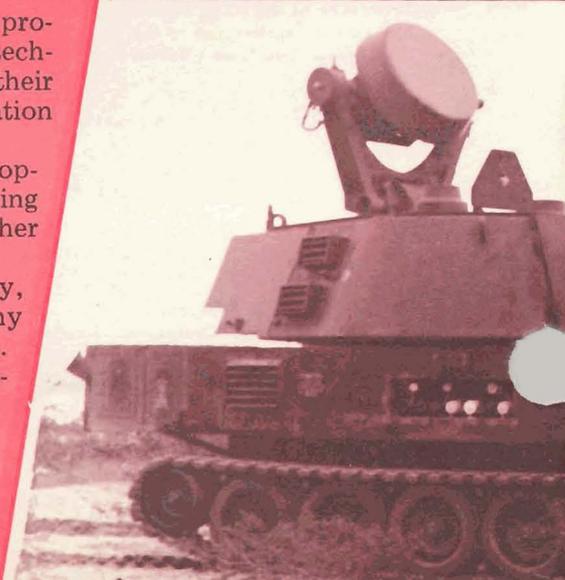
Crew members become highly skilled in operating these unique weapon systems and even stay with the various contractors during production phases. They take the weapons throughout the US to challenge Army aircraft under battlefield conditions.

Soldiers who volunteer and are accepted for this sensitive and important program are offered the singular opportunity to learn firsthand the operating techniques and limitations of foreign air defense weapons. More importantly, their active roles in providing a threat environment insure that the best Army aviation possible can be developed.

Weapon models now are at Fort Hood, Texas, taking part in an Army Helicopter Instrumentation Test where the aircraft's defensive techniques are being thoroughly evaluated. When that test is completed, they will move to another part of the US to conduct similar testing.

While Army aviation is being improved in step with advanced technology, its defensive tactics must also be improved to keep one step ahead of enemy tactics. This program is but one method being used to satisfy that vital need.

The final proof of the Red Air Defense Task force is the evaluation and re-design of aircraft equipment to insure survivability.



# the FIELD



## REALISM IN COMBAT TRAINING Pat Merten

You and your battery are on a field training exercise. At dusk you're inspecting positions and your mind turns to the Aggressor force that you've been told will oppose your unit. "How good will they be? How much pressure will they put on us?" You know one thing, "They'll look just like us except they'll probably be wearing those funny helmet liners with the wooden trim that makes them look like green Roman charioteers."

On your way back to your CP, firing suddenly breaks out and you realize that your unit is under attack. As you hurriedly take up your defensive position, you get your first glimpse of the Aggressor. You've never seen the likes of him before...except perhaps in a magazine. He's dressed in what appears to be a Russian uniform, he's carrying an AK-47 assault rifle, and he's running straight at you alongside a strange looking tank, definitely not made in the USA.

Even the sounds from the Aggressor's weapons are different from the defensive fire your unit is putting out. Instead of firing and maneuvering toward you like US troops, these guys are assaulting your battery en masse. They come at you in such overwhelming force that in a matter of minutes they've overrun your position, taken you captive, and, to make matters even more perplexing, they don't speak English.

What's going on here? Well, you've just been introduced to the new Opposing Force (OPFOR) concept that will soon be implemented in the Army-wide training system.

This program focuses on preparedness training against our foremost potential adversaries, gives the soldier a working knowledge of our adversaries' vulnerabilities, and trains soldiers and leaders to exploit those weaknesses even when outnumbered and outgunned.

The 1973 Arab-Israeli War demonstrated that today's battlefield presents a challenge beyond any the US Army has faced before. It demanded that the Army reassess its capabilities to win on such a battlefield without incurring unacceptable losses. In reviewing the lessons learned in the conflict, it was clear that our future success would be governed by how well we understood the exploitable weaknesses of potential adversaries, and how well we were able to correctly assess future adversary action.

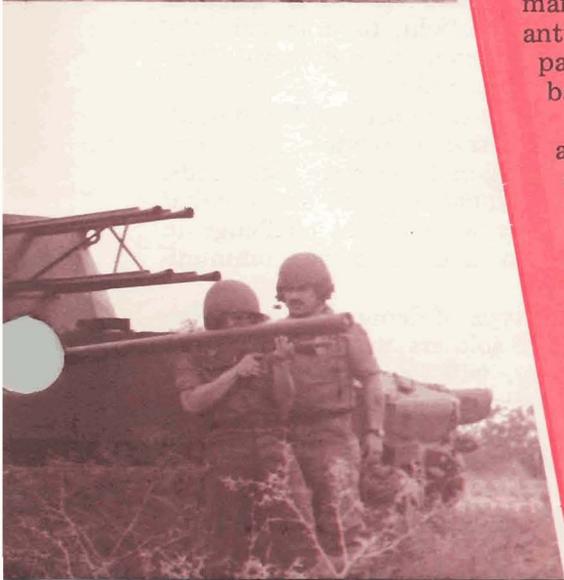
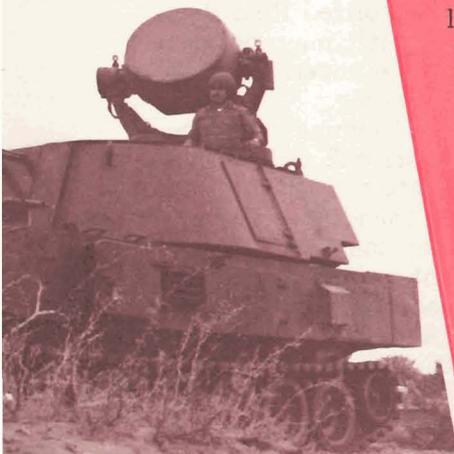
It was also clear that our Aggressor program simply didn't provide the realism essential to prepare commanders, NCOs, and soldiers for the next war.

At that point, work was started to update and vitalize the Aggressor program, and TRADOC proposed a new maneuver enemy to replace the old and no longer realistic Circle Trigon Party.

Let's now take a look at how the new Opposing Force concept will improve our mission readiness. Once assigned to a unit, soldiers will receive training emphasizing their counterpart's makeup — the person on the other side of the hill that they have to beat. The rifleman's counterpart will be an adversary rifleman or grenadier; the helicopter pilot will be introduced to the other side's antiaircraft gunner, his equipment, and his capabilities. In addition to counterpart awareness, soldiers will be given recognition training and learn about the battlefield conditions they may encounter with a specific opposing force.

This training will come to the trooper in classroom presentations, lectures and demonstrations, OPFOR training literature, and instructional materials on specific potential adversaries. This material will be available to individual enlisted and officer personnel and will be tailored to their grade and job responsibilities.

OPFOR training will be integrated with instruction on US tactical skills, techniques, and principles. This approach should spur individual imagination and ingenuity in normal duty assignment and ultimately on the battlefield.



Future training literature will emphasize OPFOR awareness, and it is likely that the individual's knowledge of specific potential adversaries may be part of appropriate Skill Qualification Tests (SQTs). Service schools will incorporate into their curriculum the doctrine, tactics, weapon systems, and fortifications of potential adversaries.

The Opposing Force concept will train crews on how opposing forces will employ their combined arms teams on specific types of terrain and emphasize early target acquisition and recognition of those forces.

Further, training will stress target engagement at maximum weapon systems capabilities of a specified potential adversary. Included in crew training will be instruction on the vulnerabilities of the opposing force's doctrine, tactics, and weapon systems.

Crew training will use realistic targets, battlefield simulators, fortifications, and tactically deployed target displays likely to be encountered against a specific potential adversary. Training critiques will stress OPFOR doctrinal considerations that will increase crew skill proficiency and familiarization with the modern battlefield environment.

Training will reinforce and add to the awareness of the opposing force achieved in crew training and focus on small unit tactics. Unlike equipment-oriented collective training, prominent at the crew level, unit training will assume opposing force numerical superiority.

Unit personnel will also perform as the opposing force. This gives the soldier a chance to employ the adversary's tactical logic and techniques and provides the individual an opportunity to see our forces through "adversary eyes." The individual can then take corrective action once back in his unit.

Armed with such insights, soldiers will become more aware of how best to employ their effectiveness while minimizing their vulnerability.

Ultimately, the unit will face OPFOR in Army Training and Evaluation Programs (ARTEPs). These programs, tailored to specific potential adversaries, will use electronic warfare techniques, NBC considerations, and

other battlefield occurrences associated with that adversary's capabilities.

Future Army training will see OPFOR materials and equipment. Sufficient quantities will be acquired to provide a minimum essential quantity for each major US Army force. Included in this will be foreign tanks, tracked vehicles, and individual and crew-served weapons.

Units will maintain the equipment as well as train their personnel in its operation. Adding to the realism will be OPFOR uniforms and associated accoutrements that will present a realistic image.

Included in the list of realistic OPFOR training materials will be potential adversary maps, Communications — Electronic Operating Instructions (CEOI), operations orders formats (in the applicable foreign language), and associated documents and overlays. Even vehicle markings, although not those of actual units, will take on new realism. For example, the "99th Motorized Rifle Regiment" may be seen on bumpers in future training.

Training maneuvers will use OPFOR larger than the "friendlies." The role of the field problem

controller will be important in insuring realism, and the opposing commanders will be afforded greater situational flexibility. The sense of uncertainty and competition inherent in such realistic situations will drive the natural development of operational security, intelligence gathering, and deception that is viewed as essential to success on the battlefield. In organizing the OPFOR exercises, appropriate defensive/offensive force ratios will be employed.

The OPFOR will not only employ potential adversary conventional tactics, but may also use unconventional warfare methods. This will present combat support and combat service support units with a real challenge in rear area protection and lines of communication security.

It is through this type of demanding preparedness training that US soldiers, using their imagination and ingenuity, will learn how to win — even if outnumbered and outgunned.

The OPFOR concept will be implemented Army-wide before the end of FY 78.



*A member of the US Army's Soviet Military Equipment Exhibit Team displays a Soviet Combined Arms Suit and an AK-47 Assault Rifle.*



# TRADOC SYSTEM MANAGER PROGRAM

*Editor's Note: this article is published because of its value to commanders and staff members, particularly at battalion level and up. Officers engaged in or following research and development activities will also be interested. We think the acceleration the TRADOC System Manager approach can engender in fielding totally combat-ready weapon systems will be a welcome innovation to combat commanders of all branches and at all levels.*

To insure early, continuous, and effective TRADOC participation in the materiel acquisition process for certain selected weapon systems, a new management-type system has been established through appointment of TRADOC System Managers (TSMs). Four air defense weapon systems (Patriot, Roland, DIVAD Gun, and Stinger) have been selected for participation in the program. The goal of the TSM program is to insure that all phases of materiel acquisition (personnel, training, logistics, operations, organizations, test, and doctrine) are treated equally early in the development cycle and that all plans and requirements are developed and fully integrated early in the acquisition process. This total system approach will continue throughout life cycle management of these systems and any others that may be selected in the future.

TRADOC System Managers who have been designated for the above systems will insure that all user interests are considered early in the acquisition cycle and are refined throughout the development of the system. Selection of the systems for participation in this management program was made by the Deputy Chief of Staff for Combat Developments (DCSCD), HQ TRADOC.

## RATIONALE

Formerly, user responsibility included developing the requirement and the total system response to that requirement, but they were not included in *validating* total system response to the requirement until late in the development cycle. For example:

Personnel considerations were not addressed in any detail until late in the development cycle or, in some cases, not until after a system was fielded.

Under the old life management cycle, training requirements were not addressed until late in the development cycle; therefore, complete training support packages were not normally available for test and evaluation until development testing/operational testing (DT/OT) III, if then.

Training devices and simulators were not addressed until after the system was fielded. Complete logistic support packages were not addressed until OT III or later.

A result of all this has been that material was deployed that was not operationally ready as a total system.

## TOTAL SYSTEM APPROACH

The total system approach requires that the materiel, personnel, training, logistics planning, and essential data requirements be identified, analyzed, and tested early and refined throughout the materiel acquisition process. One purpose of the TSM is to shorten materiel acquisition lead time by insuring the above is completed early in the development cycle. By so doing, the initial



General W. E. Depuy, then Commander of TRADOC, presents the first TSM Charter to COL James R. DeMoss for development of the new DIVAD Gun. MG W. H. Vinson, Jr., (left) is DCofS for Combat Developments, TRADOC.

personnel, training, and logistics planning can be made available for evaluation at DT/OT I. This will allow the production decision to be made earlier and reduce the number of tests required before fielding.

### PROJECT MANAGER'S RESPONSIBILITIES

The Project Manager has responsibility for the development, procurement, production, and logistics support of this system. He will exercise full-line authority over the planning, organization, direction, and control of the approved project.



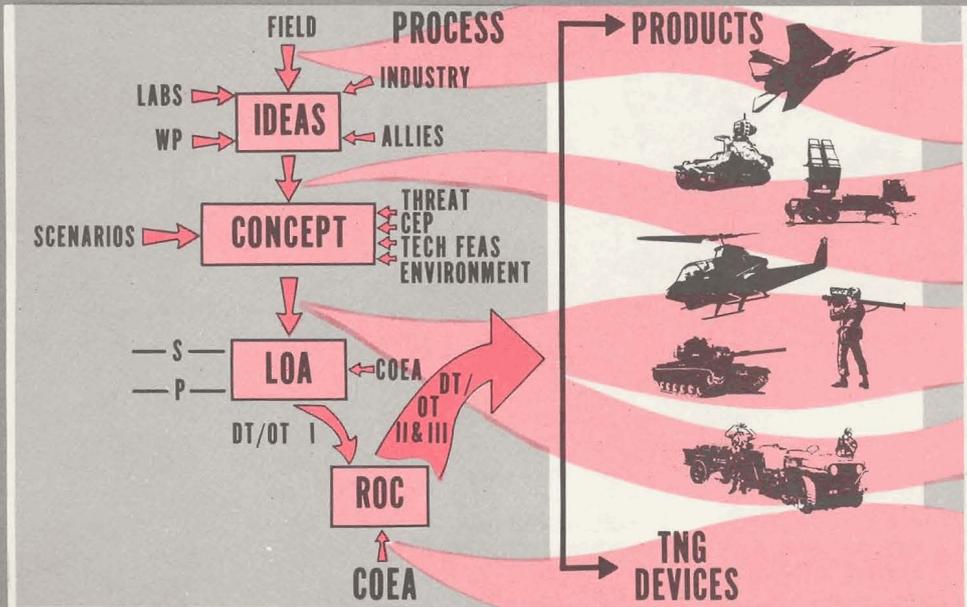
COL Joseph L. Hunter, US Roland TSM, examines the first radar antenna of US Roland fire unit.

### TRADOC SYSTEM MANAGER

As recommended by the School Commandant, the Commander, TRADOC, will appoint a TSM whenever a need is identified. As the user agent for a particular system, the TSM discharges the responsibilities under the School Commandant for the total system development. He coordinates the development and integration of all combat and training development activities at the school and within TRADOC. He also exercises authority over the allocation and use of all TRADOC resources authorized for the accomplishment of his mission.

A HQ TRADOC System Staff Officer (TRASSO) is also appointed, and his role under the TSM concept is that of a Deputy Chief of Staff for Combat Developments (DCSCD) staff monitor and expeditor. He will be the TSM point of contact at TRADOC headquarters and will provide the TRADOC interface with HQ DA.

Upon acceptance of the TSM concept, an implementing TRADOC regulation was prepared. The regulation provides the specific authority, responsibilities, and constraints of the TSM, including his relationship with TRADOC elements, DARCOM, and other activities.



The sequence of certain significant actions under the total concept system.

Although the DCSCD will continue to supervise, monitor, and direct all total systems' activities as appropriate, the Deputy Chief of Staff for Training will continue to be responsible for all aspects of training. It is at the proponent schools where the complete integration of combat developments and training development activities must occur. Thus, it is at the US Army Air Defense School where these critical aspects of fielding new AD systems will be executed.



# Guarding The Skies of

## NORTHERN BAVARIA

### STAFF SERGEANT JACK HICKMAN

DEC. 7, 1941, HONOLULU—TODAY MORE THAN 350 AIRCRAFT FROM THE JAPANESE IMPERIAL NAVY ATTACKED PEARL HARBOR. ALTHOUGH A FEW AIRCRAFT DID PENETRATE THE DEFENSES AND INFLICTED MINOR DAMAGE, THE AIR DEFENSE FORCES DETECTED THE APPROACHING AIRCRAFT AND, ENGAGING THE STRIKE FORCE CONTINUALLY, BROKE UP THE ATTACK.

D-DAY PLUS 2, OMAHA BEACH—UNABLE TO GAIN AIR SUPERIORITY BECAUSE OF GERMANY'S AIR DEFENSE, AND FACED WITH THE AWESOME GERMAN AIR POWER, GENERAL EISENHOWER HAS ORDERED THE WITHDRAWAL OF THE ALLIED EXPEDITIONARY FORCE FROM NORWAY.

AUG. 9, SOMEWHERE IN THE PACIFIC—FOR THE SECOND CONSECUTIVE TIME, THE ALLIES HAVE FAILED TO DELIVER THE ATOMIC BOMB ON JAPAN DUE TO JAPAN'S AIR DEFENSE. ALTHOUGH THE ALLIES FEEL THIS WEAPON WILL SHORTEN THE WAR, THE B29 MUST GET CLOSE ENOUGH TO A TARGET TO DELIVER IT EFFECTIVELY.

As you know, these headlines never appeared in print. But they could have. The facts speak for themselves. Every major battle or war since that fateful day in 1941 has been preceded by a major air battle or air strike to establish air supremacy.

Just as strong, highly trained, and fully integrated air defense forces could have created the fictitious headlines, it is a fact today that a major consideration of all ground commanders is air defense.

Modern military tacticians generally agree that future conventional and limited nuclear wars will probably be initiated by a massive and swift, low-level air attack similar to the one the Japanese directed against Pearl Harbor. The Improved Hawk missile system is specifically designed to counter such high-speed, low-level attacks. Improved Hawk, with greater range and killing power than its older brother, Basic Hawk, is considered to be one of the most effective deterrents to a low-level air attack. When integrated with the Vulcan gun system and Chaparral and Redeye missile systems, Improved Hawk becomes one of the most potent air defense systems in the world today. With its highly-trained crew and reliable equipment, the Hawk battery must be considered as one of the major obstacles facing a low-level attack by an

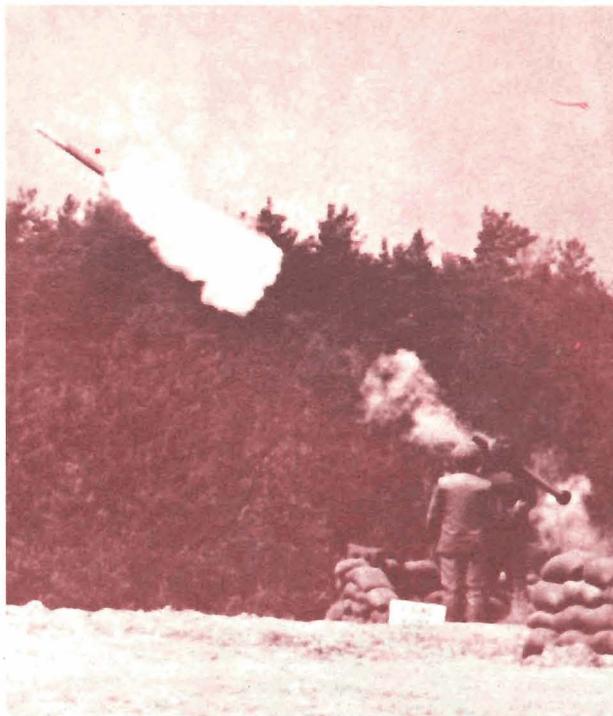
opposing air force, for the basic mission of any air defense battery is to detect, identify, track, and destroy hostile aircraft.

Throughout Northern Bavaria, from Massbach to Regensburg and from Wertheim to Amberg, the men and women of the 69th Air Defense Artillery Group are guarding the skies. The 69th Group consists of the Group Headquarters at Wurzburg; the Missile Control Center at Lauda; the 2d Bn, 57th ADA at Ansbach; the 3d Bn, 7th ADA at Schweinfurt; the 3d Bn, 69th ADA at Grafenwoehr; and the 6th Bn, 52d ADA at Burzburg. Each battalion has three or four firing batteries displaced

throughout Northern Bavaria. Firing batteries are composed of two or three firing sections with each section having three launchers loaded with three Hawk missiles.

The 69th ADA Group has just completed a 2-year program of converting all batteries to the Improved Hawk system. A major test of the success of the conversion program is annual service practice (ASP). During ASP, batteries fully exercise the Hawk system. The 3d Bn, 7th ADA, recently completed ASP involving all batteries and scored an impressive 97.85 percent for a battalion average. That score gave the battalion the distinction of being the first Improved Hawk Honor Battalion. That it occurred just 6 months after the conversion program has been completed attests to the skill and high degree of training attained by the 3d Bn, 7th ADA, air defenders. During the week of 4 October 1976, men from Btry D, 6th Bn, 52d ADA, scored 99.35 percent, giving it the distinction of having the highest Improved ASP score ever attained at the NATO firing range on the island of Crete.

Nondivisional air defense artillery batteries in Europe, such as those in the 69th ADA Group,



are unique in that instead of being evaluated by the local Army commanders and divisions, they are evaluated by the North American Treaty Organization (NATO), since they are assigned as part of the NATO defense. The North American Treaty Organization has assembled an evaluation team composed of individuals from all of the member countries. Each year this team evaluates 69th Group units on their ability to survive an enemy attack, overall preparedness, the state of maintenance of their equipment, and the batteries' total capacity to accomplish their mission. The 69th ADA Group

batteries have continually scored among the highest of all units evaluated, thus instilling confidence in the troops, their commanders, and the member NATO nations.

Like other nondivisional ADA batteries in Europe, 60th ADA Group units are unique in another aspect, since they are required to maintain a 24-hour vigil each day of the year. The batteries very rarely have the chance to "stand down;" so it takes a dedicated (and intelligent) soldier to work in ADA — dedicated because of the many long and arduous hours spent on the "tac site," and intelligent because of the many items of sophisticated electronic equipment he must work with each day. The reward for the air defender of today is the realization of the tremendous importance of his job and the personal satisfaction from that realization.

The air defenders in USAREUR are rightfully proud of their contribution to the overall defense of Western Europe. The men and women in other jobs throughout Europe and, in particular, in Northern Bavaria can take comfort in the knowledge that the men and women of the 69th ADA Group are supporting the accomplishment of their mission by continuously "guarding the skies." ✱



*Staff Sergeant Hickman has been in the Air Defense field for over 12 years in areas of operations and intelligence, as an instructor/evaluator at the US Army Air Defense School, a Nike Hercules crewman in the Dallas-Fort Worth Defense (until its deactivation), and Noncommissioned Officer in Charge of Battalion Operation Centrals in Okinawa and Germany. He is currently assigned to the Public Affairs Office, 69th ADA Group, where he hosts a weekly radio show, "Blazing Skies," dealing with 69th ADA Group topics.*



## PROJECT HAND-OFF FOR FAAR

The forward area alerting radar (FAAR) is organic to the Chaparral/Vulcan ADA battalion with the mission of detecting low-flying aircraft and providing an alert to Chaparral, Vulcan, and Red-eye fire units. The system consists of a pulse doppler acquisition radar (AN/TPQ-32); an identification, friend or foe (IFF), interrogator (AN/TPX-50); a radiofrequency data link (RFDL); and target alert data display sets (TADDS) (AN/GSQ-137). The AN/TPQ-32 radar is mounted on an M-561 vehicle and powered by a trailer-mounted 5-kw generator. The AN/TPX-50, working in conjunction with the radar, provides tentative IFF information.

Upon aircraft detection, the FAAR operator provides IFF and location information via the RFDL to the TADDS located at the weapon site. The target information displayed on the operator's console is transmitted to the weapon site and visually reproduced on the TADDS, where aircraft are represented on a 7 x 7 matrix by two discs in each matrix square — green for friendly, orange for unknown. The radar operator can remove or update information on the TADDS at any time.

The initial FAAR system production contract was awarded during the spring of 1971. A production validation in-process review (IPR) was conducted in November 1972, and the production delivery was completed in May 1973. The first FAAR platoon was equipped and unit training began in August 1972 at Fort Bliss, Texas. The system was type classified Standard in February 1973.

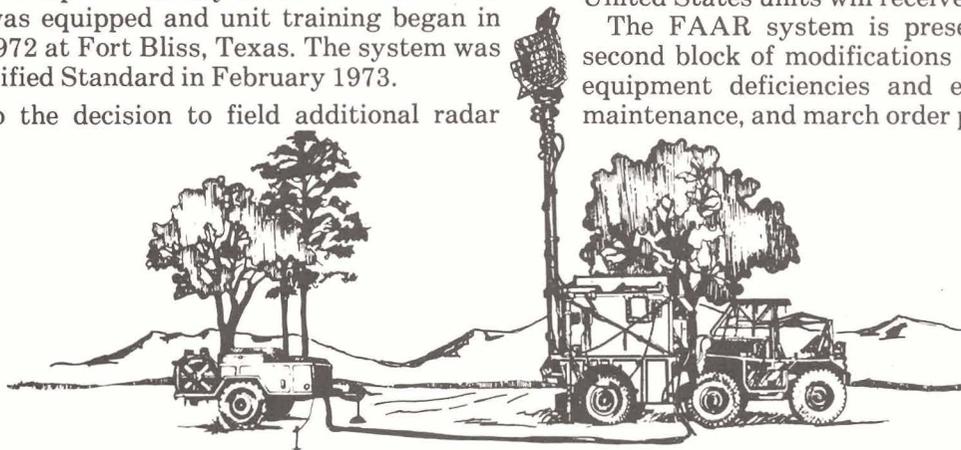
Prior to the decision to field additional radar

sets, the Army conducted a two-phase test to determine FAAR system performance in a realistic environment. This environment contained multiple, high-performance aircraft; helicopters flying nap-of-the-earth; and sophisticated electronic countermeasures. These tests were conducted at Fort Hood, Texas, during November and December 1973, with an additional instrumented phase in conjunction with Chaparral tests at Fort Lewis, Washington, in February 1974.

As a result of this testing, a contract was awarded for a second production of FAAR units and ancillary equipment. These systems will be delivered before the end of 1977 and have been selected to be deployed under DARCOM's Project Hand-Off concept.

Project Hand-Off is a DARCOM commitment to user satisfaction in that the user receives equipment that is completely functional and logistically supportable. Provisions of Project Hand-Off for FAAR include a materiel fielding plan, a statement of quality and support, and a materiel fielding team to assure that the complete system is deployed successfully. Outside continental United States units will receive a 60-day warranty during which free issue of repair units will be provided for any equipment failures, and engineering personnel will be on site for technical support. Continental United States units will receive a 30-day warranty.

The FAAR system is presently undergoing a second block of modifications that will correct 26 equipment deficiencies and enhance operations, maintenance, and march order procedures.



## POSSIBLE REDEYE HAZARD

When transported in a helicopter, the Redeye weapon can build several thousand volts of electrostatic charge. A hazard exists in that squib ignition is possible under these circumstances and could result in ejector motor ignition with disastrous consequences to the helicopter and its crew. The hazard is eliminated if the weapon is transported in the monopack container and is

grounded for 10 minutes after off loading. Redeye personnel and helicopter crews must insure that all Redeye weapons to be transported by helicopter are transported enclosed in the metal monopack container. This warning also applies to the tracking head trainer (THT). While the THT poses no hazard in itself, crews must handle it as they would the actual weapon.

## HAWK PRODUCT IMPROVEMENTS

The US Army Missile Materiel Readiness Command Hawk Project Office has successfully completed the contractor test phase for four IHawk missile system product improvements. These improvements have been developed to enhance performance, reliability, and maintainability of the system radars and to provide increased communications capabilities. The improvements will be applied to tactical hardware by Department of the Army Modification Work Order.

The improved continuous wave acquisition radar (ICWAR) transmitter product improvement program (PIP) includes a new master oscillator—power amplifier klystron chain and compatible power supply, and replaced the present liquid cooler with air cooling. This PIP will provide significantly improved reliability and maintainability, increased power output and component life, and is expected to decrease maintenance costs. The improved pulse acquisition radar (IPAR) digital moving target indicator (DMTI) PIP will involve in-

ICWAR

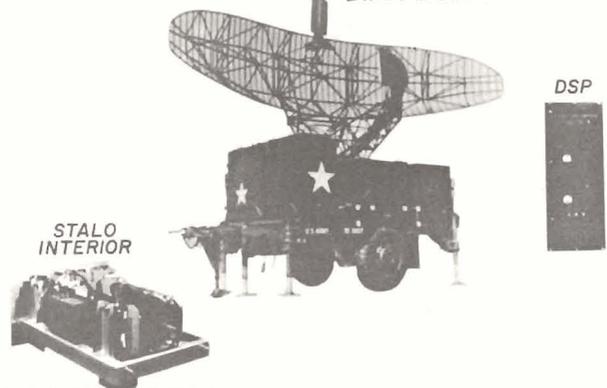
### TRANSMITTER MODIFICATIONS



stallation of a solid state digital signal processor and oscillator. Benefits include improved target detection performance by reducing clutter and noise effects, simultaneous operation of moving target indication and video integration, increased automatic target detection coverage, reduced automatic data processing (ADP) loading, enhanced multiple target detection, and improved reliability and maintainability.

The Army tactical data link (ATDL) PIP replaces the present ADP memory with solid state memory, having double the digital word capacity. This will allow computer-to-computer netting with

### PULSE ACQUISITION RADAR DMTI MODS

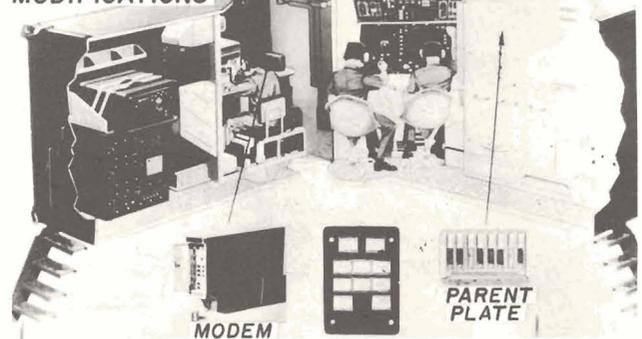


higher headquarters command and control systems. This PIP is expected to reduce significantly the overall system reaction time; improve maintainability, system performance evaluation, and operator effectiveness; and add capability to threat order for off-site vital area protection.

The fourth PIP adds classified modifications to the system, which will enhance its performance in electronic countermeasures, maneuvering target, and antiradiation missile environments.

An integrated testing approach was followed during the just-completed contractor test phase to minimize test time and cost. This involved combined testing of the four PIPs to the maximum extent possible and early participation in the test program by Government test and user personnel. The modified hardware was turned over to the Test and Evaluation and Training Doctrine Commands in April 1977 for completion of dedicated Government testing (DT/OT II). It is expected that production contracts will be executed later this year for the modification kits for tactical units.

### ATDL/INCREASED MEMORY MODIFICATIONS



## DIVAD GUN PROGRAM

The division air defense (DIVAD) gun systems will provide effective air defense for divisional maneuver elements, principally armored and mechanized infantry, against attack by armed helicopters and high-performance, close air support, fixed-wing aircraft. It will be a completely integrated system mounted on a self-propelled, tracked vehicle. The system will consist of three major subsystems: armament, radar-directed fire control, and Government-furnished M48A5 tank chassis. Development of the fire control and integration of subsystems are considered to be the major tasks since maximum use is to be made of existing and/or developed components and subsystems. The system will:

- Provide air defense for divisional maneuver elements.
- Provide air defense for selected high value assets and choke points in the division area.
- Deter easy access to rear areas by low-altitude threats.
- Provide defense against ground attack.

The DIVAD gun program will feature an accelerated, unconventional acquisition approach designed to achieve initial operational capability (IOC) in the minimum possible time. The levels of performance and support are specified in the gun request for proposal (RFP), which was released to industry on 26 April 1977 and represents the minimum performance requirements for the fielded configuration. A limited number of firm requirements

has been specified and the remainder placed in the "desired" category, in order of priority, so that contractors can make appropriate cost-performance trade-offs in their proposals and during the development phase.

The development phase calls for minimum deliverables with respect to support equipment, technical data, reporting requirements, reliability demonstrations, etc. Two development contracts will be awarded. Each prime contractor will deliver two complete system prototypes ready for Government testing at the end of the 24th month. Prototypes delivered will conform to the full fielded configuration as closely as possible within the time and funding constraints of the program. The contractor will participate with the operational and development testing agencies of the Army in an integrated evaluation program extending from the start of the 25th month through the 27th month. The contractors will instrument their respective systems, support the testing, and collect data in accordance with Governmental requirements. The shoot-off evaluation in contract phase I will emphasize major performance parameters and operational characteristics. Those system performance characteristics not evaluated by system tests because of time and/or monetary constraints will be evaluated by simulation.

Following the development phase, an initial production phase will be initiated in an expeditious manner. About one-third of the total acquisition will be accomplished in the initial production phase and the remainder in a follow-on production phase, which will also be competitive.

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## CHAPARRAL IMPROVEMENTS

Since Chaparral was fielded in late 1969, improvements have been made in missile capabilities. Type classified Standard in November 1974, the improved missile, MIM-72C, enables engagement of incoming targets. This increases system utility by providing point defense and self-defense capabilities. The improved missile is in production at the present time.

Another improvement in the missile stems from a development program to replace the current rocket motor with a smokeless motor. This will enable the gunner to engage a new target much sooner after missile launch because of the elimination of residual smoke. It will also reduce the system's battlefield signature by eliminating the smoke trail of the missile from the fire unit to the target.

The smokeless rocket-motor program is in the engineering development stage and will be adopted in future missile procurement.

In addition to missile improvements, an identification, friend or foe (IFF), system under development for the Stinger weapon system is being adapted for use with the Chaparral. The IFF system will be mounted in the gunner compartment and employed during the weapon system engagement tactics. This system will enable the gunner to challenge and interrogate targets to determine whether sighted aircraft are friendly or potentially hostile.

Chaparral remains a versatile and reliable system in the hands of US forces worldwide. It is a highly respected member of the air defense family.



# WHAT DO YOU DO NOW,



## LIEUTENANT?

Prepared by Tactics Department, USAADS

### SITUATION:

You are the platoon leader of a Vulcan platoon that has been placed in direct support of the Division's 3d Brigade. Your present mission is that of supporting a tank company team. The battery commander has just given you a warning order for a new mission. The new mission will be to provide air defense for an 8-inch howitzer battery located in the brigade's rear area. Your battery commander informs you that the unit will also have three Redeye teams that must be integrated in the overall air defense of the artillery battery.

The exact location of enemy strength is not known at this time. Enemy air threat will probably consist mainly of high-performance aircraft. The terrain in the area to be defended consists of gently rolling hills with heavy woods that may restrict observation and fields of fire.

As the platoon leader, you should now be reviewing the employment guidelines to determine how you will position your Vulcans to integrate with the Redeye teams and provide the supported unit with the best air defense possible.

What are your actions, Lieutenant?

What must you consider in this situation?

Defense of an asset in a rear area is designed primarily to counter low-level attack by jet aircraft. This artillery battery may be attacked by enemy aircraft as a target of opportunity; frequently, however, enemy intelligence will conduct planned air strikes against it. It must be assumed that the enemy can attack the asset from any direction, and attack on the first pass by enemy aircraft is likely.

Defense design and selection of positions for this type of asset can ordinarily be more deliberate than when supporting maneuver units. The defense is normally

designed and tentative weapon positions selected using a map. The precise locations and suitability of positions are then determined by ground reconnaissance.

In planning a defense of the field artillery battery, consider the requirements for siting Vulcans. Positions selected for Vulcan squads should provide for:

- Observation and fields of fire. This is the primary consideration. Look for positions that permit the crews to see and the weapons to be fired in all directions. Make sure each weapon can cover its primary sector of fire.
- Cover and concealment for weapons and crews.
- Defense against ground attack. When possible, the weapons are positioned with those of the defended unit and take advantage of protection afforded by the unit against ground attack.
- Entrance and exit routes that will permit the weapons to enter and leave the position expeditiously.
- Communications with the platoon CP and with forward area alerting radars. In most cases, line of sight with these elements for communications by FM radio or radio data link is required.
- The technical requirements of the weapon system. There are certain guidelines that should be considered in designing the defense. The use of these guidelines helps to insure that a defense will have adequate mass.

### *Balance*

Achieve defensive balance by positioning weapons for all-around defense and so that approximately equal fire power can be delivered in all directions. Unless terrain prevents low-level air attack from certain directions, which will seldom be the case, it must be assumed that enemy aircraft can attack the asset from any direction.

### Mutual Support

Obtain mutual support by positioning Vulcans no more than 1,000 meters apart. This permits the massing of the fires of two or more weapons on an attacker and prevents gaps in the defense when one weapon is temporarily out of action — when one Vulcan is out of action it is protected by another.

### Early Engagement

Gain an early engagement capability by positioning some weapons out away from the unit to be protected. This improves the chances of engaging an aircraft before it attacks the asset.

### Defense in Depth

Achieve defense in depth by positioning weapons with one generally in front of the other. This subjects an aircraft attacking the unit to an ever-increasing volume of massed fires as it approaches its target.

The Vulcan is most effective when engaging targets in the head-on (directly incoming) aspect. By positioning Vulcans on or near the attacking battery, attacking aircraft will appear as incoming rather than crossing targets and present a much better target for the Vulcan gunner.

After you have briefed your subordinates and given them the movement order, conduct your ground reconnaissance. If the asset is already occupied, meet with the commander (or his representative) and coordinate the placement of your platoon into the overall defense plan. Check the

Vulcan positions chosen on the map reconnaissance and adjust them to get the best fields of fire. If the sites are marked for easy identification, ground security must be provided until the platoon arrives. Depending on the time available, you may return to the platoon and accompany them to the new asset, otherwise you may radio the platoon sergeant to bring the platoon along the designated route.

As the platoon arrives, the four weapons are positioned near the artillery battery in good firing positions to enhance Vulcan effectiveness. Weapons are located within 1,000 meters of one another for mutual support. Weapons are positioned around the asset in a balanced configuration for all-around defense.

In a platoon defense, the early engagement capability is minimal and defense in depth is lacking; therefore, the three teams of the field artillery battalion's Redeye section are positioned out from the battery for early engagement and all-around defense with about 2-3 kilometers between the teams so that their fires will overlap. The employment of Redeye with Vulcan increases the early engagement capability and the depth of the defense. An attacker is now confronted with two different weapon systems.

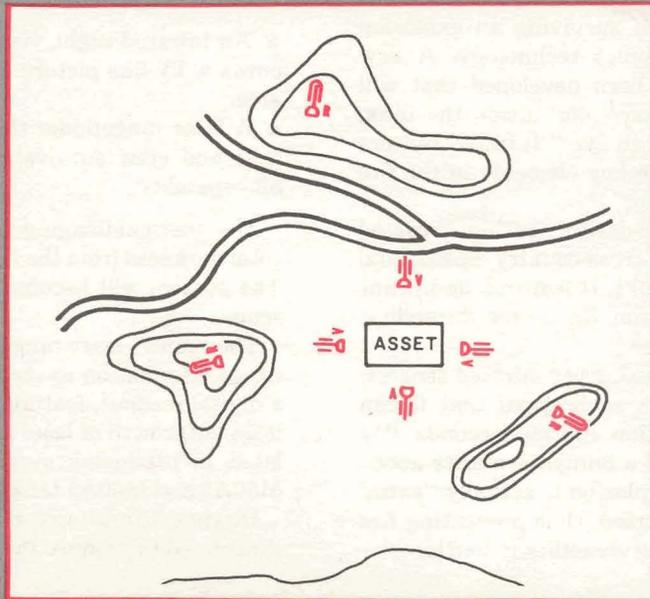
After the squads have occupied their positions, and you have notified the battery commander of your new positions, you should go to each squad and insure that it does have a good field of fire, vehicles are camouflaged, and that it is continuing to improve its position. Such actions will decrease the chances of being detected and increase survivability. Also, insure that alternate positions have been chosen and, as time permits, prepared for occupation.

If the positions are close enough and will be occupied for an extended period, establish communications to eliminate radio transmissions on the platoon net. If the mission calls for it, supplementary positions, possibly for night occupation, may be prepared. The platoon leader should replace his command post near the supported unit's commander or collocate with one of his squads. In either case, the platoon leader must establish and maintain communications with the asset's commander.

To help the Vulcans survive:

- Blend with environment.
- Pick defensible positions.
- Use natural materials concealment.
- Enforce discipline — don't reveal your position.

With good detailed planning and coordination you will be able to provide the defended asset with adequate air defense, using the air defense assets at your disposal.



# COMBINED ARMS



## XMI CREW SAFETY

Crews of the US Army's new XM1 main battle tank, scheduled for use during the 1980s and beyond, will have a greatly improved chance of surviving an explosion because of the latest electronics technology. A new fire-suppression system has been developed that will detect and suppress a fuel explosion inside the tank, literally, within the "blink of an eye." Infrared sensors and related electronics are the key elements in the fire protection system.

The XM1 is an advanced-design, turbine-powered tank with twice the power, cross-country speed, and mobility of current combat tanks. It features significant improvements in crew protection, fire power, durability, reliability, and maneuverability.

The fire protection system, using the infrared sensors, reacts to heat and light with such speed that it can suppress a fuel explosion within 100 milliseconds. (By contrast, the average blink of a human eye lasts about 250 milliseconds.) The fuel explosion is actually "extinguished" before it can get started, thus preventing fire damage and enhancing crew survivability in battle.

In other developments, the XM1 tank will be provided:

- An infrared night vision system that will give tank crews a TV-like picture of targets and the surrounding area.
- A laser rangefinder that will increase tank effectiveness and crew survivability by improving first-round hit capability.

The thermal-imaging system can form an image in total darkness from the heat radiated by objects in view. The system will become part of the tank's basic periscope.

The "mini" laser rangefinder, which provides precise range information to the tank's ballistics computer and a digital readout, features small size and lower cost and is an outgrowth of laser rangefinder experience accumulated in producing systems for the M-551 Sheridan, M60A2 and M60A1 tanks.

Hughes Aircraft Company and a subsidiary have been contracted to produce the foregoing subsystems.

## FM 6-20 IS COMING

The final approved draft of FM 6-20, Fire Support in Combined Arms Operations, the Army's capstone How-To-Fight manual for fire support, is now being distributed to active Army maneuver and fire support units. This manual provides the first comprehensive treatment of the maneuver commander-fire support coordinator (FSCOORD) relationship and illustrates how to integrate all fire support into combined arms operations. It was written by maneuver and fire support personnel, with input from elements throughout the Army, and is designed for all members of the combined arms team.

The doctrine contained in the final draft of the FM is approved by HQ, TRADOC, for instruction at TRADOC installations and for training in the MACOMs. The final approved draft will remain current until superseded by the official Department of the Army printing of the manual late this summer. Publication will be announced by TRADOC message and will be sent to units, both active

and Reserve, through pinpoint distribution. If units have not received the manual by the end of a 60-day period from the date of the message, it may be ordered via DA Form 17, addressed through publications channels to: USA AG Publications Center, 2800 Eastern Boulevard, Baltimore, MD 21220.

FM 6-20 is not an FA tactics manual. Rather, it is the maneuver commander's and FSCOORD's total fire support manual. As such, it complements all TRADOC How-To-Fight Manuals and is to be used in conjunction with those manuals listed in Appendix B of FM 100-5. In addition to FM 100-5, FM 6-20 specifically supports and complements information contained in FMs 101-5, 71-100, 71-101, and 71-2. FM 6-20 will be followed by FM 6-21 (FA Cannon Battalion) and FM 6-22 (Division Artillery, FA Brigade, and FA Assigned to the Corps), which discuss tactics and operations for internal FA organizational use. Each manual will be "product improved" as the need arises.

## COBRA TOWS IN USAREUR

The AQ-1Q Cobra, carrying the Tube-launched, Optically-tracked, Wire-guided (TOW) missile joined the combined arms team of the 3d Infantry Division when it made its appearance with the 3d Combat Aviation Battalion (CAB) in Germany.

Equipped with the TOW missile, the AH-1Q is one of the Army's most modern antiarmor helicopters. The

Cobra TOW is capable of destroying any armored vehicle in existence today, and the aircraft can operate over terrain that is inaccessible to ground vehicles.

Flown by 3d CAB aviators, the Cobra TOW helicopter has taken part in recent training exercises at Grafenwoehr, Germany. "The firing has been practically



perfect," said one aviator. "It has been excellent training. We are practicing everything, firing in support of armor."

In one exercise, using nap-of-the-earth technique, the helicopters came in from the rear of the tanks, guided by an OH-58 Scout helicopter. Targets at ranges up to 2,700 meters were pointed out to the Cobra TOW aviators, who

engaged them with the deadly TOW missile. The aviators say the live-fire training was as realistic as the range limitations allowed.

The Cobra TOW helicopters now coming off the assembly line are designated AH-1S, and are similar in performance to the AH-1Qs.

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## IMPROVED CAMOUFLAGE FOR M60A1 TANK

Improved camouflage for the M60A1 tank is being developed and tested by the US Army Mobility Equipment Research and Development Command (MERADCOM), Fort Belvoir, VA. The new camouflage will help offset increased capabilities of detection equipment and improvements in antitank weapons of potential enemies. MERADCOM and the Tank Automotive Command (TACOM) are evaluating the camouflage.

The program serves two purposes. First, it will provide camouflage for the tank against potential threats; and second, it will document a sample case so other developers will have an example to follow.

To prevent heat-seeking missiles from "locking on" to the hot exhaust fumes from the tank's engine, an airfoil was developed. The airfoil forces the exhaust up and out, causing the heat to dissipate over a wider area, lowering the temperature and lessening the effectiveness of heat-seeking antitank missiles.

Permanently mounted 6-foot fiberglass rods that fold out above the tracks in a matter of seconds support a special camouflage net. A camouflage net is used to disguise the gun barrel. This net, developed earlier at MERADCOM, is mounted on a collapsible aluminum frame.

Twenty foliage brackets have been added to the tank. The brackets will secure tree branches and other foliage to the tank, as a supplement to the other camouflage.

Prototype turret-mounted smoke launchers are being evaluated at Edgewood Arsenal, MD. Smoke rockets are fired to form a rapid smoke screen, hiding the tank from view.

TACOM developed special vision port filters for use inside the tank at night. These filters will allow the crew to look out while using lights inside the tank—without being spotted by the enemy.

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## MECHANIZED INFANTRY

Two infantry divisions are programmed for conversion to mechanized divisions within the next 4 years. The 24th Infantry Division at Fort Stewart/Hunter, Georgia, and the 9th Infantry Division at Fort Lewis, Washington, are the most likely units for conversion. Several other locations were considered, but the two divisions and their posts are considered economical and suitable for housing and training mech divisions.

The conversions will provide a more balanced force of armored, mechanized, and infantry units needed for

tomorrow's battlefields. Even with the increased anti-tank capability afforded by new weapon systems, our conventional ground forces may be too light to counter a heavily armored force.

Also, the 256th Infantry Brigade of the Louisiana Army National Guard is scheduled for conversion to a mech status in 1978. Upon mobilization, the 256th will be assigned to the Active Army's 5th Division (Mechanized) at Fort Polk, Louisiana.





# ENLISTED CAREER NEWS

## PROMOTIONS VIA EPMS

The objectives of the Enlisted Personnel Management System (EPMS) are: to attract and keep high caliber people for Army careers, provide for career progression commensurate with their ability and potential, and fill authorized enlisted spaces with qualified people who have demonstrated potential for increased responsibility. To meet all these objectives, the EPMS program has been divided into three categories: decentralized, semicentralized, and centralized. The information contained in this article is of interest to all enlisted grades.

### *Decentralized*

From the time a soldier enters the Army until he reaches the rank of CPL/SP4, authority for his promotion rests with his local commander. Unless the commander objects, the promotion to PV2 is virtually automatic at the time the soldier completes 6 months of active Federal service. This time in service (TIS) is computed from the basic service date; time spent in a delayed entry program is not counted. A soldier in a nonpromotable status (for which there are various reasons) is not eligible for advancement until he regains promotable status.

At the commander's discretion, a PV2 can be promoted to PFC after 12 months TIS and four months time in grade (TIG). A commander has the flexibility to recognize an outstanding achiever at this level by waiving the TIS after 2 months or up to half of the TIG requirement. No more than 20 percent of a command's total assigned and attached PFC strength, however, can be made up of soldiers promoted with less than 12 months TIS.

To be promoted to CPL/SP4, a soldier must be serving as a PFC and have at least 24 months TIS and 6 months TIG. The TIG requirement may be waived after 3 months, the TIS after 15 months. A commander may promote with waivers up to 80 percent of the command's combined PFC and CPL/SP4 strength who have between 15 and 24 months TIS.

### *Restrictions*

A soldier who received either a variable or a selective

reenlistment bonus may be promoted to PFC or CPL/SP4 only in the bonus MOS or in an MOS fed by his specialty in normal career progression patterns. One who received the bonus in career management field 11 or 13 may be promoted only in the bonus MOS unless he is reclassified into another primary MOS within that field. After the end of the enlistment contract for which the bonus was paid, these exceptions do not apply.

### *Semicentralized*

The semicentralized method of promotion to SGT/SP5 and SSG/SP6 combines administrative points (750 possible points based on TIS, TIG, enlisted evaluation score, physical condition, awards and decorations, and the recommending official's evaluation) with the recommendations of the soldier's supervisor and the results of a personal board interview.

The promotion qualifications are specified in Chapter 7 of AR 600-200.

The soldier's total promotion point figure compared to a current minimum total determines his promotion-list status. Soldiers competing for SSG/SP6 must have at least 600 points to attain recommended-list status. Those aiming for SGT/SP5 in the primary zone (minimum 36 months TIS) must have at least 450 points; for the secondary zone (24 months TIS), 500.

The promotion point totals of soldiers on the recommended list are compared to cutoff scores determined monthly by the Office of the Deputy Chief of Staff for Personnel from the actual strength versus the authorized strength for a particular grade and MOS.

When the administrative points have been totalled, the soldier appears before a field promotion selection board. (These boards are held at least once a month.) During the board session, each soldier is awarded points in nine areas. Competing soldiers are then assigned dates of rank based on their relative standing scores in their MOS.

The final report of the board is then forwarded to the promotion authority (a field grade commander) for ap-

proval. Should the authority disapprove the report or any part of it, he may convene a new board. If not, he approves the recommendations of the board and has a "recommended list" published.

A soldier on the recommended list for 3 or more months who remains eligible for promotion may request a reevaluation every 3 months. The request must be in writing, in the format prescribed in Paragraph 7-29(c) of AR 600-200, and the soldier must reappear before the promotion selection board.

In October and April of each year, the administrative point totals of soldiers on the recommended list are recomputed and updated for the next promotion selection board.

Soldiers whose MOS "cap" at CPL/SP4 or SGT/SP5 will be considered for promotion into MOS within the normal career progression patterns for their CMFs.

#### *Centralized*

All promotion selections to SFC/SP7, MSG/1SG, and SGM/CSM are made through the Department of the Army centralized board selection process.

The centralized system relies completely on information in the efficiency portion of the soldier's official military personnel file and on his personnel qualification records (DA Forms 2 and 2-1).

Centralized promotion selection boards are convened by DA and are held at the US Army Enlisted Records and Evaluation Center at Fort Benjamin Harrison, Indiana. Made up of officers and senior NCOs, the board has a general officer as its president.

Before a promotion board convenes, DA establishes zones of consideration that define the date of rank requirements for primary and secondary zones. The secondary zone permits outstanding soldiers with dates of rank later than those set for the primary zone to compete for advancement ahead of their contemporaries.

Each soldier must have a high school diploma or GED equivalent and at least 8 years cumulative enlisted service for consideration for promotion to MSG/1SG (10 years for SGM/CSM) and must be serving in an enlisted status upon the board's estimated adjournment date.

Once the zones of consideration have been announced, the local military personnel office screens the records of soldiers who fall within the zones. This list is used as a control and transmittal document when the soldiers' DA Forms 2 and 2-1 are forwarded to the board.

Each soldier competes for promotion with all other eligibles in his career management field. The number selected from each CMF is determined from the number of soldiers in that grade and CMF compared to the total number authorized.

The board considers the soldier's entire career, so that no one success or failure could be an overriding factor in determining his competitive standing. After evaluating the potential of each soldier for increased responsibility

at the next higher grade, the board then identifies the best qualified.

Recommended lists are arranged alphabetically by sequence number. A number is assigned to each soldier from the seniority of his date of rank in his current grade. In a group of soldiers having the same date of rank, the one with the earliest basic active service date is given seniority.

#### *Nonpromotable Status*

While promotion criteria vary from grade to grade, one aspect of the promotion system—nonpromotable status—applies to all soldiers competing for all grades. Such conditions as a soldier's being AWOL, in confinement under court-martial charge, or serving punishment imposed by court-martial or Article 15 are obvious reasons for ineligibility for promotion. But there are other, less apparent reasons (outlined in Paragraph 7-6 of AR 600-200), including these:

- Lacking the appropriate security clearance or a favorable National Agency Check for the next higher grade in MOS.
- Having bars to reenlistment.
- Failing to complete a periodic MOS evaluation.
- Signing a formal counseling statement to avoid an oversea assignment.
- Awaiting or undergoing reclassification for inefficiency or disciplinary reasons.
- Having a current suspension of favorable personnel action or other flagging actions.
- Awaiting or undergoing board action that may result in removal from a recommended list or reduction to a lower grade.
- Having an approved voluntary retirement application.
- Having been refused a waiver of moral or administrative qualifications.
- Falling under the provisions of Paragraph 2-23, AR 601-280, which contains conditions under which a soldier may not reenlist and which cannot be waived.

When the reasons for nonpromotable status are temporary, such as undergoing forfeiture of pay as a result of an Article 15, the soldier will regain promotable status upon completion of the prescribed action. Otherwise, he will not regain promotable status.

The AIR DEFENSE Magazine and the Air Defense Bulletin have published information on the EPMS program on several occasions. However, this is the first time the subject of EPMS and its relationship to the promotion system have been explained in detail. The foregoing information should be of interest and help to all enlisted personnel in planning their military careers.

## NONCOMMAND SPONSORED

For the young soldier (E1-E4 under 2 years of service) with a family, overseas orders can be a traumatic experience. These soldiers fall into the category of non-command sponsored personnel.

There seem to be many "myths" concerning the benefits, or nonbenefits, of noncommand sponsored personnel. There are even some cases of noncommand sponsored families who try to keep their presence a secret to avoid such things as tour extension. But there is no tour extension for individuals whose families join them in Europe. Some families are not taking advantage of medical, commissary, and post exchange facilities because they feel they have to keep a "low profile." These beliefs are unfounded. Free and complete medical and dental care is available to any dependent who possesses a valid ID card. Noncommand sponsored personnel are not authorized Government transportation to and from the United States but, otherwise, there are few restrictions for the soldier and his family.

Once the family arrives, there are a host of organizations just waiting to help, and they are available to everyone. The Housing Referral Office, Army Community Services (ACS), Economy Wives Club, Red Cross, and the Chaplain's Office are just a few of the agencies that can offer a helping hand.

One other restriction noncommand sponsored per-

sonnel face is ineligibility for Government housing or leased housing and the use of Government-owned furniture (except excess furniture) for quarters. There is a good chance that a local ACS program will even supply some household furniture.

The financial programs are also designed to help. There is the separate rations allowance, cost of living allowance (COLA), and basic allowance for quarters (BAQ) that will help make living on the economy a little easier.

When we are talking finances, remember we are referring to soldiers who arrive overseas in grades E1 through E4 with less than 2 years of active service. E4s with over 2 years service and higher grade personnel must be command sponsored to receive COLA and station housing allowance.

Living on the economy can be a financial nightmare, so if you don't see the words "COLA" or "HOUSE" on your Leave and Earnings Statement, see your personnel sergeant or your servicing finance unit. The point is, you are eligible for these allowances and the money is available, so apply.

If you have specific questions about your noncommand status, get in touch with your chain of command or your community service offices. They all have one thing in common—they are willing and able to help.

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## CMF 16 SOLDIERS MANUALS

HQ TRADOC has announced that Soldier's Manuals for CMF 16 will be distributed in January 1978. SQT will be given about 6 months later.

Education centers Army-wide will eventually have a complete library of Soldier's Manuals. Initial distribution will include five copies to each education center, thus insuring every soldier has access to the manuals.

Soldier's Manuals are being developed for each MOS and skill level by 18 of TRADOC's service schools—plus the Academy of Health Sciences.

Initial distribution of the manuals includes a "fudge factor" to cover situations where soldiers have lost their individual copies, new personnel have been assigned, and soldiers have been promoted to the next higher skill level. Those completing advance individual training and MOS-producing courses will be issued their manuals prior to departing for their first permanent duty station.

Each soldier is responsible for his Soldier's Manuals. Unlimited copies are not available.



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## E-5/6 DOR CHANGE

The Department of the Army has changed the way it computes dates of rank for soldiers who are up for promotion to E-5 or E-6. The change will affect primary and secondary zone hikes for these individuals.

Dates of rank are now based on the score that troopers make on the 1,000-point promotion worksheet kept at the unit. Soldiers with the highest worksheet scores

will get the earliest monthly dates of rank. Soldiers earn worksheet points for military and civilian schooling, EERs, SQT scores, decorations, time in grade, and time in service. Previously, only one score per MOS was listed for hikes to E-5/6. Now E-6 secondary zone scores are listed. The DOR change should more evenly spread out monthly promotion lists.



# BARS to STARS

## OPMD UPDATE

### ASSORTED INFORMATION

#### Lieutenants

*RA Accessions* — Air Defense Artillery will access 100 Regular Army lieutenants during school year 1977. These officers are to be distributed in accordance with the RA Distribution Plan.

*Airborne Training* — The only Air Defense Artillery lieutenants who attend airborne training will be those on orders to an airborne assignment.

#### Basic Course Schedule FY 78

Class	Report	Close
1-78	14 Nov 77	24 Feb 78
2-78	12 Jan 78	7 Apr 78
3-78	10 Apr 78	6 Jul 78
4-78	9 Jun 78	6 Sep 78
5-78	6 Jul 78	29 Sep 78
6-78	9 Aug 78	3 Nov 78
7-78	18 Sep 78	15 Dec 78

Following the basic course, the new lieutenant will attend a weapon option varying in length from approximately 4½ to 7 weeks.

*Language Training* — Language training is restricted to only those officers being assigned to a valid language requirement.

#### Captains

*ADA Officer Advance Course* — Effective FY 78 the Air Defense School will conduct three courses. The schedule for FY 78 is:

Class	Report	Close
1-78	14 Oct 77	5 May 78
2-78	30 Jan 78	4 Aug 78
3-78	6 Jun 78	14 Dec 78

The goal is to get the Air Defense officers into the advance course at approximately the fourth year of service. Officers should receive their orders at least 90 days in advance of the report dates listed.

*Alternate Specialty Year Group 71* — Year Group 71 will receive preference statements for designations of alternate specialties during the month of October. These preference statements must be returned to the Department of the Army not later than 1 Jan 78. This is an opportunity to get an input into your career management —do not fail to do so.

#### Majors

*Assignments* — Many majors have expressed an interest in what oversea duty areas are available to them. AR 614-30 contains a listing of these areas. Majors due an oversea long-tour in Air Defense can expect assignments to Europe, Alaska, Hawaii, and occasionally a joint staff assignment to Italy, Greece, or Spain. Those vulnerable for short tours can be sent to Korea, Iran, Saudi Arabia, Jordan, or Kuwait. The majority of long-tour requirements are to Europe, and Korea comes in first for the short tour requirement. Dependent upon your alternate specialty, there are opportunities for assignment to many of the other areas listed in AR 614-30. Assignment options to these areas should be coordinated on a case-by-case basis with your alternate specialty manager.

*Alternate Specialty Development* — OPMS is in full swing, and your alternate specialty needs your attention. Majors are being assigned with full consideration toward their progressive development and utilization in an alternate specialty. Promotion boards are evaluating officers based on manner of performance in all jobs. Therefore, you should recognize the importance of being qualified to do the job.

Prior to being assigned to your next duty station, your management file at Majors Division, MILPERCEN, will be reviewed by the Professional Development Officer to check the request for orders (RFO) and verify that you are being utilized and developed in your assigned spe-

cialties. Generally, this means you can expect assignments that maintain your qualification, education, and experience in two specialties. You must remember that Army requirements are the primary factor in determining assignments. Personal competence and desires are considered as part of the management process, with a view toward filling each job with a qualified officer.

Professional development planning and evaluation guidance is available in DA Pamphlet 600-3. Questions may be referred to Major Peter Swenson, ATTN: DAPC-OPM-P, AUTOVON 221-8104/5/6.

#### Lieutenant Colonels

*Senior Service College* — The Senior Service College Selection Board will convene on 22 August. Eligible officers should insure that their officer record briefs and pictures are current. Those selected will attend during FY 78-79, except that officers with less than 2 years on station as of school start date will be deferred.

*Alternate Specialty* — Officers should insure that they have an alternate specialty in which they feel qualified. Officers who, for example, have a 54 alternate specialty and have served as a 51 for several years should consider changing their specialty. Requests for specialty changes should be submitted to MILPERCEN, ATTN: DAPC-OPL-P.

#### For All Officers

FLASH! The new Department of the Army Pamphlet 600-3, Officer Professional Development and Utilization, has a target date for distribution to the field at the end of September 1977. If you don't have one—get one. This pamphlet is the "bible" for the professional development of the officer corps. It presents the philosophy and management practices of the Officer Personnel Management System (OPMS) and discusses each of the OPMS specialties.

## ABCMR APPLICATIONS

The Army Board for Correction of Military Records (ABCMR) was established in 1946 to assist soldiers in correcting serious errors and injustices reflected in official Department of the Army records. Appointed by the Secretary of the Army, the senior DA civilians currently serving as members of the ABCMR are charged with resolving only those items that cannot be amended through Army administrative channels. In other words, the ABCMR serves as a "last resort," acting only on those requests that are submitted after applicants have exhausted all effective remedies afforded them by existing law and regulations.

Recently, however, ABCMR members have reported that many of the individual requests forwarded for resolution could have been handled routinely and quickly at the local military personnel office (MILPO) level or by MILPERCEN. Specific examples of the types of misdirected applications are listed below, along with the governing directives and the appropriate agencies authorized to take full administrative action in lieu of formal ABCMR resolution.

TYPE OF REQUEST	DIRECTIVE	APPROPRIATE AGENCY
Correction of Home of Record-Off Pers	Appendix J. Joint Travel Regulations	Cdr. USA MILPERCEN, ATTN: DAPC-PSR-R, 200 Stovall Street, Alexandria, VA 22332

Correction of DD Form 214 (Report of Separation from Active Duty)	AR 635-5	Cdr. USA MILPERCEN, ATTN: DAPC-PSR-R, 200 Stovall Street, Alexandria, VA 22332
Correction of SSN	Procedure 4-11, DA Pam 600-8	Local MILPO; if soldier has VSSN, a copy of the Social Security Card must be sent to Cdr. USA MILPERCEN, ATTN: DAPC-PSS-D, Alexandria, VA 22332
Correction/Change of Name or Birth Date	Same as above	Local MILPO
Officer Evaluation Report Appeals	AR 623-105	Cdr. USA MILPERCEN, ATTN: DAPC-PSR-EA, Alexandria, VA 22332

If a request for correction of an error or injustice is disapproved by appropriate authorities in the normal administrative chain (e.g., if the Department of the Army's Special Review Board earlier denied the formal OER appeal of an officer who now believes he has new evidence to support his original contention of an injustice), the alternative is not a direct application to the ABCMR. Instead, the officer should refer his new appeal through appropriate channels to the authority that denied the earlier request. Only if the request is again denied despite the new evidence, and only if the officer still believes his appeal warrants further consideration, should he forward an application to the ABCMR.



# DEVELOPMENTS



## NEW RADAR TO PROTECT ADVANCING TROOPS

A new radar system that will detect surface minefields, while operating from a helicopter or other type of aerial platform, is under development. The idea is that the new radar system would alert advancing field troops to the presence of surface mines well to their front.

Officials of the Army Mobility Equipment Research and Development Command (MERADCOM) report that the metal reradiation radar (METRRA) will locate booby traps, munitions, armed troops, and vehicles, in addition to detecting surface mines.

The new airborne system uses a transmitter and re-

ceiving antenna mounted on the side of a helicopter. Monitoring equipment inside the craft displays and stores target information.

In actual operation, VHF radio waves are transmitted outward from the aircraft and reflections from the surface of the mine or booby trap are returned to video displays giving a picture of the terrain.

In addition to METRRA, a portable backpack unit is being developed for use by ground troops. This unit is designed to detect surface land mines and booby traps at safe distances.

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## EYE ON THE SKY



Electronic consoles link operators with the US Navy's new target acquisition system (TAS) shipboard radar that detects, tracks and identifies hostile missiles and aircraft. The TAS, designed and developed by the Hughes Aircraft Company, enables ships to react quickly to low-flying cruise missiles that pop up over the horizon or aircraft that dive in from steep angles. The TAS, which recently passed the Navy's technical and operational evaluation sea tests, is planned for installation aboard new Spruance class destroyers and other ships following a production program expected late this year. TAS is the radar portion of the Navy's Improved Point Defense Surface Missile System being developed to complement the NATO Seasparrow Surface Missile System. It is characterized by a lightweight, narrow, rectangular antenna that rotates at a 2-second scan rate. The system automatically searches two regions: one ranging more than 20 nautical miles for point defense of an individual ship and target acquisition of low-flying cruise missiles; the other ranging more than 90 nautical miles for aircraft surveillance at all altitudes. The TAS console is the standard UYA-4 display integral to NTDS (Naval Tactical Data System), which is in use aboard ships throughout the US and free world navies.

## THE NAVY ARIES

Veteran rocket buffs in the Missile Southwest may have thought they had gone off the deep end recently when they saw a hauntingly familiar rocket at White Sands Missile Range poised to probe astronomical radiation. Was the rocket a ghost of the old German V-2?

No, it was an Aries I sounding rocket the US Navy uses for lofting heavier scientific payloads to altitudes comparable with those now achieved by the smaller Aerobee series. Aries I, which is really the second stage of the Minuteman I ICBM and has a "fat" configuration closely resembling the V-2, is certain to conjure memories of the World War II rocket.

The Aries I boosted implements for three scientific experiments to 216 miles above the Missile Range. The experiments included:

- Observation of the low-energy diffuse X-ray back-



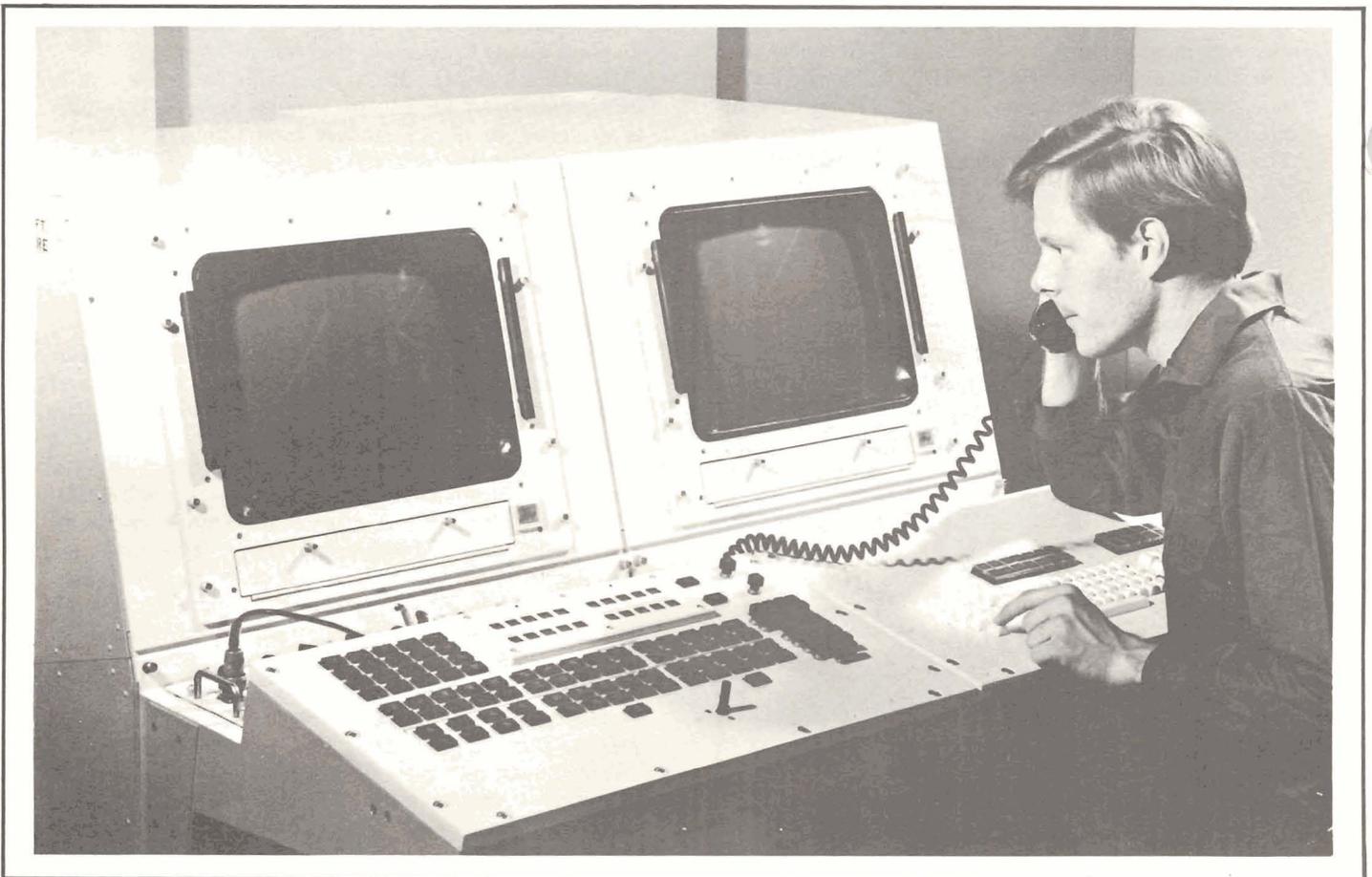
ground above the earth's atmosphere. This was sponsored jointly by the Naval Research Laboratory (NRL) and the Max Planck Institute of Garching, West Germany.

- Instrument observation of the Vela and Puppis Super-Nova remnants in the low-energy or soft X-ray region. This experiment also was sponsored by NRL and the Max Planck Institute.

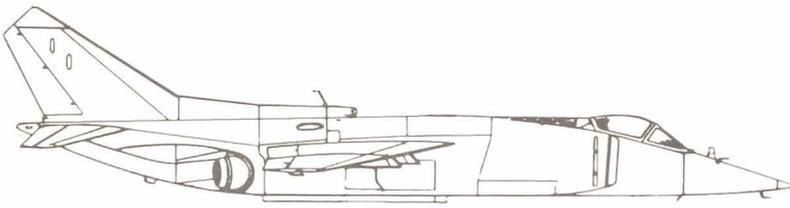
- Instrument study of the extragalactic component of ultraviolet background above the earth's atmosphere. According to officials of John Hopkins University, which sponsored the experiment, detection of this type radiation has importance concerning the geometry of the universe.

Navy officials said the three experiments and supporting equipment have been recovered and will be used for future space flight experiments.

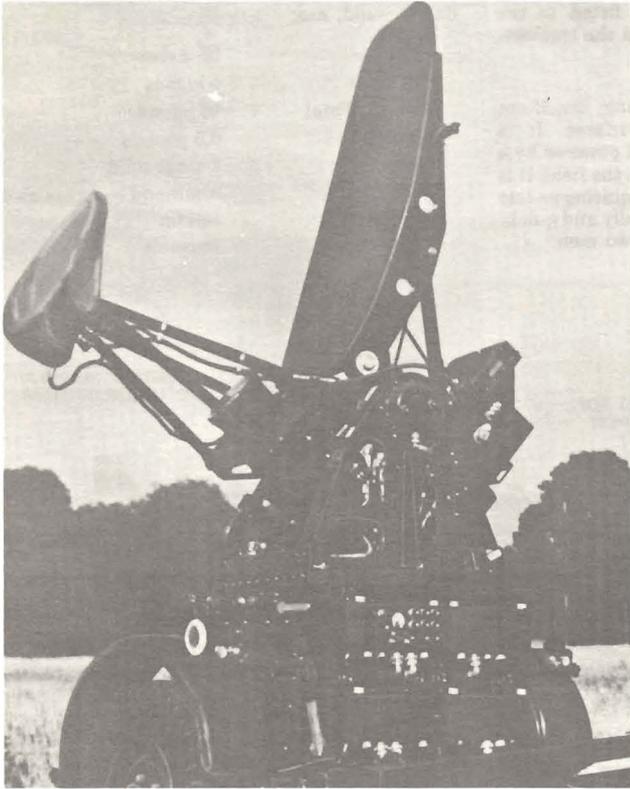
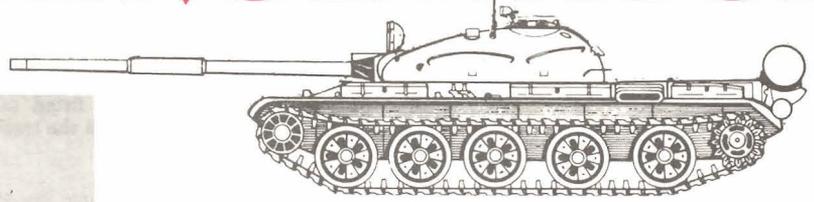
## ELECTRONIC DISPLAY TUBES



*Electronic display tubes present tactical data for antisubmarine warfare to the US Navy aircraft crews through subsystems developed for the Navy by Hughes Aircraft Company. The subsystem, part of the aircraft carrier tactical support center system, uses digital television techniques to present data for pre-flight briefings, inflight support, and post-flight debriefings of crews flying S3A antisubmarine aircraft from the carrier. Information can be presented in either text or map-like pictures with written information located alongside.*



# INTELLIGENCEWATCH



Australia has ordered a number of Blindfire radar systems for use with the British Rapier AA Missile system. The tracking radar was developed to improve Rapier's operation in the dark or during poor visibility. The Blindfire should greatly increase the system's effectiveness, according to Australia's military leaders.



The Soviet T 54/55 tank is shown departing from water crossing with snorkel elevated and periscope mounted. The snorkel is mounted on the right side of the turret. When released, the support holds the snorkel in the horizontal position, allowing the tank to fire immediately upon completion of underwater travel.

Polish torpedo boat, a purely Polish development. However, the weapon system and electronics come from the Soviet Union.



The long-range HOT (high-subsonic, optically tele-guided) antitank weapon system, jointly produced by the Aerospatiale (France) and Messerschmitt-Bolkow-Blohm (West Germany) has become helicopter borne. The HOT missile system has a range in excess of 4,000 meters and can fly 4,000 meters in less than 17 seconds. Enemy tanks can be engaged while the helicopter remains out of range of tank guns.

The HOT weapon system may be installed on various types of helicopters. The number carried varies according to the type of helicopter used—to a maximum of eight. On the SA 342 Gazelle, the number may vary from four to six.

In addition to France and Germany, three other countries have adopted the HOT system. Initial production began in 1976 with full production expected by 1978.



← The Soviet Strella in position during a river-crossing exercise by Warsaw Pact troops. Here is an unusually good view of the weapon positioned for action.

A Norwegian firm (Simrod/Olso) has developed binoculars with a built-in laser range finder. The binoculars have a laser transmitter and receiver, along with batteries, built into the case. The instrument weighs approximately 3½ pounds and can measure ranges from 200 to 9,000 meters with an accuracy of plus or minus 10 meters. The pulse length is 10 nanoseconds, and the ranging device can be pulsed 12 times per minute.

Interested military personnel are following the development of the Laser Range Finder Binoculars for application with SHORAD units.



# AIR DEFENSE

## Book Review

*POW: A DEFINITIVE HISTORY OF THE AMERICAN PRISONER-OF-WAR EXPERIENCE IN VIETNAM, 1964-1973*, by John G. Hubbell (Reader's Digest Press, 1976, 633 Pages. \$15.00)

Reviewed by 1LT John L. Plaster

On August 5, 1964, Navy Lieutenant (j.g.) Everett Alvarez ejected from his battle-damaged A-4 and was captured by the North Vietnamese, becoming their first American prisoner-of-war. Over the next 9 years, as the number of Americans in combat increased, hundreds of other Americans joined Alvarez as POWs. Until now their story largely has gone untold.

The recent publication of John G. Hubbell's *POW: A Definitive History of the American Prisoner-of-War Experience in Vietnam, 1964-1973* finally and comprehensively tells that story, tells of the base indignities, solitary confinement, starvation, continual torture, and the brutal beatings suffered during captivity.

Denied the protection of the Geneva Convention, or even inspections by the International Red Cross, the POWs were at the mercy of the Communish captors—and their captors often proved to be unmerciful. Page after page of Hubbell's book documents carefully executed torture, some as crude as mere beatings, other as sophisticated as dislocating shoulders with ropes, which causes excruciating pain without leaving incriminating scars.

Many POWs broke under torture and confirmed what was demonstrated during the infamous Spanish Inquisition: when the pain of torture is severe enough, a human being can be coerced into admitting or fabricating nearly anything. Indicative of many prisoners' determined resistance is their lingering guilt for having "cracked" at all.

Part of the occasional humor in *POW* is provided by propaganda statements given after reaching the limits of physical resistance. Staff Sergeant Dennis Thompson, a captured Green Beret, when forced to write a propaganda statement on his compassionate treatment, wrote:

... It has been brought to my attention, after my captivity, that the Vietnamese people have been revolting throughout their 4,000-year history. The Vietnamese people have proven themselves to be the most revolting people I have ever met in my life. I hope that soon the Vietnamese Communists and all those who have taken care of me and my friends as prisoners will get what they deserve...

The Communists accepted it, but in many cases, fraudulent statements weren't accepted by the North Viet-

namese. In a future war, against a more sophisticated enemy, such statements would be recognized immediately. Seldom did interrogators demand military information. They wanted propaganda statements they could use to shape world opinion through the international press.

If such political-ideology propaganda statements, obviously obtained during duress, were totally discounted by the Western press and interpreted instead as indicators of torture, perhaps the Communists' reason for torture could have been checked.

Hubbell does not pass lightly over those captives who willingly helped their captors, but neither does he indict them. He correctly points out—much to the surprise of many returning POWs—that the Code of Conduct doesn't carry the weight of law; violations are not subject to prosecution. A recent Department of Defense-level review of the Code did not result in any changes.

American soldiers and airmen could learn much from this book, especially covert methods of prison communications and techniques for evading interrogators' demands. It will definitely counter the "Hogan's Heroes" myth of life in a POW camp.

Traditionally, histories written shortly after a major event tend to suffer from narrow perspective or become bogged down with controversy. This one doesn't. Based upon nearly 200 detailed interviews with former POWs, Hubbell has written a readable, chronological history of their captivity. A work of this magnitude could have become as laborious as a Russian novel; but instead, Hubbell maintains pace and perspective without monotony or confusion.

*POW* is dedicated to the Americans who died in captivity, several of whom are mentioned in the text. The publisher, Reader's Digest Press, has announced that all proceeds from the book will go to the POWs and their families.

The story of the POWs' heroic resistance and their undying faith in American is a monument to patriotism and a paragon for present and future generations.

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