

AIR DEFENSE ARTILLERY



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MARCH — APRIL 1988

Plans Jell for Stinger Under Armor



AIR DEFENSE ARTILLERY



Professional Bulletin of United States Army Air Defense Branch
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FAAD Soviet-Style Page 13



The Soviets are at work on their own version of the U.S. Army's forward area air defense system.

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Intercept Point

by Maj. Gen. Donald R. Infante
Chief of Air Defense Artillery

Sharing the Hurt of Slow Promotion

Wearing my hat as the ADA Branch Proponent, and writing as one who sincerely cares about what happens to air defenders, I personally share the hurt and disappointment of those non-commissioned officers in certain air defense MOSs who received non-selects on the recent promotion to E-7. This article gives some background on this unsettling event.

We're going to do more than just say we're sorry. The present system is unfair. Too many ADA soldiers who deserved to be promoted weren't promoted. The system, however, can be fixed. We intend to fix it before the next promotion board convenes. This article explains how we're going to make sure this doesn't happen again.

Just so we're all on the same sheet, we need to ensure an understanding of the selection process. The Army promotes to E-7 based on its projected needs by MOS. The list just published projects the Army's needs by MOS through FY 89 and is based primarily on force structure requirements and projected retirements. Air Defense Artillery has many weapon systems and a total of 16 air defense MOSs. This compares to four MOSs for Armor and four MOSs for Infantry. Our large number of MOSs and relatively small number of soldiers is the crux of the problem. The issue is how to solve the problem in both the near and long term.

Let's first examine our eligible for E-7 promotion population and a few comparative statistics to understand the scope of the problem.

Study the following table.

E-7 Selection Rates

MOS	Total Eligible	Selected for E-7	Percentage	Projected
16D	171	0	0	31
16E	168	0	0	0
16H	128	17	13.3	0
16J	126	19	15	0
16P	335	23	6.9	0
16R	377	1	0.3	0
16S	409	0	0	23
16T	108	28	25.9	0
24C	75	16	21	0
24E	24	3	12.5	0
24G	46	3	6	0
24M	25	0	0	0
24N	26	0	0	0
24T	87	2	2.3	34
24U	11	0	0	12
25L	43	3	7	0
26H	11	3	27	0
ADA				
CMF 16 =	1,822	88	4.8	NA
CMF 23 =	348	30	8.6	
Total:	2,170	118	5.6	
Army				
Total:	53,225	7,779	14.6	NA

Some points that may get lost in the numbers:

- Less than 20 percent of the total 16 series population (16H, J and T) received more than 70 percent of all 16-series promotions.
- About 60 percent of the total 16 series (16D, E, R and S) received only one promotion.
- Almost 60 percent of MOSs 24M, N, T, U, 25L and 26HC received less than 30 percent of the promotions for their CMF.
- Almost 25 percent of the 24 series (24M, N, T and U) received a total of two promotions.
- We did poorly as a branch compared to the Army average. Only 5.6 percent of ADA soldiers eligible for E-7 stripes were selected for promotion compared to more than 14.6 percent for the Army.

What is driving these statistics?

- The inactivation of three Hawk battalions coupled with the simultaneous slippage of two years for Patriot activation had a dramatic impact on the force structure for high- to medium-altitude air defense (HIMAD).
- The change of the Hawk MTOE to a BIAD configuration.
- A reduction of ADA personnel from 20,000 spaces in FY 82-83 to 15,000 in FY 88.
- The conversion of 73 16R40 spaces to 16P40.

Enough crying over spilt milk. We must start from where we are and begin fixing now before the next board convenes in September-October 1988. Let's examine the near-term solution first.

Near-Term Solutions

MOS Groupings: Need to examine grouping by HIMAD and short-range air defense (SHORAD) MOSs.

This would allow all 16Ds, Es and Ts to compete equally. The major disadvantage of this approach is that an individual selected could wind up as a platoon sergeant on a similar but not the same as the weapon he grew up on. For example, an NCO selected to become a Chaparral platoon sergeant (16P) might come from a Stinger background (16S). This problem can be partially fixed through Advanced Non-commissioned Officer Course and Basic Non-commissioned Officer Course adjustments.

Promotion Floors: Need to examine the pros and cons of establishing a minimum promotion floor for each competing MOS before the next board meets. Briefings to the promotion board should include specific problems affecting the ADA force structure. The disadvantage would be passing some good soldiers over for promotion in one MOS to meet the promotion floor requirements of another MOS.

Long-Term Solutions

The long-term answer is MOS consolidation. A sporty course but one which must be run to prevent perpetuating the current problem of no or low selection rates.

Hawk/Patriot presently has four operator and five maintainer MOSs. Our goal is to reduce the number to one operator and two maintainer MOSs.

Some actions are already underway:

- MOS 16H has been included in MOSs 16D, 16E and 16T.
- MOSs 24C, G and R are combined under Hawk Phase II into a single maintainer MOS.

While no decision has yet been made, we are studying the following alternatives:

- Combine Hawk launcher (16D) and fire control duties (16E) into a single Phase II Hawk MOS while shifting Patriot operator duties from missile system mechanics (24T) to crew members (16T). If feasible, combine these two MOSs into a single HIMAD MOS.
- Establish a generic HIMAD launcher crew member by combining MOSs 16D and 16T and a generic HIMAD fire control operator by combining MOSs 16E and 24T (operator duties only); no further combinations using this approach are recommended.
- Evolve MOS 16T (first termers only) into a new MOS (operator/maintainer) at Skill Level 2.

Command, control and intelligence (C²I) ties HIMAD and Maneuver Forces Air Defense (MFAD) — our effort to consolidate Chaparral and Vulcan with our new forward area air defense systems. Three MOSs presently comprise C²I. They are 25L, 16H and 16J. Our goal is to determine the best MOS configuration to enhance C²I.

We are looking at the following alternatives:

- Embed operator and maintainer tasks and skills into existing and objective weapon system MOSs.
- Redefine existing MOSs 25L and 16J to perform operator and maintainer duties needed for C² and C²I across Air Defense Artillery.

MFAD has four operator and two maintainer MOSs. Our goal is to reduce the two operator and two maintainer MOSs. Current consolidation efforts include

identifying 16R as the operator for Vulcan and the air defense anti-tank system (ADATS); embedding 16H duties into 16P, 16R and 16S; identifying 24M as the maintainer MOS for Vulcan and ADATS; and identifying 24N as the maintainer for Chaparral and the pedestal-mounted Stinger.

Other possibilities include combining MOSs 16P and 16S into a single MFAD MOS. There are several non-line-of-sight (NLOS) options:

Operator: 16R or 16S

Maintainer: 24M or 24N

or

Combine ADATS and NLOS
into one operator
MOS

or

Develop a new operator MOS
for NLOS

(Continued on Page 18.)



**NCO
to
NCO**

by CSM Harry E. Hicks
U.S. Army Air Defense Artillery School

Non-Commissioned Officers Evaluation Report

I am sure all of you know that the new Non-commissioned Officers Evaluation Report became effective in February this year. The NCO-ER will only be as good as we make it.

The new NCO-ER is only the third major evaluation change for NCOs in Army history. Since the way NCOs of today use the new NCO-ER will determine who lead the ADA NCO corps of the future, I've asked the editors of *Air Defense Artillery* for more space than is normally allotted to the command sergeant major column.

We have had an NCO evaluation report around since

1948. We had a renovation of the system in 1986. Obviously the system has served the Army very well. So, you might ask, why change an evaluation system that has served so well?

The NCO-ER, developed primarily by the NCO Corps, is more performance-oriented than its predecessor and ties into the training and doctrine of performance-oriented training. The idea for the new report began with the work of the NCO Professional Development Study Group in 1985.

One of the biggest differences between the new NCO-ER and its predecessor, the Enlisted Evaluation Report (EER), is the requirement for counseling. Counseling ensures that NCOs know what is expected of them up front. The new system focuses directly on all of us, all NCOs. If it fails we will have no one else but ourselves to blame. The NCO is dedicated to NCO soldier excellence and strengths which are the backbone of the Army. We will have to make the system go — make it the “best” evaluation possible. That means the primary evaluation of the NCO will be on his duty performance. Senior (NCO) raters must give accurate evaluations. This item will be watched closely by report reviewers.

Within the system is a new NCO counseling checklist/record. For years, the word “counseling” has had a negative connotation for soldiers, because back then, if you had to counsel a soldier it usually meant he was in trouble — late for work, uniform deficiency and so forth. But what’s so negative about our being told what our job is? and about what the rater expects of the NCO in terms of NCO values and performance? The counseling checklist included in the new report is a good piece of paper — read it. It is designed to standardize performance counseling. The counseling checklist basically addresses the “how to and what to do” of counseling. It is mandatory for use by sergeants first class down through corporal.

The new system has new roles for the rating chain. The *Rater* is the same as before, except that he or she is the primary evaluator of performance and is responsible for performance counseling. The *Senior Rater*, which is a new name for the Indorser, primarily evaluates potential and overwatches the performance evaluation. The *Reviewer* is responsible for overwatching the entire rating evaluation and comments only when he or she disagrees with the rater and or senior rater.

The system uses two forms: the NCO counseling checklist/record, DA Form 2166-7-1, and the non-commissioned officer evaluation report (NCO-ER), DA Form 2166-7. The rater uses the counseling checklist first. The new system requires counseling within 30 days of the beginning of the rating period and at least once every three months thereafter.

The NCO counseling checklist contains almost all of the information necessary to prepare for and conduct a counseling session. It also provides a place to record the results. The rater keeps one checklist for each rated NCO until after the end of the rating period. The counseling checklist is four pages long, but don’t let that scare you — most of it is reference material concerning

the “what” of counseling, Army values and NCO responsibilities.

Page one of the checklist contains a place to identify the rated NCO, the purpose and rules for counseling and a step-by-step checklist for the rater on how to plan for and conduct the first counseling session. The first counseling session due within the first 30 days of the rating period is, of course, too early in the rating period to say much about how the rated NCO is doing. Yet, the first session is the most important, because that is when the rater tells the rated NCO what he or she expects. When you read the checklist for the first counseling session, you will see that the rater needs a copy of the last duty description for the rated NCO’s duty position and a blank copy of the NCO-ER for reference. For most raters the rest of the information necessary to prepare for and conduct the counseling session can be found elsewhere on the checklist. All you need to do is to follow the instructions step by step (most of the steps are self-explanatory).

The list of instructions for preparing for and conducting all of the later counseling sessions starts at the bottom of page one and continues to the top of page two. These sessions differ from the first counseling session in that the rater now tells the rated NCO how he or she is doing. Again, following the step-by-step instructions is the best guarantee that the rater will do a good job of counseling. After each counseling session, the rater records the counseling results in the middle of page two, including the date, key points made and the rated NCO’s initials. The rater maintains this record throughout the entire rating period and uses it as a starting point for all later counseling sessions. That’s the end of the “do” part of the form.

The rest of the form is the “know” part, or reference material. At the bottom of page two is a short explanation of how to write the duty description using the new structured format. With the new system, the rater must write the duty description at the beginning of the rating period and show it to the rated NCO.

The last two pages of the checklist contain expanded definitions and specific examples of Army values and NCO responsibilities. All NCOs, and those who rate NCOs, must be familiar with the definitions for three reasons. First, these two pages contain a fairly complete description of what the Army expects of its NCOs, regardless of their rank, MOS or duty position. Second, the rater must use these two pages of information when counseling, not only as a guide during the first counseling session when telling the rated NCO what is expected, but also during later counseling sessions as the basis for telling the rated NCO how he or she is doing. Third, the information on these two pages exactly matches Part IV of the NCO-ER, the rater’s evaluation of performance, so the rater needs to use this information when it comes time to evaluate at the end of the rating period.

Page three discusses values, competence, physical fitness and military bearing. First are the values. These need to be viewed a little differently than the rest of the

COUNSELING RECORD		
DATE OF COUNSELING	RATED NCO'S INITIALS	KEY POINTS MADE
INITIAL		
LATER		
LATER		
LATER		

NCO responsibilities. They are not evaluated the same as the NCO responsibilities on the NCO-ER. All NCOs are expected to meet standards when it comes to the values — that is simply part of being an NCO. It's either yes or no; therefore, once standards are met, there is little use in trying to describe degrees. As you can see, there are no examples of excellence like there are under each of the NCO responsibilities — only examples of standards for use by the rater to assist with counseling. All of the NCO responsibilities are important; however, competence may be the most important. The NCO is the Army's expert on most equipment and on most actions involving small units. To be a good leader, to train, to be responsible and to be a good NCO, you must be competent. For each item, the definition extends across the entire page.

Under the definition on the left are examples of standards for "success"/"meets standards" ratings on the NCO-ER. Raters use these to make a little easier the tough job of setting standards or telling the rated NCO what is expected. The Army's counseling goal is to get all NCOs to be successful and meet standards. Therefore, a tip: the examples on the left provide a perfect start point for the rater in telling the rated NCO what is expected. At the very least, the rater can read or show these examples to the rated NCO. The more confident rater can adjust the examples somewhat to take into account the specific duty position, chain of command emphasis, local situation and so forth. On the right under each definition are examples of excellence. Excellence is a new concept being introduced with the NCO-ER. "Excellence" is achieved by only a very few as the examples clearly indicate; however, all NCOs should constantly strive to achieve excellence in as many areas as possible. The rater uses these examples of excellence to discuss the concept with the rated NCO and to offer help in achieving excellence when possible.

Page four covers leadership, training, responsibility and accountability. Again, all of these are important, but as any good NCO knows, individual training is the exclusive responsibility of the NCO Corps, so training deserves special emphasis. The organization of page four is the same as page three — examples on the left help raters to set standards, and the examples on the right introduce the concept of excellence by providing examples of excellence for each responsibility.

NCO EVALUATION REPORT		SEE PRIVACY ACT STATEMENT IN AR 600-107, APPENDIX E	
For use of this form see AR 600-107, the proponent agency is DCSPER			
PART I - ADMINISTRATIVE DATA			
a. NAME (Last, First, Middle Initial)		b. SSN	c. RANK
1. UNIT, ORG., STATION, ZIP CODE OR APO, MAJOR COMMAND		d. DATE OF RANK (1) PMSOC	
e. REASON FOR SUBMISSION			
f. PERIOD COVERED		g. NO. OF ENCL.	
FROM	THRU	1. RATED NCO COPY (Check one and Date)	
YY	MM	YY	MM
		2. Forwarded to NCO	
PART II - AUTHENTICATION			
a. NAME OF RATER (Last, First, Middle Initial)		SSN	SIGNATURE
RANK, PMSOC/BRANCH, ORGANIZATION, DUTY ASSIGNMENT			
b. NAME OF SENIOR RATER (Last, First, Middle Initial)		SSN	SIGNATURE
RANK, PMSOC/BRANCH, ORGANIZATION, DUTY ASSIGNMENT			
c. RATED NCO (I understand my signature does not constitute agreement or disagreement with the contents of this form and senior rater Part I signature and any other data entered on this form. I have been the report completed through Part I in an area of the system process (AR 600-107).		SIGNATURE	
DATE			
d. NAME OF REVIEWER (Last, First, Middle Initial)		SSN	SIGNATURE
RANK, PMSOC/BRANCH, ORGANIZATION, DUTY ASSIGNMENT			
DATE			
e. <input type="checkbox"/> CONCUR WITH RATER AND SENIOR RATER EVALUATIONS <input type="checkbox"/> NONCONCUR WITH RATER AND/OR SENIOR RATER EVAL. (See attached comments)			
PART III - DUTY DESCRIPTION (Rater)			
a. PRINCIPAL DUTY TITLE		b. DUTY MOSC	
c. DAILY DUTIES AND SCOPE (To include as appropriate, people equipment priorities and duties)			
d. AREAS OF SPECIAL EMPHASIS			
e. APPOINTED DUTIES			
1. Counseling dates from check-in/review		INITIAL	LATER
		LATER	LATER
PART IV - VALUES/NCO RESPONSIBILITIES (Rater)			
a. Complete each question. (Check one as mandatory for "Yes" unless optional for "Yes" answers)			
PERSONAL		YES	NO
1. Planning, organizing and executing the work and activities of the duty and taking other possible actions		1	
2. Is committed and shows a sense of pride in the work, either as a member of the team		2	
3. Is disciplined and obedient to the span and order of a lawful order		3	
4. Is honest and truthful in word and deed		4	
5. Maintains high standards of personal conduct on and off duty		5	
6. Has the courage of convictions and the ability to overcome fear, stands up for and does what is right		6	
7. Respects OTHERS		7	
Other comments			
ARMY ETHIC			
Loyalty			
Duty			
Selfless Service			
Integrity			

DA FORM 2166-7, SEP 87

REPLACES DA FORM 2166-4, OCT 81, WHICH IS OBSOLETE

Now for the form. The first part on the front side is for administrative data. The format is new, but the content is not very different from the EER. One point is worth mentioning — there is no longer a block to record non-rated time. Even though many NCOs have worried about it in the past, non-rated time happens to everyone at one time or another, and is normally not important. Part II is authentication. The sequence of signing has not changed from the EER: the rater signs first, followed by the senior rater, the rated NCO, and finally the reviewer. The rated NCO's signature statement has been expanded to include assurance that the form is complete at the time of signature and to remind the rated NCO of appeal rights; otherwise, there is no change from EER policy. The new element in Part II is the box to be checked by the reviewer. In this block, the reviewer indicates concurrence or non-concurrence with the rater and or senior rater. If the reviewer disagrees with the rater and or senior rater, his first responsibility is to attempt to resolve the differences. This could result in the rater or senior rater changing their rating, although the reviewer may not force the change, or it could result in the reviewer changing his or her view. If, however, the reviewer is unable to change the minds of the rater and or senior rater and still disagrees, he places an X in the proper box and encloses the mandatory non-concurrence. A special note is important here — the enclosure is for non-concurrence. It cannot be a third differently worded concurrence to the report. Placing an (Continued on Page 54.)

2/59th ADA Joins in JAAT Exercise

Last fall, for the first time, Stinger crews from the 2nd Battalion, 59th Air Defense Artillery, 1st Armored Division, participated in a Joint Air Attack Team (JAAT) exercise conducted in southern Bavaria at Leipheim Air Base.

Moving from point to point across the staging area, the crews scanned the skies for enemy aircraft during JAAT Eagle as they escorted a multiple integrated laser engagement system (MILES)-equipped convoy along treelines and across open fields. Armed with MILES-equipped Stinger missile launchers and identification, friend or foe (IFF) simulators, the crews stood ready to acquire and shoot down enemy aircraft.

"This is about the best training we've had since I've been in this unit," said Spec. Antonio Adams, a team chief from D Battery. "At Hohenfels, we'll move into a position in the morning and sit all day until the aircraft come in. During this training, we'll move to the positions and the aggressor planes will come in twice a day. Instead of seeing the aircraft way out there, they come to our position, which gives a more realistic battle effect."

Adams' gunner, PFC Brian Nordskog, was equally pleased with the scenario, as well as with the results. "With MILES, it's a lot more realistic. You get the effect of firing a Stinger, with the backblast and the smoke. The enemy planes pretty much seek us out. Once in a while they catch us out of position and in the open. But we usually take 'em by surprise."

CWO 2 Tim Schlupp, A Company, 10th Attack Helicopter Battalion, 1st Armored Division, said that the air defense crews taught the pilots a great deal.

"I thought that was excellent,"



Scanning the skies for enemy aircraft in support of a nearby vehicle convoy are PFC Bobby Frances (left, with Stinger simulator) and Sgt. Arthur Leon, both of D Battery, 2/59th ADA. (Photo by Sgt. William H. McMichael)

said Schlupp of the decision to invite the 2/59th ADA. "They got us a lot of times, and now we know how they work. We've never really worked with Air Defense Artillery. We learned what kinds of positions they use and the terrain they like to operate in."

Section chief SSgt. Lawrence Burges of D Battery, 2/59th ADA, said that JAAT Eagle gave his teams "a better idea of the search and scan procedures that they have to use to acquire these targets."

"We really enjoyed working with all these people," he added. "This has been very realistic and very informative."

When asked how much more realistically his unit could train, Burges replied, "About the only thing that would make it more realistic is live rounds going off, and we don't want that. We're looking forward to being actively involved in future exercises."

by Sgt. William H. McMichael

6/56th ADA Participates in Central Enterprise

When the soldiers of the 6th Battalion, 56th Air Defense Artillery, 32nd Army Air Defense Command, joined forces with a British air defense unit during Central Enterprise, they proved how different weapons and tactics can be among forces of different countries.

Their chance to make that discovery was part of the Central Enterprise joint training exercise held last summer. The exercise, according to British Flight Lt. Paul Burt, was conducted to "get a unit from England over here to train in a different location and to train with different units."

Airmen from Flight B, B-1 Det., 19th Sqdn., ferried across the English Channel then towed their weapons in convoy from the Belgian coast to Spangdahlem Air Base, West Germany. According to Burt, the unit volunteered to take part in the two-week exercise for the opportunity to train with the Americans of the 6/56th ADA.

"At home we defend the RAF Brize-Norton in Oxfordshire," Burt said. "We protect U.S. national assets, which is part of a U.S. Air Forces in Europe (USAFE) and United Kingdom agreement. This squadron is under the control of the Supreme Allied Commander — Europe (SACEUR) for air operations. We came here to see how you Americans operate your air defense."

The British detachment's primary air defense weapon is the Rapier, a short-range, towed missile system. It consists of a single unit which houses its missile launcher and radar. A second unit controls tracking and firing.

The systems the American air defenders from 6/56th ADA had were the Chaparral and the Vulcan. One British airman, Wayne Howell, liked the Chaparral but

was not as impressed with the Vulcan.

"I think the Vulcan would have quite a struggle against fast moving aircraft," he said, "but I like the Chaparral. The only problem I can see is that its guidance system is built in, which makes it rather expensive.

"The Rapier's guidance system, on the other hand, is located in the radar dome. I would say a Rapier missile costs about half of your Chaparral. I have heard that your government is looking at the Rapier and may buy it."

PFC Scott Mace, a Vulcan driver with A Battery, 6/56th ADA, defended his weapon, saying, "I'd rather have a weapon like this than missiles because you get to fire more often. One of these rounds costs a whole lot less than one of those," he said, indicating the Rapier.

"We can track up to 20 (kilome-

ters) out with our radar, but I like the Rapier's tracking system," Sgt. Ricky Yazzie, a forward area alerting radar operator with 6/56th ADA, said. "I'd rather see the actual aircraft coming at me.

"We shoot out a signal like microwave and that makes it easy for the enemy to lock onto us real quick," he added.

Capt. Valdemar Garcia noted that the British air defenders worked much closer with their pilots and air forces, a topic which interests him greatly since the 6/56th is located on an air base.

"They integrate a lot closer with their Air Force than we do. We're defending this air base so we ought to know how these guys operate," Garcia said. "The British have already incorporated that into their air defense operations; of course, they've been doing it longer and better."

by SSgt. M. Katherine Burke

cellent training opportunity for both armies to learn something about the other.

The seven-day visit emphasized cross-training between the American and British air defenders. Hosted by the British 10th Air Defense Battery, 40th Field Artillery Regiment, 26 soldiers from 2/5th ADA had an opportunity to see some of the equipment used by the British.

Soldiers trained with the British Javelin ground-to-air missile. Unlike the Stinger, which is a "fire and forget" system, the Javelin must be guided to its target using a joystick and trigger mechanism. The Javelin is man-portable and replaces the older Blowpipe air defense system.

Soldiers from the 2/5th ADA also trained on the Spartan Ferret and other vehicles used by the British air defense battery.

Some other notable events conducted with the British included a weapon system orientation, a vehicle driving day, memento exchange, battery cookout, regimental sports day competition and a sight-seeing tour to Hamburg.

by Joseph J. Gmitter

4/61st ADA's Redeyes On Target

It was a chilly overcast day at Range 149, Fort Carson, Colo. Anticipation filled the air as the 4th Battalion, 61st Air Defense Artillery, prepared for a Redeye live-fire exercise.

"This was a very unique Redeye firing," said CSM Orion Davis, 4/61st ADA. "It was the first time this weapon system was fired in MOPP (mission-oriented protective posture) 4."

"This was also the first simultaneous firing of ballistic aerial targets (BATs) and Redeyes," said 1st Lt. Douglas Deter of C Battery.

As part of the final preparations, soldiers boarded an ar-



Pvt. 2 Ray Rodriguez gets help from British gunner Simon Jack on the Javelin simulator. (Photo courtesy of 1st Armored Division Public Affairs)

2/5th ADA Trains With British

During Reforger '87, soldiers from the 2nd Battalion, 5th Air

Defense Artillery, 2nd Armored Division, had the opportunity to visit with the British Army.

Although they were on opposite sides of the battlefield during the exercise, the visit provided an ex-

mored personnel carrier with their equipment and weapons.

Lieutenant Colonel Orin Nagel, commander of the 4/61st ADA, and local Air Force officials invited to watch the Redeye training took their positions. Approximately 40 blue-suited guests attended.

As the armored personnel carrier rolled up and took position, doors flung open and soldiers rushed out and immediately took cover, ready to engage their targets.

BATs roared upward and gunners locked onto the BATs. Then Redeyes burst into the air to engage their targets. As the missiles streaked across the sky in pursuit, the precision of the 4/61st ADA's soldiers became evident to all. "I'm very impressed," said Air Force 1st Lt. Pete Larson.

The soldiers successfully scored seven hits out of eight targets. "I'm very satisfied and pleased with the results," said Deter. "This was something new for all of us (MOPP 4 and simultaneous firing)."

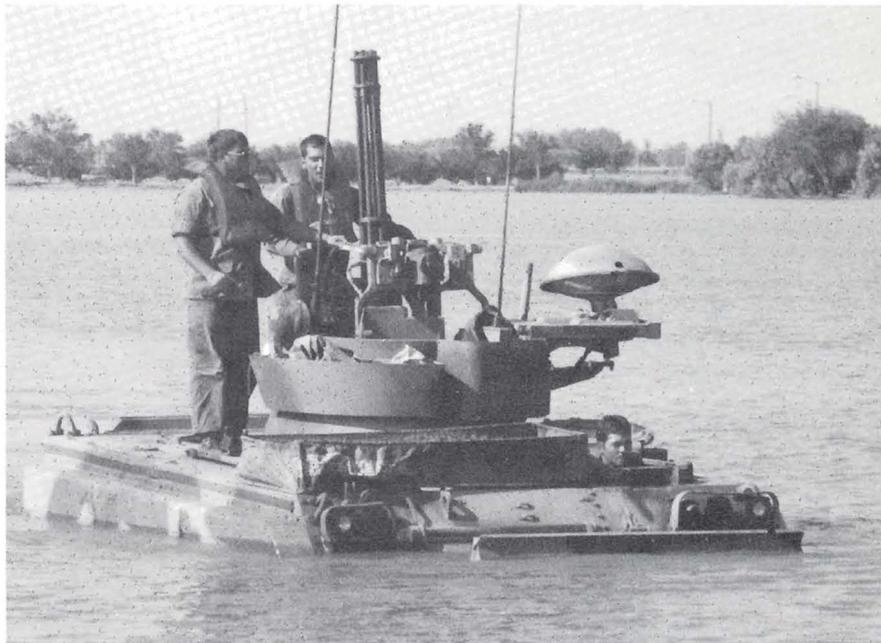
Spec. Thomas Steuart scored the first "kill" of the day. It was a direct hit. "It was a new experience," said Steuart. "It's a good feeling to be the first to do it."

by Spec. Michael Duerr

5/62nd ADA Takes Annual Swim

One of the probabilities of war is that there will be extensive use of water obstacles. Air Defense Artillery troopers must be able to overcome these barriers to accomplish their mission.

The soldiers of the 5th Battalion (Chaparral/Vulcan), 62nd Air Defense Artillery, of the 11th Air Defense Artillery Brigade, recently conducted a tactical lake-crossing exercise at Ascarate Lake, within the El Paso, Texas, city limits. They prepared their Chaparral missile launchers and Vulcan gun



The 5/62nd ADA soldiers steer their Vulcan on a successful cruise of Ascarate

Lake during the unit's annual swim. (Photo by Ric Ortega)

systems for fording operations as they would in combat.

The 5/62nd ADA soldiers "swim" their equipment once a year as part of their training. As there is no lake at Fort Bliss, the request for training was routed through military channels to the El Paso County commissioners who control Ascarate Lake. It was approved. The vehicles were taken to the lake on low-boy tractor-trailers.

The purpose of the exercise was two-fold. First, the soldiers learned to prepare their vehicles for water operation by making sure that the hull inspection plates were in place and by erecting the swim barrier on the Chaparral and the trim vane on the Vulcan. Second, the soldiers learned that the immensely heavy vehicles — the Chaparral weighs more than 14 tons and the Vulcan weighs more than 12 tons — would actually float and propel themselves through the water. This increased the soldiers' confidence in their equipment.

Fort Carson Learns What Mujahedeen Know

Three gunners of the 4th Battalion, 61st Air Defense Artillery, proved their skills with the new Stinger missile system in its first live fire at Fort Carson, Colo., recently. They scored three direct hits.

PFC Mark Tipton, the top gunner, said, "The experience was great. You can't describe the feeling you get when you press the trigger, the launch tube is suddenly lighter, and then the target goes 'kerplooi!' "

The Stinger is a man-portable, shoulder-fired, infrared-homing air defense system designed to counter high-speed, low-level threats to ground troops by fighters, bombers, and rotary-wing aircraft. It is a prime air defense tool against the low-level threat because of its range, accuracy, and ease of operation and deployment.

It can attack aircraft from any angle and from almost anywhere on the battlefield. The Stinger

has proved its effectiveness in Afghanistan where (according to a variety of civilian reports) it has shot down more than 290 Soviet aircraft a year, an average of eight-tenths of a plane each day.

One field commander commented, "Super missile. There's no question about the soldier's survivability with this weapon."

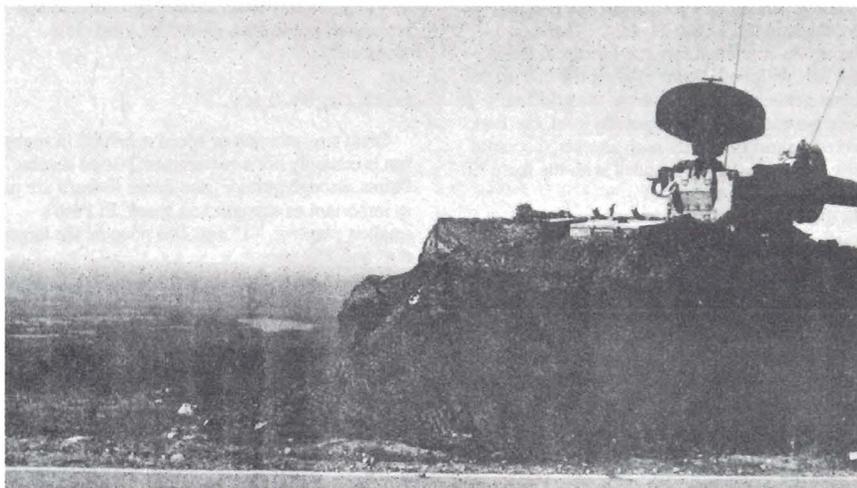
With more than 70 gunners in the battalion and only three missiles to fire, competition is tough. To choose those who will fire, all gunners must take a six-step test. The top-scoring soldier in each battery becomes the gunner and the next highest is the assistant gunner.

by Spec. Shawn Phillips

5/200th Rolands Pass the Test

PFC Ronald Waters made several Air Force and Marine pilots angry, but Waters didn't care. He was just doing his job as a Roland missile crew member when he "shot down" the pilots. A Battery, 5th Battalion, 200th Air Defense Artillery (Roland), a New Mexico National Guard unit on active duty stationed at McGregor Range, N.M., was in Mena, Arkansas. The unit was participating in "Dragon Team 1-88," the ground troop part of an Air Force sponsored exercise called "Coronet Sentry." A Battery was under OPCON to another air defense unit from 3/68th ADA (Hawk), Fort Bragg, N.C.

Nine Roland missile systems were put to the test as fighter, bomber, transport, observation and close air support aircraft flew through the area at altitudes of 300 to 30,000 feet. "A Battery's mission was to shoot them down, and the soldiers were very successful with a 99 percent kill rate," said Capt. Royce A. "Pancho" Maples, A Battery commander. Site selection played a key role in



One of the nine 5/200th ADA Roland units deployed for Dragon Team 1-88 looks out over Mena, Ark.

the success, but was a difficult task because of the mountainous terrain. "We wanted locations with clear fields of fire close to the flight paths," said Maples. Systems were deployed in an integrated Roland/Hawk air defense configuration within the immediate vicinity of the local airport, where the units were based.

The exercise was the first time the battery operated in anything similar to European terrain, said Maples, in contrast to the normal desert training environment. "The guys complained that there was no sand in their boots," joked Maples.

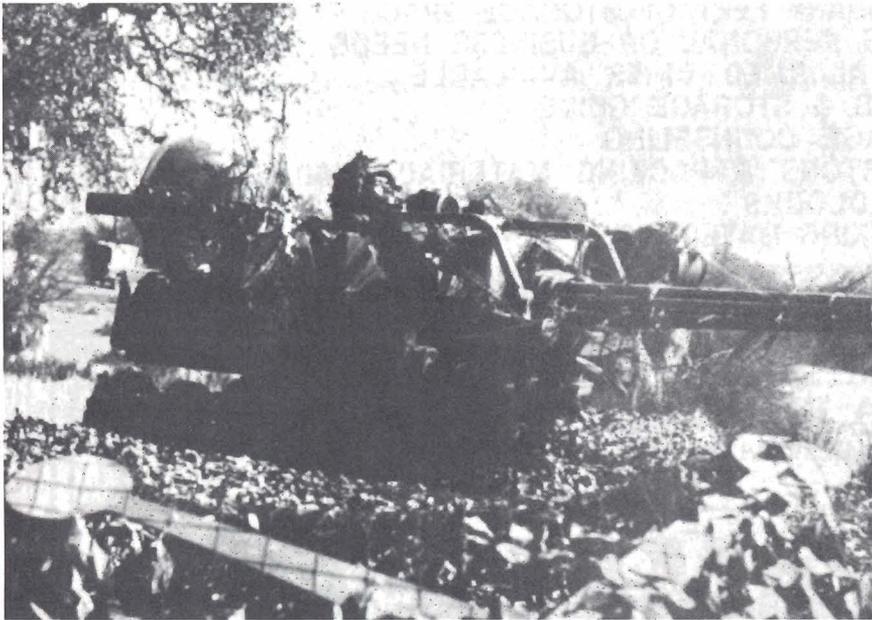
Significant terrain features unlike New Mexico and Texas were the 2,200- to 2,700-foot high forested mountains of the Ouachita range. Pilots flew their aircraft through the valleys and suddenly popped up over the ridges. PFC Waters had the opportunity to take the controls as system commander and gunner. "I really like the gunner position best," said Waters, a 3rd Platoon soldier. System commander is an NCO position, but the Roland mission requires decentralized responsibility and authority, explained 1st Lt. Fred Arenibas, A Battery executive officer. "Our battalion

places a high priority on cross-training and everyone, including low-ranking soldiers, must be capable of making difficult decisions under pressure," said Arenibas.

The swift, decisive action characterized by A Battery's performance throughout the week impressed the Fort Bragg air defenders. Capt. Patrick Bingham, XVIII Airborne Corps Air Defense Element, was unfamiliar with the Roland system. "My experience is with the SHORAD units in the 82nd (Airborne) Division at Fort Bragg, so it is valuable training to see what Roland crews can do," said Bingham.

Army soldiers weren't the only ones impressed by A Battery. The local population of Mena welcomed the troops with genuine hospitality. Soldiers were the guests of the town at a pre-exercise high school football game and Capt. Maples received a birthday cake and Arkansas mementos from the mayor. The soldiers felt proud to see how much they were appreciated.

The equipment and troops conveyed to Fort Chaffee, Ark. From Fort Chaffee, the soldiers were flown back to McGregor Range. The equipment was returned by



A Vulcan gunner sights in on his target. (Photo by Ernest Clayton)

commercial trucks.

Dragon Team 1-88 was the first time Mena hosted an Army exercise. But doing things first is routine to A Battery. The battery has broken a lot of ground since it was activated Oct. 1, 1983. The 5/200th ADA is the only battalion in the U.S. Army with the SHORAD Roland system, an all-weather, wheeled, radar and visual air defense system.

"Activation of the 5/200th ADA marked the first time a National Guard unit fielded a weapon system before the active Army," said Arenibas. A Battery was first in the battalion to complete Initial Operations Certification, which culminated in nine live firings and nine kills. A Battery was also first to deploy by air, rail and sea. This National Guard unit has 80 percent fulltime manning, said Arenibas. *by 1st Lt. Victoria Sadler*

2/62nd ADA Defeats Enemy in Battle Scenario

Tensions were rising between the countries of El Paro and

Damin. Hostile confrontations had grown to the extent that Communist irregulars, "Damin Forces," ceased negotiations between the two countries.

These confrontations drew the immediate attention of the International Peacekeeping Force located at Fort Ord, Calif., home of the 7th Infantry Division (Light).

Soldiers of A Battery, 2nd Battalion, 62nd Air Defense Artillery, were alerted. This set the scenario for the battery's annual Army training and evaluation program (ARTEP) conducted last fall at Fort Hunter Liggett, Calif.

Under the command of Capt. Tom Schossau and 1st Sgt. Louis Phillips, "A Team" readiness increased as tensions grew between the countries. A Battery's air defenders left Monterey airport on 10 Air Force C-130 (Hercules) aircraft to embark on a number of grueling and challenging missions. The ARTEP's coordinator and senior evaluator, Capt. Dave Singleton, said, "The battery's missions were as realistic as would be expected in actual combat."

The first mission was to establish area air defense covering a regimental task force in the country of El Paro, with priority given to the combat aviation brigade airfield and the regimental support area. Using air defense doctrine "Schossau," Vulcan and Stinger platoons were positioned around these critical assets.

The assistant division commander for support, Brig. Gen. Jerry White, visited several of the "A Team" fighting positions. At one Vulcan and Stinger location, White talked to Cpl. Keith Causen and Cpl. James Parker, Stinger and Vulcan team chiefs.

White was briefed by Maj. Robert Hoffman (S-3) on the overall concept of the ARTEP and was given a commander's intent by the battery commander. The battalion commander, Lt. Col. Peter Franklin, also briefed White on his perception of how he actually envisioned an air defense battery would be best deployed in the division area.

Later, during continued air attacks, the battery's command and control communications networks were jammed, making it extremely difficult for the battery to pass early warning to the air battle management operations center (ABMOC). Communications evaluator, Capt. Clayton, described the jamming as being realistic and forcing the battery to use alternate means to pass mission-essential data.

During the last two days of the ARTEP, the battery was notified that NBC persistent agents had been reported in the area. After an evaluation by the battalion chemical officer, a decontamination site was set up and Stinger teams in MOPP 4 were processed through the decontamination site. The Stinger teams were then resupplied with new NBC equipment and their individual weapons were returned.

by Ernest Clayton

**NLOS
Program
Redefined**

**Avenger
Set for
FDT&E**

**FAAD CAI
Gathers
Steam**



FAAD News



Vol. 2 No. 102

Fort Bliss, Texas

Mar. — Apr. 1988

Test Battery Forms

by Lisa Henry

Dear "Mom":

It is my pleasure to extend congratulations on the selection of your son as a participant in the U.S. Army's testing of its newest air defense system, NLOS.

I have enclosed an article on the Army's \$11.5 billion forward area air defense (FAAD) program. Your son will be working with the non-line-of-sight (NLOS) component, a technologically advanced fiber-optic guided missile (FOG-M), projected for use in Air Defense Artillery through the year 2000. The NLOS program is a vital part of the nation's defense, and your son is on the leading edge of that technology and military history.

Your son is currently undergoing extensive training to prepare him for his role in the upcoming system's testing. Since these tests are sensitive in nature, we hand-picked your son, and others, from scores of candidates. Those selected are truly "the

Best of the Best." The training and experience these few will receive in the NLOS program will further distinguish them from their peers.

Following preliminary training, your son will be sent to Huntsville, Ala., to be trained by flight engineers at Redstone Arsenal. Florida will be his next destination, where he will participate in live-fire demonstration tests before returning to Fort Bliss.

I ask that you and your family support him throughout his work. With your encouragement, I know we can count on your son to commit himself to the high degree of excellence necessary for the important job ahead. You have every right to be as proud of him as I am.

Sincerely,

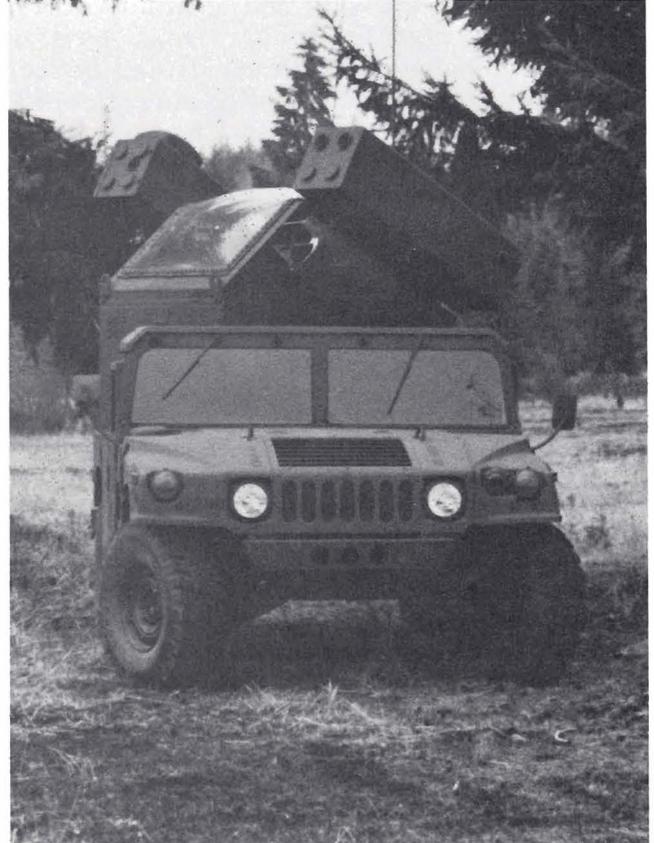
*Robert J. Bell
LTC, AD
Commanding*

This letter is a sample of those sent to families of soldiers in the FAAD test battery. General Thurman, commander of the

U.S. Army Training and Doctrine Command (TRADOC), directed that 99 spaces be allocated for FAAD system testing. A Battery, 2nd Battalion, 6th Air Defense Artillery, was activated November 16, 1987, in response to his directive. Nearly all of its player personnel were selected out of AIT.

TRADOC directed that the purpose of the FAAD test battery would be to support experimentation, testing, validation of doctrine, organization and the operational capability of four separate FAAD system components. A Battery personnel are working hard to fulfill that purpose.

To date, the FAAD test battery has conducted line-of-sight rear (LOS-R) and line-of-sight forward (heavy) (LOS-F-H) candidate evaluations. Battery personnel are preparing for the pedestal-mounted Stinger (PMS) force development test and experimentation (FDT&E) Phase I; LOS-F-H FDT&E Phase I; NLOS Early User Test and Experimentation; and command, control and intelligence (C²I) ground-based sensor candidate evaluation.



Martin-Marietta's air defense anti-tank system (ADATS), left, and Boeing's Avenger, right, recently won FAAD candidate selection shoot-offs.

Though long hours, extensive TDY and the pressures of a testing environment are routine, soldier morale and enthusiasm continue to be the battery's greatest assets. The thrill of working with a new system and the opportunity to make a mark in the history of Air Defense Artillery are these soldiers' rewards.

This test battery is only one of many FAAD system developments. The FAAD system that air defense and combined arms planners envisioned in 1986 is becoming a reality. FAAD concepts began turning into FAAD hardware during 1987, and 1988 is the year the first production

models are scheduled to roll off assembly lines.

Non-Line-of-Sight

Last November the Army asked industry for bids on a totally new type of air defense weapon, using the Army-developed FOG-M technology, to destroy masked enemy helicopters. The deadline for industry proposals has been extended. The proposals are now due during the third quarter of FY 88. The Army has changed its strategy and the request for proposal will undergo a major revision that should be incorporated be-

fore spring. The original request for proposal was based on acquiring an initial system, to be followed within two years by an objective system (the final air defense weapon the Army would field). Now the initial system has been scratched, and the Army's emphasis is on acquiring and funding the objective system. By accelerating engineering development, the Army plans to field the system it needs — the objective system — on the same timetable originally established for the initial system. This means the first unit equipped with NLOS may well be a reality by FY 92.

Line-of-Sight Rear

Avenger prototypes will undergo FDT&E in May. If things go as planned, the Army will receive Boeing's production models of the Free World's only shoot-on-the-move air defense weapon in November 1988. The Army hopes to eventually purchase 1,207 Avenger fire units.

Boeing's Avenger, one of three FAAD line-of-sight rear candidates, came out on top in a three-way shoot-off last June. This pedestal-mounted Stinger system became the weapon system selected for follow-on test and evaluation (FOTE).

Line-of-Sight Forward

Last December Martin Marietta/Oerlikon-Buhrle won the LOS-F-H shoot-off with the air defense anti-tank system (ADATS). The ADATS will begin FDT&E Phase I user testing this May at Fort Bliss, Texas. FDT&E Phase II is scheduled for May 1989 at Fort Hunter Liggett, Calif., with initial FOTE tests to follow in August and September. These tests will determine whether ADATS goes into full-scale production.

The Army plans to begin production of 166 units in 1990 and to purchase 562 ADATS vehicles between 1990 and 2000, outfitting two divisions in Europe by 1992.

Command, Control and Intelligence

The Army awarded TRW a \$60 million contract in October 1987 to develop software. System software development is going well and the subsystem design review, which determines if the software meets the Army's requirements, is being conducted.

A request for proposal on the ground-based sensor will be released soon. The draft of the re-

quired operational capability for the aerial sensor is being staffed, and approval is anticipated by the end of FY 88.

Combined Arms Initiative

Thanks to the combined arms initiative, FAAD battalions won't have to counter threat attack helicopters and fixed-wing aircraft alone. Army Aviation has signed contracts with General Dynamics and Bell Helicopter to begin procurement of air-to-air Stinger (ATAS) equipment. ATAS gives Army Aviation the capability to engage in air-to-air combat with threat helicopters. The funding is authorized and approved for 56 sets of air-to-air Stinger pods, and requests for additional funding are in the works.

The OH-58 C/D Kiowa is the first helicopter to be equipped with ATAS, with the AH-64 Apache and AH-1 Cobra soon to follow. Eventually UH-60 Black Hawks and MH-47Es, the special mission/special operation Chinooks, will be equipped with ATAS.

The Armor School at Fort Knox, Ky., has delineated the requirements for new "smart" tank rounds that will meet the future threat. The tank rounds will kill the projected tank threat and enemy helicopters. The tank rounds will come in 105mm and 120mm sizes to be used in the present tank fleet.

A new sight reticle designed for the Bradley Fighting Vehicle System (BFVS) will help engage enemy helicopters. Over 500 of these sight reticles have been produced and are being fitted to Bradleys coming off the production lines.

The Infantry School at Fort Benning is studying the requirements for improvements to the BFVS to meet the projected

ground and aerial threat. Improved munitions, "full solution" fire controls and improvements to the 25mm gun and tube-launched, optically tracked, wire-guided (TOW) missile are all under consideration. The BFVS will make a tremendous contribution to the combined arms air defense against enemy helicopters.

FAAD Component Integration

The U.S. Army Missile Command (MICOM) asked industry for proposals on integrating the various components of the FAAD system. The integration contractor selected will support and assist in the integration, acquisition and fielding of the Army's FAAD program.

Brigadier General William J. Fiorentino, the program executive officer (PEO) for FAAD, said the integration contractor will not change the relationship between MICOM and the FAAD PEO, nor will it replace the support normally furnished by MICOM functional organizations.

"The contractor will support the FAAD PEO by assisting, monitoring, coordinating and integrating the various groups performing FAAD activities," said Clarence Tidwell, the civilian deputy to Fiorentino. "They will integrate all of the components into a FAAD system, a system of systems."

Conflict of interest provisions in the request for proposal preclude prime contractors in the FAAD program being awarded the integration contract. □

FAAD

Soviet-Style



Air defense is an equal partner in the threat's buildup of combined arms forces

by Maj. Jim Green

The U.S. Army's forward area air defense (FAAD) system clearly is on track and pointing the way for other Western countries' forward area air defense efforts. But what is on the Soviet army's forward air defense menu?

The Soviets consider air defense an equal partner of their combined arms forces. They develop and field their air defense forces with a family of weapons and radars that form an air defense system. This emphasizes the Soviet view that air defense is considered a single system made up of many different components. The stated mission of

the Soviet air defenses is to protect their maneuver forces and other ground assets from fixed- and rotary-wing enemy aircraft. Let's examine Soviet army forward air defense equipment, organization and trends to determine if they are developing a U.S.-style FAAD system.

Soviet Equipment

To accomplish their forward area air defense mission, the Soviets employ several surface-to-air missile (SAM) systems and complement the SAM with anti-aircraft (AA) gun systems. Most of the Soviet systems employ similar techniques to NATO air defense systems. The Soviet forward air defense SAM

inventory includes the SA-6 (Gainful), SA-7 (Grail), SA-8 (Gecko), SA-9 (Gaskin), SA-11 (Gadfly), the newer SA-13 (Gopher) and the SA-14 (see SAM chart, Figure 1).

The SA-6 normally is mounted on a modified PT76 chassis. It carries three ready-to-fire missiles. A backup vehicle carries a resupply of three additional missiles. The effective missile range is in excess of 20 kilometers. Initial surveillance data is received from Soviet long track radar (see Soviet radar, Figure 2). Target acquisition and fire control data are accomplished through straight flush missile site radars. They normally are deployed five and 10 kilometers behind forward fighting elements and supplement AA gun air defense coverage of the forward area. The SA-6 initially was fielded in the mid-1960s and has been used to replace older Soviet AA gun systems in most divisional AA regiments.

The SA-7, designated Grail by NATO, has been the Soviet mainstay shoulder-fired, man-portable air defense missile since its introduction in the field in the late-1960s. It has A and B models. The SA-7B provides greater range and speed than the SA-7A. Both versions use high explosive warheads with guidance provided by passive infrared homing. Additionally, some Warsaw Pact countries possess a truck-mounted version with a quadruple launcher configuration. The new SA-14 is a highly improved Soviet replacement for the SA-7. The new system uses a second-generation missile with a cooled infrared sensor, providing an all-aspect

Figure 1

Soviet Missile Characteristics

Type	Guidance	Warhead	Range (km)	Altitude (m)	Radars
SA-6	Semi-active radar homing	HE	4-24	50-12,000	Straight flush Long track Thin skin
SA-7	Passive IR	HE	.5-6	15-4,500	N/A
SA-8	Command	HE	1.5-12	10-12,000	Land roll Thin skin Flat face Long track
SA-9	Passive IR	HE	.6-8	10-5,000	N/A
SA-11	Semi-active radar homing	HE	3-30	25-15,000	Straight flush
SA-13	Passive IR	HE	5-8	10-9,600	Range-only radar
SA-14	N/A	HE	N/A	N/A	N/A

Figure 2

Associated Soviet Air Defense Radar Equipment

Type	Frequency Band	Max Range (km)	Purpose	Weapons
Flat face	C	250	Target acquisition	SA-8
Gun dish	J	20	Fire control	ZSU-23-4
Land roll	H/J	N/A	Fire control	SA-8
Long track	E	150	Target acquisition	SA-6/8
Straight flush	G/H/I	90	Acquisition/Tracking	SA-6/11
Thin skin	H	240	Height finder	SA-6/11

opportunity of engagement.

The low-altitude, all weather SA-8 Gecko carries four ready-to-fire missiles on a turret and four additional missiles inside for re-supply. It uses the land roll radar system for surveillance, has two tracking radars and two command radar dishes. For optical tracking, a low-light-level television camera is mounted on the turret. A modified version of the SA-8 can carry six ready-to-fire missiles. The SA-8 regiments can be positioned to support all division operations.

A modified armored car is used to mount the SA-9 Gaskin. This system has either two or four missiles mounted in a

ready-to-fire configuration. The missiles are guided to their targets by infrared homing. The missiles have a slant range of six kilometers up to about 500 meters altitude. The SA-9s normally are teamed with AA guns to assist in the formation of part of the air defense umbrella. The Gaskin probably will be deployed to protect battalion command posts and other valuable assets while remaining out of the direct line of enemy fire. Fielded in the late 1960s, the SA-9 is being replaced by the SA-13 Gopher. The Gopher also is intended for low-altitude air defense coverage. A track-mounted vehicle will carry the SA-13 into

battle. A range-only radar and passive radio frequency detectors will assist the gunner in firing the missile which will guide it to the target using infrared homing. The Gopher missile's range is out to seven kilometers.

The SA-11 Gadfly system is now being fielded to replace the SA-6 fire elements in divisional air defense units. With a slant range out to 30 kilometers and an altitude window of 30 meters to 15,000 meters above ground, it presents a formidable challenge to attacking aircraft. Gadfly systems are mounted on tracked vehicles and can receive target acquisition data from a separate radar system.

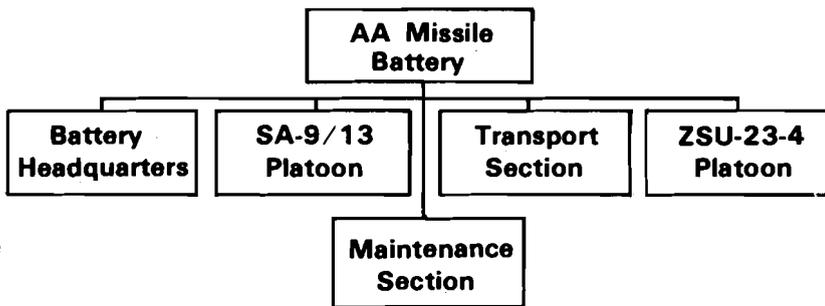
Figure 3

Soviet Air Defense Guns

Type	Range (m)	Fire Control
23mm ZSU-23	2,500	Mechanical sight
23mm ZSU-23-4	2,500	Gun dish radar
57mm S-60	4,000-6,000	Mechanical sight/assist radars, fire control
ZSU-X 30-40mm gun	N/A (greater than ZSU-23 series)	N/A (Improvement over ZSU-23 series)

Figure 4

Tank Regiment Motorized Rifle Regiment



Air Defense Weapons: 4 SA-9/SA-13
4 23mm SPAAG

Soviet Guns

To complete the snapshot picture of Soviet forward air defense weapons systems, let's look at their AA gun equipment (Figure 3) used by airborne units. The ZSU-23 is the Soviets' main towed anti-air weapon. It is a very mobile system that mounts two 23mm guns. The system's effective engagement range is about 2,500 meters. The motorized, fully contained big brother of the ZSU-23 is the ZSU-23-4. This is the Soviets' primary self-propelled anti-air gun, or SPAAG. The ZSU-23-4 mounts four 23mm guns and uses the gun dish fire control radar, which is turret-mounted. The effective range of the guns is about 2,500 meters.

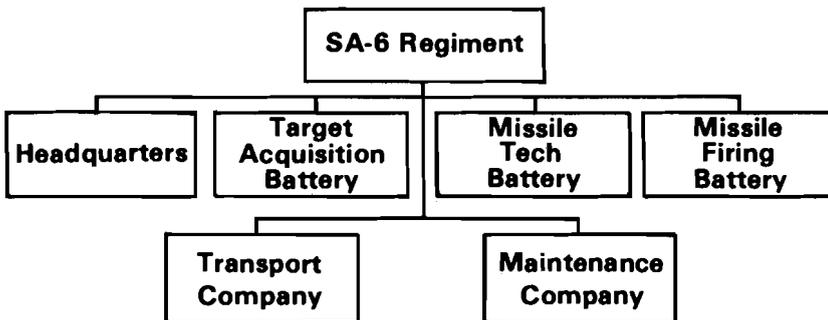
The ZSU-23-4s have been in service with Soviet forces since the mid-1960s. The expected replacement for it has been designated the ZSU-X. This next generation of self-propelled anti-air weapons systems probably will mount a larger gun, say 30mm to 40mm, with an improved range capability, rate of fire and fire control equipment. The ZSU-X most likely will be mounted on a tank-type chassis.

Finally, an old standby AA gun still in use with Soviet forces is the 57mm S-60. This towed system, with a gun-effective range in excess of 4,000 meters,

Figure 5

SA-6 SAM Regiment

Standard at Soviet motorized rifle and tank division level. SA-8 system organization is similar to SA-6.



Radars: Long track
Thin skin

VHF — low/med/high power
UHF — relays

Air Defense Weapons: 20 SA-6 (SA-11, SA-8)
21 SA-7 (SA-14, SA-16)

is being replaced in most Soviet divisions by the SA-6 Gainful or SA-8 Gecko SAMs.

Air Defense Organization

Soviet forward air defense forces are organized along the lines as shown in Figures 4, 5, 6 and 7.

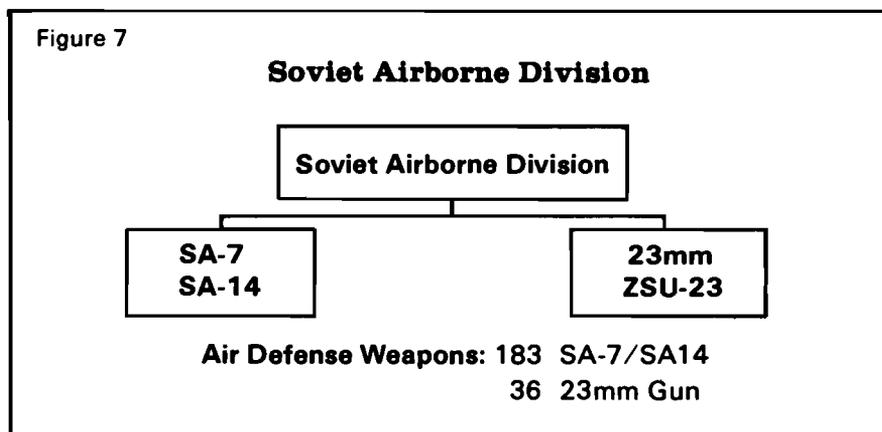
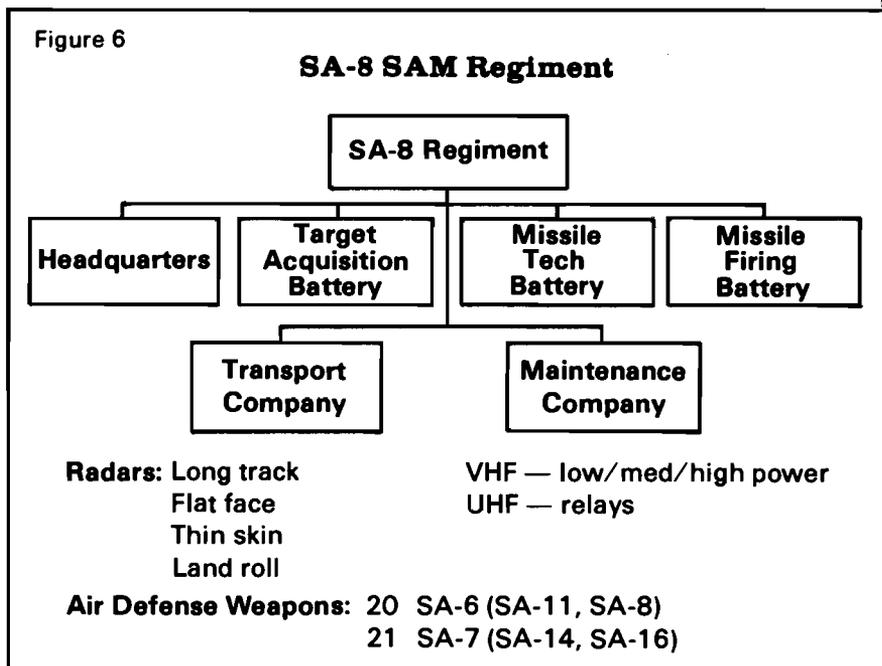
This brief review of Soviet air defense weapons and organization should leave little doubt as to the formidable anti-air resources the Soviets have available in support of their military operations.

However, the Soviet Bear is not — I dare say “is never” — content with the status quo of weapons and equipment. The Soviets recently have embarked on massive improvements in the quality and quantity of their air defense weapons.

While much of the data on Soviet air defense modernization remains classified, we still can look at the accumulated and growing body of unclassified data for a picture of their anti-air trends.

Soviet air defense improvements in the last few years have included the deployment of more efficient data transmission systems and development of new SAMs (SA-9, SA-11, SA-13, SA-14) systems. They also are upgrading their early-warning and air surveillance capabilities. These upgrades include technological advances in types of radars, electro-optics and identification, friend or foe systems.

These upgrades in Soviet forward air defense appear to mirror U.S. efforts in some key areas. Comparisons easily can be made between U.S. and Soviet characteristics in the following areas:

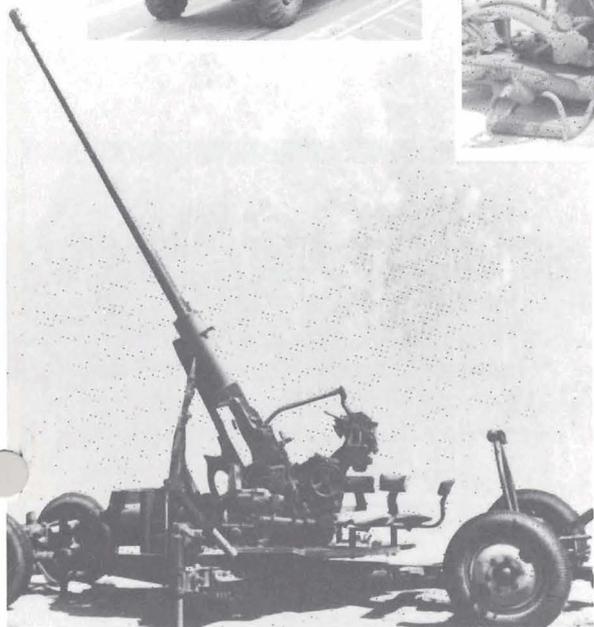
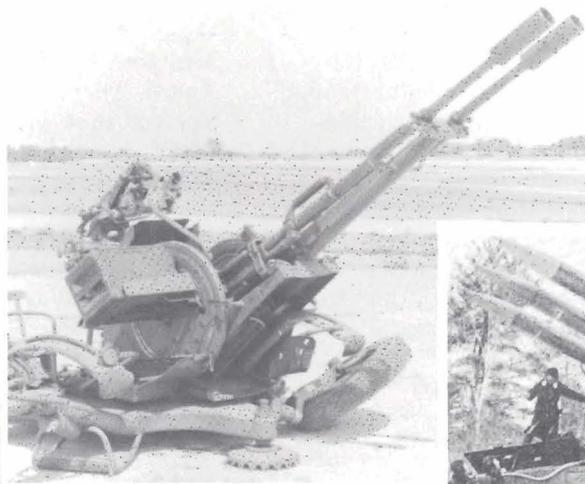


- Forward area radar/sensor technology.
- Weapon/carrier improvements.
- Data distribution systems.
- Air defense philosophy.

Look at what both are doing in sensors. The Soviets are improving and replacing their current array of air defense sensors to provide a greater capability in low-altitude, forward area operations. The United States, when it fields its FAAD system, will deploy a sensor suite — ground-based and aerial sensors — representing a substantial increase in capability over its current forward area alerting radar

system.

Likewise, consider weapon/carrier improvements on both sides. First, the Soviets: They've upgraded or are in the process of upgrading their air defense weapons systems (SA-13 replacing SA-9, with missile upgrade and improved carrier). Their new AA gun, ZSU-X, is an upgrade in gun and carrier over the current ZSU-23-4. Other SAM improvements include the SA-14 replacing the older SA-7, and the improved capabilities of other missile-firing vehicles, increasing their number of ready-to-fire missiles.



In comparison, the U.S.'s FAAD system simultaneously is committed to upgrade our full spectrum of forward area air defense equipment. We will field the new line-of-sight forward (heavy), line-of-sight rear (pedestal-mounted Stinger) and non-line-of-sight weapons. Those FAAD components, along with combined arms improvements, will greatly enhance U.S. combat divisions' air defense capability.

As for data distribution, there are these interesting points. In Soviet forward air defense systems, information data distribution has long been centralized and slow. New programs will bring the Soviet air defenders improved and faster access to

early-warning information of attacking aircraft. Improved Soviet command and control equipment and procedures will speed the flow of information between Soviet commanders and fire units. On the U.S. forward area air defense side, FAAD command, control and intelligence will provide timely data/information distribution with enhanced communication/data capabilities.

Overall, the forward area air defense philosophies are as follows: The United States will field a sophisticated FAAD system, integrating acquisition and tracking of enemy aircraft, obtaining identifying information and forwarding that and other data to the appropriate agency.

The Soviets, basically, are proceeding along the same lines, substantially improving their low-altitude air defense capabilities in the forward areas of the battlefield. You might almost say theirs is a FAAD system — Soviet style!

A final note: We, on our side, must continue to press for support of our FAAD program. The Soviets, it is best to presume, will be doing the same for theirs. There are no prizes for second-place finishes on the battlefield!

Keep the faith. ADA — First to Fire! □

Maj. Jim Green was formerly assigned to the TRADOC System Manager's Office, FAAD, Fort Bliss, Texas.

(Continued from Page 2.)

- What we're after is a combination of MOSs that —
- ensures equitable promotion opportunity to all MOSs,
- provides viable career progression opportunities,
- fields soldiers able to operate and maintain ADA equipment in a battlefield environment and
- facilitates battlefield reconstitution by less specialization on only one weapon system.

You have the personal commitment of Gen. Carl E. Vuono, the Army chief of staff, and Maj. Gen. Donald W. Jones, commander of the Total Army Personnel

Agency, and me. I have personally discussed the problem with both, and we intend to fix it before the next board. They, like me, cannot and will not tolerate a system that gives our dedicated professional non-commissioned officers no hope of promotion.

When the going gets tough, the tough get going. Professionalism, dedication to excellence and caring for our quality soldier demand nothing less. Keep charging. Be proud of being an air defender and a valuable member of the combined arms team.

First to Fire! □

16Ts Train Hard

*... able to move out
fast on march and
emplacement, dig and
defend*

by SSgt. Jess Manglona

Sixteen-Tango, that's the MOS for Patriot crew members. To be a 16-Tango, you've got to be motivated. You've got to be able to move out fast on march and emplacement, dig a perimeter position and defend your weapon system.

The maintainers and operators of Patriot are the 24-Tangos. They have higher skills. We're not even trained by the same commands. The U.S. Army Air Defense Artillery School trains 24-Tangos. The U.S. Army Training Center trains crew members.

There aren't many volunteers to be crew members like there are to be maintainers and operators. Most crew members come Patriot's way from the Department of Army Reclassification. They used to have a Nike-Hercules MOS or an MOS related to the Sergeant York (the air defense gun system scrapped while in late stages of devel-

Staff Sergeant Jess Manglona, 35, has been turning ADA soldiers into Patriot crew members since 1984, almost since the first Patriot's emplacement. A "Nike man," as he puts it, he trained for Patriot in 1982-83. The stocky Guam native doesn't choose to dwell at length on whether 16Ts are sufficiently challenged after they draw a permanent duty station. While they're his to train, though, at Fort Bliss, Texas, he moves them right along. Here's a page from the (figurative) Manglona Manual of Patriot Crewmanship.

opment). As more and more Patriot battalions are deployed, more and more crew members have to be trained, whether from reclassified MOSs or from newly enlisted ranks.

But I'll tell you what: A Patriot crew member has advantages. Ask a bonus baby (those who get from \$4,000 to \$8,000 in bonus money for extending their service obligation). So don't think Uncle Sam's not serious about filling the Patriot crew member ranks. We have two classes right now (August) and a bonus baby in each.

The 24-Tangos are the glamor slots. But the 13 weeks of training for crew members give a 16-Tango something to think about, it seems to me, though it's not all that hard either. Last year we had soldiers from Germany and the Netherlands in these same classes, and some German officers too.

We begin with five weeks of driver training with the HEMTT (heavy expanded mobility tactical truck). The remaining eight weeks are with the equipment portion of the Patriot system. This is

where I come in — use of equipment.

We've map reading and communications, and we train for nine hours with all the equipment broken down. After 17 hours on march order and emplacement comes a mid-term written and practical examination.

Next we go into the rocket-launcher station for four hours with 15-kilowatt generators and six hours of power up and power down procedures.

We spend 32 hours in data link terminal operations, including surveying, orientation and alignment of the Patriot system. Every subject just naturally ties in to another, as in this partial breakdown:

- Preventive maintenance, eight hours.
- Reloading, 30 hours.
- Reload testing, 10 hours.
- Review, eight hours.

The final 30 hours are spent in an end-of-course comprehensive test.

After graduation, 16-Tangos may go wherever Patriot units are stationed. Some go to Germany, others to White Sands, some remain at Fort Bliss and go through collective training with activation

of new units. The 2nd Battalion, 7th Air Defense Artillery, is being formed to go to Fort Hood, Texas.

To give an idea what some of our recent recruits into the Patriot crew member ranks are like, meet these three who were in my classes late last summer:

Shane Miller, 20, of Sodus, N. Y., thinks he'll "have a pretty good shot" at making it into the 24T ranks eventually. He tells me he appreciates having learned the value of teamwork.

Douglas Sparrow, 30, is one of the two "bonus babies." Sparrow, who enlisted in March, got \$4,000 for extending his service obligation for a year. You can bet that bonus is going to good use; he's sending it to his wife and four kids back in Atlanta. He plans to specialize as much as crew membership allows him in Patriot engagement control and eventually make it into the 24T program.

Robin Dunn, 20, of Denver, tells me she ended her Patriot crew membership training with a special appreciation for the safety procedures. □



SSgt. Jess Manglona, on the instructor's platform at a U.S. Army Training Center classroom at Fort Bliss, Texas, readies visual aids for 16T instruction. Ready to take notes are, from left, Shane

Miller, Robin Dunn and Douglas Sparrow. (Photo by Raul Hernandez)

Restructuring Can't Come Too Soon

*'Obvious problem . . .
lack of challenge for
16-Tangos'*

by SGM Garland L. Crooks

For the soldiers in Patriot, it hasn't been easy these past five years living with their Tango job descriptions. But it's a red-letter day for me, as I begin closing out a generally rewarding 30-year career in Air Defense Artillery, to know that the rectification process has begun.

Opinion

"Better late than never!" I say. It never made any sense to me to have both maintenance and operational functions written into one job description (24-Tango). What did that leave for the 16-Tangos? Not very much!

First, some background on the situation, from the viewpoint of a veteran air defender who came to Patriot at its very beginning in 1983 after 22 years of maintenance experience in Hawk.

The obvious problem, we NCOs could see right off, was the lack of challenge for 16-Tangos. Theirs became an MOS calling, in essence, for little to no thinking responsibilities whatsoever. They were to be the movers, the common laborers, the "gorillas," if you will — to "pick it up, move it, set it down and dig a foxhole."

At the same time, the 24-Tango MOS had not only the highly technical maintenance duties but operator responsibilities as well. Talk about challenge! Of course, once qualified as a 24T, a soldier most likely would stay with it — the only way to go was up. Ahead lay fairly rapid promotion, opportunity to acquire a T5 intermediate maintenance MOS in ordnance, plus a wide open warrant officer field begging 24-Tango transition.

But the 16Ts? Statistics tell the story. With no challenge and little room for advancement, the 16-Tangos had no reason to stay. A retention rate of four percent shows they didn't. That miserably

low figure probably would be even less if it weren't for the handsome re-enlistment bonuses.

I couldn't help but compare the uneven distribution of duties and responsibilities between the 16Ts and 24Ts to the Hawk system from which I'd come. Hawk has a highly equitable arrangement. The 16s have the crew member and operator functions, while the 24s have their maintenance responsibilities. This arrangement has worked extremely well for over 25 years!

Now here I am in Patriot seeing not only the 16Ts underused but a large number of 24Ts being "specialized" — used exclusively as engagement controllers! The engagement controller is a purely operator function, and when a tactical control officer/commander finds a 24T that can "work magic" on a console, guess what his job will be for the duration.

It is highly conceivable that a soldier could attend 24T training for more than 37 weeks, of which 33 weeks are spent learning to maintain the Patriot equipment, then be assigned as an engagement controller and seldom, if ever, perform any maintenance. Worse yet, he could be assigned to Headquarters and Headquarters Battery and never see a radar set or engagement control station.

Are those training dollars well spent? I think not. I lay the entire problem to bastardization of the 24T MOS to include both operator and maintainer responsibilities.

Speculation is floating throughout the air defense community concerning proposals to restructure not only Patriot MOSs but Hawk MOSs as well. And these are my sincere hopes for how they will bear out:

- The 16T MOS will become not only the crewman but also the operator in Patriot. This will benefit all by happening ASAP.

- A reduction in total MOSs within the HIMAD arena, providing one maintainer MOS and one operator/crewman MOS for Patriot, one maintainer MOS and one operator/crewman MOS for Hawk.

From my experience and background, these proposals seem to be the most viable and can be accomplished very rapidly with the least amount of turmoil within the schoolhouse and throughout all the affected units.

I feel good about my branch facing up to the challenge to turn around a decision that seems destined to fail. I'm glad to learn, too, that in my branch, when all is said and done, it doesn't necessarily take an act of God to get something changed.

ADA — First to Fire! □

Garland Crooks is the sergeant major of the Patriot Department, U.S. Army Air Defense Artillery School, Fort Bliss, Texas.



MSgt. Edward Phillips, left, and Patriot SGM Garland Crooks examine cable connections at rear of a Patriot missile launcher at 24T training grounds, Fort Bliss, Texas. (Photo by Tony Torres)

Plans Jell For Stinger Under Armor

SP Vulcan makes room for 16-Sierra; integrated team readied for interim threat

by Capt. Richard Trujillo and Ed Foster

He emerges in documentary after documentary these days, on TV screen and in magazines: the Stinger-armed guerrilla at some embattled lonely outpost scanning the skies for predatory aircraft.

Spotting the threat, he hefts his trusty Stinger to his shoulder, and whoo-oO-OOSSHH — ! Bye-bye, threat aircraft.

Not since the good guy out West donned his white hat and strapped a Colt .44 to his hip to gun down the bad guys has an armed avenger so gripped the public imagination as the freedom fighter armed with his man-portable Stinger. Developed by the U.S. Army for forward area air defense, this shoulder-fired missile has found its way to other countries seeking air defense against the threat. The account it has given of itself already occupies a unique chapter in military defensive lore.

Despite the aura of romantic invincibility, however, man-portable Stinger on the modern battlefield is a warrior with an Achilles' heel: no armor protection.

How to bring Stinger under armor? The more the Stinger legend grew, the more urgent became the challenge to technicians and tacticians at the U.S. Army Air Defense Artillery School (USAADASCH), Fort Bliss, Texas, to devise protection.

First, the encouraging news: Stinger will have armor, Vulcan armor. The course is set. Self-propelled (SP) Vulcan will carry Stinger to battle. A Stinger gunner (MOS 16S, or "16-Sierra") will be the fourth member of the Vulcan crew, replacing the Vulcan crew member (MOS 16R or "16-Romeo") who had observer duties.

Other details follow, but, first, more on Stinger's frustrating quest for armor. Take the Fort Stewart, Ga., experience, as one example, from the first-hand accounting by the commander of B Battery, 5th Battalion, 52nd ADA, attached to the 24th Infantry Division.

"To begin with," says Capt. William Crocoll, "we were keenly aware of Stinger's effectiveness on the battlefield. So we surely did want him up there, up front. And we wanted him to survive.

"He wasn't surviving, not in quarter-ton jeeps. Ten minutes after hostile forces began their artillery barrage, you had no Stinger teams left. If they dug in, their vehicle was destroyed. Either way, we learned that Stinger in a jeep just can't fight

with task forces in the forward battle area. He needs his own vehicle and it needs armor.

“We decided to place as many Stinger gunners as we could in armored personnel carriers, then piggyback other Stinger teams with the mechanized infantry company. But piggybacking wasn’t the answer. And obviously there wouldn’t be enough APCs for Stinger to support a brigade-size task force.

“Communications were a problem, too. In their own APCs, Stingers would have their radio system to receive early warning and command and control information. But infantry has its own communications network, and so we found that, having to piggyback with mechanized infantry, Stinger virtually is without early warning and command and control ability; he’s listening to his own net.

“Also, speaking of command and control, when the mechanized infantry stopped for Stinger to get out and engage, the infantry on occasion left him there. All these handicaps, plus there not being space for a Stinger gunner to carry but one missile, just about ruled out piggybacking.

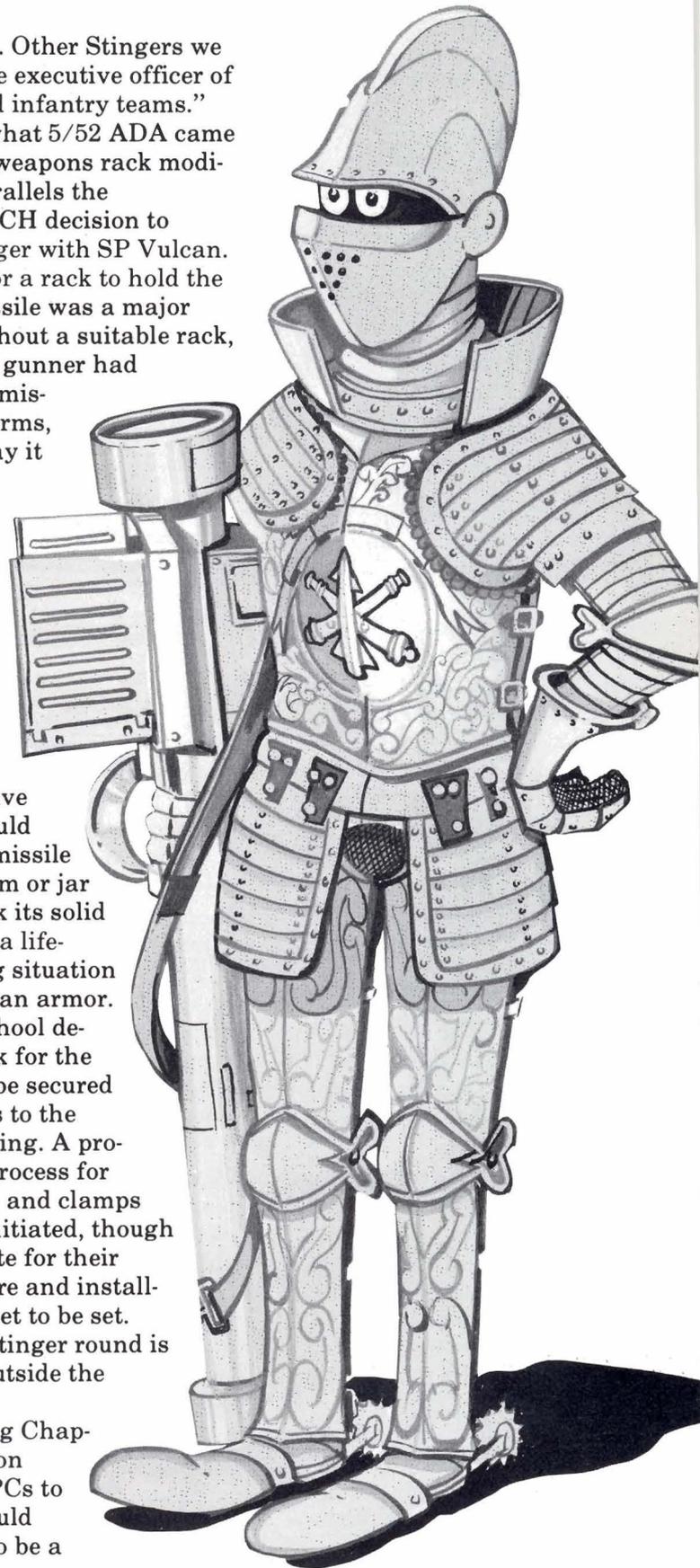
“So what we’ve gone with as much as we can — what is proving best for us, with the blessing of division — is taking the APCs from Chaparral platoon leaders and giving them to Vulcan batteries to be used as Stinger vehicles. Some of our innovative NCOs modified the weapons racks to carry Stinger rounds, and that filled a big need. All in all, we feel that, in placing some Stingers in Chaparral platoon leaders’ APCs, we’re onto something

pretty good. Other Stingers we put with the executive officer of mechanized infantry teams.”

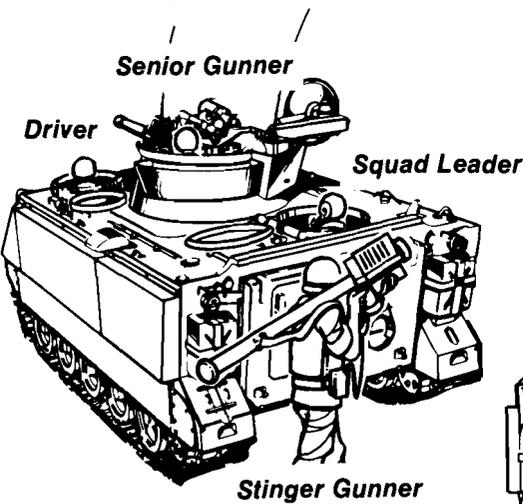
Indeed, what 5/52 ADA came up with in weapons rack modification parallels the USAADASCH decision to merge Stinger with SP Vulcan. The need for a rack to hold the Stinger missile was a major hurdle. Without a suitable rack, the Stinger gunner had to hold the missile in his arms, unable to lay it aside no matter the rugged ground over which the Vulcan track might be clamoring. In combat, he’d be holding a live round. Should he lay the missile aside, a slam or jar might crack its solid propellant, a life-threatening situation inside Vulcan armor.

So the school devised a rack for the missile, to be secured by brackets to the Vulcan ceiling. A procurement process for these racks and clamps has been initiated, though a target date for their manufacture and installation has yet to be set. A second Stinger round is mounted outside the Vulcan.

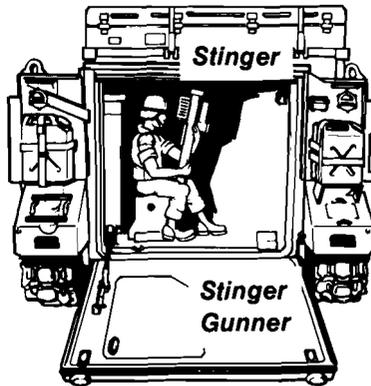
Assigning Chaparral platoon leaders’ APCs to Stinger would have had to be a



Stinger Forward



- **Stinger Under Armor**
- **Gun/ Missile Mix**
- **Counters Stand-off Helicopters**
- **C²I for Stinger**



short-term solution at best; Chaparral battalions are earmarked for deployment on the corps level.

At any rate, USAADASCH now feels it is on the right track with Vulcan. Vulcan was a gun system that "wanted" Stinger — needed Stinger — even if it didn't know it. Reasons were several. The more sophisticated Sergeant York Gun program had been canceled in 1985. The York replacement, the Army's far-reaching forward area air defense (FAAD) system, wouldn't be fielded until the 1990s. The emerging threat grew stronger. The range of the Vulcan system required augmentation by a longer range system — a system such as Stinger.

But clearly, in bringing aboard Vulcan a gunner from a separate weapon system, more was involved than simply making him doctrinally acceptable. Room had to be made for the newcomer and for his weapon and whatever ammo he fed into it.

Where? That was the question. Vulcan's four-man crew of observer, driver, senior gunner and squad leader had no space to spare.

Here's the plan: A 16S Stinger crewman will become the fourth member of the crew, replacing the Vulcan's 16R observer crewman. He'll occupy the former observer's seat at the rear left, atop the spare ammunition storage box.

Now, here's how they will ride to the battlefield (see drawing), clockwise, from lower left: Stinger gunner, driver, senior gunner (at the turret) and squad leader (in command at the hatch).

Thanks to rugged field tests performed by experimental Vulcan-Stinger integrated crews, we have proof that the clamps will hold, that the Stinger will be secure and that it will pose no threat to the crew's own safety. The tests were held at White Sands Missile Range, N.M., and under simulated battle conditions at the National Training Center, Fort Irwin, Calif. In the tests, the crews rode Vulcan armor under as adverse conditions as

you could put together, and Stinger came through unscathed. The romanticists will be proud.

The Vulcan-Stinger concept, now proven workable, not only puts Stinger under armor but provides more missile engagement capabilities in the forward area. Command and control are assured (no more dropping off and forgetting) because Stinger-Vulcan is merged by doctrine into one team. USAADASCH has produced Field Circular (FC) 44-16R/16S to support the concept.

The FC provides short-range air defense unit commanders and squad leaders with operational and logistical procedures for employment of the Vulcan/Stinger integrated squads in the heavy divisions.

A major gain from integration is that it forces the air attacker to fly against two air defense weapon systems, both well forward in the battle area. The Stinger end of this partnership brings the capability for engaging threat aircraft before they come within range of the Vulcan guns.

And, finally, mission accomplished, the Stinger gunner will return to Vulcan's protective armor, a bona fide member of the crew.

Whether Stinger under armor will continue to capture the imagination of romanticists may be open to conjecture. But as FAAD progresses through the Army's materiel acquisition process toward fielding in the 1990s, Stinger under armor has notched for itself, "in the interim," a place out front among the first to fire. □

Capt. Richard Trujillo is Vulcan project officer for the Weapons Branch of the Directorate of Combat Developments, U.S. Army Air Defense Artillery School, Fort Bliss, Texas.

Department of Defense officials announced in December the Martin Marietta (Orlando, Fla.) and Oerlikon-Buhrle (Switzerland) Air Defense Anti-tank System (ADATS) as the winner of the line-of-sight forward (heavy) FAAD component. The following article, second of a two-part series, was written while the LOS-F-H candidate selection was in progress.

Shoot-Off On The Corporate Range

by Ed Foster

At Fire Point 1 in “the FAAD area,” 20 kilometers north of the Oscura Range base camp, a countermeasure environment wraps the down side of the mountain in a darkness-at-noon malevolence.

“Good smoke today,” says Maj. Bob Reynolds, Air Defense Artillery Board deputy for the acquisition and tracking phase of the FAAD system line-of-sight forward (heavy) (LOS-F-H) testing. It’s a compliment to Maj. Stan Holland, in charge of battlefield obscurity.

FAAD stands for the Army’s five-component forward area air defense system, an acronym already as familiar to air defenders as, say, the name Sergeant York — not an acronym.

Not that air defenders like remembering Sergeant York. Designed as the air defense gun system of the future, Sergeant York enjoyed 10 years of development, high marks and fond expectations, only to be scratched in 1985 by the Pentagon in final tests and evaluation.

Can the new FAAD weapon systems do the job Pentagon evaluators said Sergeant York couldn’t do?

A partnership of soldiers and military and civilian specialists from the Army Air Defense Artillery Board at Fort Bliss, Texas, and the Army Materiel Test and Evaluation (ARMTE) Directorate at White Sands, N.M., is determined to find out. First, they mean to determine which of the corporate world’s weapons systems will be best for FAAD.

The first shoot-off among industrial contenders pitted LTV’s Crossbow against Boeing Aerospace’s Avenger for the FAAD line-of-sight rear (LOS-R) component, a pedestal-mounted Stinger, at the Orogrande test center last summer just north of Fort Bliss’s McGregor Range in New Mexico.

Boeing won that one, worth a potential \$189.7 million for production and support of the weapon system and an initial award of \$16.2 million for a first option buy of 20 systems. Production begins this fall at Boeing’s Huntsville, Ala., plant.

The latest shoot-off took four contenders to the Oscura test range 100 miles north of Orogrande, N.M., this fall. The prize this time: producing and servicing the LOS-F-H component, a contract worth well over \$1 billion.

Although the Army sees the five components fighting the threat together in the forward area of battle, it’s the LOS-F-H, a combined gun/missile system, that’s to be the direct Sergeant York replacement, protecting frontline heavy divisions from attacks by low-flying attack helicopters and fixed-wing aircraft.

The contenders were —

- Martin Marietta of Orlando, Fla., and Oerlikon-Buhrle of Switzerland with the Air Defense Anti-tank System (ADATS);
- LTV Aerospace and Thomson-CSF of France with the Liberty system, a Shahine missile firing unit mounted on an AMX-30 tank chassis;
- United Aerospace Defense Systems (United Technologies’ Norden Systems, British Aerospace and FMC Corp.) with the Tracked Rapier; and
- Western Alliance Air Defense (Hughes Aircraft, MBB of Germany and Aerospatiale of France) with Paladin, a Roland derivative mounted on a multiple launch rocket system chassis.

Fort Bliss soldiers of C Battery, 2nd Battalion, 6th Air Defense Artillery, manned the weapon systems. Over four months of late summer and early fall, they waited their turns to start up their systems, head them northward out of base camp and take up tracking and firing positions on the edge of desert tableland. Out in front of them lay a deep drop-off, rising abruptly into the next range of mountains.



A wide-angle view from Fire Point 1 at Oscura Range looks at flares dropped down the side of the opposite mountain by obscured target aircraft. At far left is Rapier, at far right Paladin, competing

weapon systems in last year's line-of-sight forward (heavy) shoot-off. (Photo by Dennis McElveen)

Perfect. A perfect backdrop for target aircraft to appear flying low and in close, to be tracked not against open sky, which is easy, but against a blur of blended earth.

From the recesses of that deep canyon, target helicopters did "pop ups" and "masking," the kind of battlefield maneuvering that could drive an air defender, without a weapon system to cope, crazy.

Could they cope, contenders ADATS, Liberty, Paladin and Rapier? If so, to what extent? And could their scores and ranking be proved, irrevocably?

That's what the testing was all about. Not only did billions of dollars and corporate and military reputations hang in the balance, but so did the question of whether the Free World would have the best of forward area air defenses to meet the threat of the 1990s.

White phosphorous and graphite smoke poured forth, obscuring vision. Electronic jamming signals did their monkey business unseen. "We do it so the competitors have no idea what's going to happen," said Col. William Pedigo, who with his staff members, had joined a visiting delegation at an observation point. Pedigo heads the operational test team of 350 officers and technicians from the Air Defense Artillery Board

at Fort Bliss.

"The range out here calls for a countermeasure environment," agreed Reynolds. "That's the tough part. And as the target acquisition, the tracking and the firing are performed, we have to collect the data. The question begins with, 'When should the (weapon) system have picked it up?' How to develop the instrumentation to do this is in its infancy."

Infancy? More instrumentation coming? Already instrumentation vans that see, listen and tape every concern of their own weapon systems were on line at Fire Point 1, logging everything in for scrutiny and analysis. "We've got to modernize the test range," Reynolds said. "Automate it."

Out across the canyon, target aircraft dropped flares down the mountainside, a tactic to confuse missiles locked onto them.

"Historically, the Army hasn't done very well at comprehensive testing like this," said Pedigo. He glanced toward the next high ridge to the northwest. Beyond that ridge, a short missile drop or so to the other side, lay Red Rio, Sergeant York's old testing grounds.

The testers had gone too easy on their much-heralded weapon system — that's what the Pentagon critics decided. So in the final round of

ests at Fort Hunter Liggett, Calif., it was Sergeant York “under the gun.” The analysis that followed sent Sergeant York into early retirement, and he hadn’t even gotten an assignment.

The winner of the LOS-F-H shoot-off still must, as did Sergeant York, face that ultimate test at Fort Hunter Liggett. “A return to the scene of the crime,” says Pedigo bemusedly, borrowing the detective classic.

It’s reminder enough that weapons testing in the modern world demands an expertise and thoroughness that leave no doubts. “So what I see for us is an increasingly ambitious program,” Pedigo said. “One that checks out the systems more rigorously than ever. Consequently, these tests have to have the countermeasures, the targets and the supports for the complicated systems. The test community has a lot to do. It used to be that aircraft flew against blue skies. Now aircraft fly swiftly at ground level. Acquisition is a challenge.”

With his toe he drew a grid coordinate matrix on the ground, then an x and a y. “With x and y, we’re all right,” he said, “but —” he suspended his toe, as if about to draw more. “— but with z, we’re flaky.

“An aircraft popping up, masking and unmasking, is a challenge,” he said, explaining. “The Army doesn’t have an accurate way of dealing with this today. We use video cameras, but manual reduction of data is required and takes a long time. We need accurate digital data showing when mask and unmask occurs and

when line of sight exists. But that’s somewhere down the road.”

Many of those on hand with expertise in weapons testing trace their entry into the field back more than 10 years. Dean Brown, instrumentation chief for White Sands Missile Range and task leader for the Oscura test center fire unit, joined ARMTE in 1974 after a year as an oil field engineer.

Brown became an electrical engineering student in 1963 at the University of Texas at El Paso, a course of study propelling him into the technology of the weapons tester’s craft.

But, he recalls with a wry smile, in 1966 he got “caught off base in the draft game (signing for too few hours to keep his exemption)” and wound up in “Nam” as a Navy riverboat crewman — a slice of raw and unprogrammed battlefield exposure in stark contrast to the high-tech world of precision Brown now tests and evaluates from the slopes of Oscura Peak.

Pedigo believes the volume of data processing brought on by the competitive testing for FAAD weapon systems amounts to a crucible, a trailblazer to the procurement process of the future. He hopes key players will get recognition: CWO 2 Jim Nocek, command post statistician; Sgt. Robert Crowley, sent by ARMTE to Oscura to plan a base of operations; Sgt. Charles Johnson, who daily hand-carried reels of data from the Oscura Command Post north of the fire points to the Air Defense Artillery Board at Fort Bliss 190 miles to the south; and Neel Esslinger, test config-



Battlefield smoke is simulated at Fire Point 1 as flares form an arch above a canyon from which target helicopters “pop up” and “mask” and “unmask,” challenging acquisition, tracking and firing skills of line-of-sight forward (heavy) contenders. (Photo by Dennis McElveen)



PFC Lenny Rudolph searches for an aircraft from the driver’s position aboard Rapier, a contender in last summer’s line-of-sight forward (heavy) shoot-off at Oscura Range. Spotting an aircraft by means of a sight on his helmet, he presses a button that sends the Rapier missile to its designated azimuth for the gunner inside to start tracking. (Photo by Dennis McElveen)



White phosphorous smoke dominates this simulated AirLand Battle scene looking at a section of Oscura Range mountainside

across a canyon from Fire Point 1. (Photo by Dennis McElveen)

uration manager from the LOS-F-H project manager's office of Redstone Arsenal, Ala.

The future, Pedigo visualizes, has begun to take shape at the Air Defense Artillery Board itself, where new, advanced communication systems, new main frame computers and state-of-the-art video data reduction systems sort out the volumes of data collected at the test site. A series of additional testing yet remains for Avenger and the eventual winner of the LOS-R and LOS-F-H shoot-offs.

Combined arms initiative (CAI), yet another component of the FAAD system, likely will draw on Air Defense Artillery Board expertise. The program includes development of munitions to be fired from existing surface-to-surface missiles to counter the helicopter threat. Development of air-to-air Stinger also is part of the CAI.

The next two tests to take the limelight, however, are expected at Oscura Range before this year is out: a FAAD C²I sensor sense-off and another for the non-line-of-sight (NLOS) component. Known familiarly as the FOG-M (for fiber-optic guided missile), this latter is a missile system that will shoot a missile straight up, where it will have a look at what's over the hill or behind a tree line, and *then* take aim and kill it.

A video camera or infrared imaging device will be mounted in the nose of the FOG-M to relay a video image along its flight path to a ground station. Uplink and downlink signals will be sent through a thin fiber-optics cable which is spooled out as the missile flies out, allowing the FOG-M gunner to engage targets hidden behind

masking terrain or other obstructions.

White Sands' ARMTE, with its mostly civilian cadre of 1,000 experts in high technology, will have jurisdiction in the NLOS testing and also in the testing and evaluation of ground-based and aerial sensors (C²I). Together with LOS-R, LOS-F-H and CAI, they comprise the five components of the FAAD system family of weapons.

Col. Robert Mathis, who commands ARMTE and is "Neil" to most of the testing community, almost can trace the accelerating role of technology in weapon systems development and the specialization of evaluations from the start of his own Army career now nearing the 30-year mark.

As a 1958 graduate of West Point, he drew his first assignment in what was then a combined Coast Artillery-Field Artillery branch of the service, to a Nike-Hercules battery guarding the city of Los Angeles.

It was the year before Nikita Khrushchev came to visit the United States and went stomping through Iowa cornfields to the delight of hordes of newspaper and television cameramen.

'Twas a simpler way of life back then — as was weapons testing. □

Editors note:

Although previous issues of *Air Defense Artillery* have included articles on "Operation Hammer," Col. Nowland's is the first to provide insight on lessons learned.

10th Brigade Takes on the "Hammer"

"We were given the chance to do what others only read about, and we would do it again tomorrow if given the opportunity"

by Col. Donald Nowland

During May and June 1987, soldiers of the 10th Air Defense Artillery Brigade participated in NATO's largest joint live-fly exercise, the 3rd U.S. Air Force's (USAF's) Operation Hammer. To successfully complete our mission, 430 10th ADA Brigade soldiers deployed to the United Kingdom in around-the-clock operations, using 11 C-141 and 12 C-5A aircraft to their utmost lift capacities. Before the 30-day exercise was over, our soldiers faced more than 300 enemy aircraft attacking air bases and air defense sites in coordinated, continuous waves. Our tactical officers fought in a mass raid

environment that combat simulation trainers cannot duplicate. The lessons learned will benefit our fellow air defenders, whether they be in NATO or CONUS. The following background information on Operation Hammer is necessary to fully understand the lessons learned.

Command and Control

The deputy brigade commander headed the Operation Hammer task force consisting of three 2/43rd ADA Patriot batteries, three 3/52nd ADA Hawk assault firing units and a brigade headquarters element. Tenant units of the

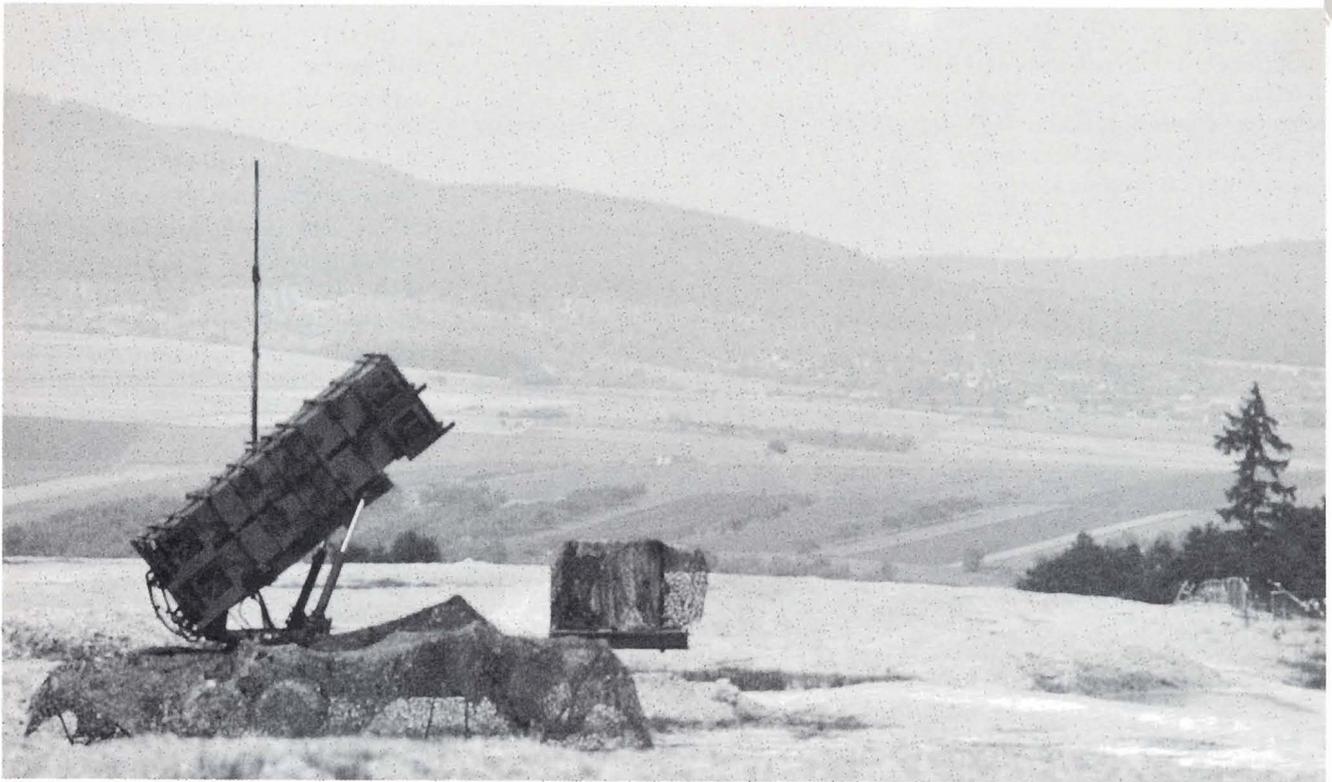
3rd USAF, headquartered in Mildenhall, England, superbly supported the deployment. Once on the ground in England, 10th Brigade units were magnificently supported by C Company, 11th Signal Battalion, 10th Brigade Support Element, 334th Ordnance Company (Direct Support), 555th Ordnance Company (DS) and the 48th Tactical Fighter Wing, USAF. In addition to the numerous U.S. Army and Air Force units, Operation Hammer participants deployed from Spain, Belgium, the Federal Republic of Germany, and the United Kingdom.

The Challenge

The successful deployment and re-deployment of this large force of equipment and soldiers presented the brigade command and staff formidable challenges. The equipment required to complete the mission weighed more than 2,670,000 pounds, not including the additional weight of launchers. By "Endex," 171 pieces of equipment and 26 pallet loads were airlifted to England and returned to the Federal Republic of Germany without a serious accident or injury to a brigade soldier and no appreciable damage to a piece of equipment. This achievement alone made Operation Hammer a 10th Brigade success story.

The goal of Operation Hammer was the battlefield integration of Patriot and Hawk fire units in a composite defense to defeat the enemy air threat. Mission accomplishment would require things never before tried during air defense operations, and included the following basic principles:

- Integrate Hawk and Patriot fires using an active communi-



Patriot battalions were airlifted from West Germany to England for Operation Hammer.

cations data link.

- Have Hawk fire units use target video and aircraft identification provided by Patriot fire units to extend the Hawk's firing capabilities and allow it to operate in a radar silent mode.
- Position Hawk fire units forward of the Patriot locations to ambush low-level aircraft attacking Patriot units.
- Make protection of the "rear door" threat to forward deployed Patriot units an on-order mission for Hawk fire units.
- Use software synchronization to prioritize Hawk and Patriot fires according to system capabilities and the defense missions.
- Use mission, enemy, terrain, troops and time available (METT-T) to select ground site locations and fire control measures for both Hawk and Patriot. Place primary emphasis on the overall capability of the integrated defense.

After Action Report

The 10th ADA Brigade seized the initiative to assess tactical employment and, with the help of the U.S. Army Missile Command (MICOM) and contracted data recording devices, to collect data at the Patriot information and coordination central (ICC) and the brigade and Hawk battalion AN/TSQ-73 command and control systems. We provided more data by videotaping most operator scopes, and analyzed all available data by contract through MICOM. Our data analyses, videotape observations and operator experiences provided many insights with current and future implications.

Engagement Synchronization

On many occasions, Patriot units engaged targets that Hawk units could have engaged, resulting in inefficient

fire distribution between Patriot and Hawk. To alleviate this problem in the near future, the Patriot ICC operator must check for the Hawk tracking indication to ensure he does not order engagement of such tracks. A future change to Patriot ICC software would enable the computer to eliminate such tracks from the threat ordering process.

Long-Range Engagements

The Patriot ICC operator manually directed about 29 percent of Patriot engagements at long range. This restricted the engaging unit's capability to conduct multiple close-in engagements. One immediate solution is that the Patriot ICC operator should use the process for engagement (PFE) switch to assign targets or order the engagements at optimum launch times closer in. A potential

change to Patriot ICC software would alert the operator when an engagement is ordered at long range, thus helping operators prevent long-range engagements unless they are necessary for mission accomplishment.

Radar-Silent Operations

Initially, Patriot radars were in a passive search mode while Hawk radars were silent. Later, Patriot radars were brought to full radiate, but the Hawk radars remained silent and used Patriot target data to track targets. This left Hawk units at a risk of being overrun by low-level tracks and unable to engage those Patriot tracks above their altitude capability.

Current tactical procedures must dictate that, once the main raid arrives, Hawk search radars are brought to radiate. To ensure that Hawk units receive only those tracks within their engagement capability, operators should use the AN/TSQ-73's "buffer" capability to limit the air picture provided by Patriot. A future change to Patriot ICC software could enable altitude limitation of the Patriot-generated air picture passed to the Hawk system.

Electronic Countermeasure Effects

Patriot saturation programs automatically invoked because of electronic countermeasure (ECM) conditions and the heavy track load. The alleviation process caused the Patriot to drop several friendly tracks from its track files. This program could create problems in special operations where continuous Patriot tracking of friendly tracks is necessary to

ensure their protection. Potential changes include altering Patriot software to alert operators when the system invokes the saturation program, and changing the program itself to keep special friendly tracks during specific tactical situations.

Engagement Modes

Patriot ICC and engagement control station (ECS) operators used the automatic engagement mode when the engagement queue became full of targets at optimum kill ranges. The system continued to protect all friendly targets and executed all engagements at optimum range. This proven procedure increased operators' confidence in the automatic engagement mode.

While pre-planned procedures are necessary now, a future change to Patriot software would alert operators when they are behind on engagements, thus prompting them to use the automatic engagement mode.

Early Warning

The brigade liaison at the British Sector Operations Center provided early warning by radio; however, higher echelons did not provide an automated air picture. We used one Patriot radar to determine the location of the raid and engage initial enemy targets.

Airborne warning and control systems (AWACSs) and interceptors better serve these early warning and initial defense missions. The experience not only reinforced the need for UHF automated data link communications to external sensors and higher headquarters, it also identified needs for more reliable communications, AWACS air pictures and a low-

level early warning network.

Mass Raid Clutter

Mass raid aircraft cluttered all command and control and weapon displays, making air defense tasks and decisions difficult. We need to place engagement authority at a decentralized level and use the system software to prioritize targets and filter the air picture. In the future, we could enhance the command and control and weapon system equipment to improve threat ordering, allow display of the most important tracks and enable Patriot to limit the air picture provided to Hawk units.

Area Defense Positions

The mission and restricted available terrain resulted in Patriot and Hawk units deploying close together in a vital area defense with similar radar coverage and caused some special problems in fire distribution. With certain procedural changes, we can work Patriot and Hawk together. Adjustments to command and control equipment (both hardware and software) could result in a better integrated air defense and a more balanced allocation of fires.

Defense Command, Control and Communications

Hawk systems successfully used Patriot tracking and identification data, and exchanged respective engagement status information. The data travels through the brigade and battalion AN/TSQ-73 command and control systems; in simpler terms, this means that automated fire distribution must flow through an extensive and fragile communications network.

This exercise demonstrated the need for data exchange between Patriot and Hawk to facilitate an effective integrated defense. Communications plans must be comprehensive. Separate positioning of Patriot and Hawk lessens the difficulties in fire distribution.

However, we need to make some procedural changes to ensure an effective integrated defense. We should continue developing tactical doctrine for composite defenses. We need more direct and reliable communications links between Patriot and Hawk, and we must pursue hardware and software improvements in command and control equipment.

The Reward

Operation Hammer offered 10th Brigade soldiers an unprecedented opportunity to train against massive live aircraft raids employing enemy threat tactics in a realistic environment. The threat aircraft used deception measures and electronic warfare in an attempt to confuse and defeat air defense operations. The quantity and quality of tactical and technical lessons resulting from the exercise increased the professional preparedness of our soldiers.

Lessons Learned Summary

One key lesson reaffirmed was that we must keep our radars and radios silent as long as possible, relying heavily upon external early warning sources to provide target information. USAF AWACS and ground-based surveillance radars are an integral part of our

air defenses.

Enemy threat assessments must be an ongoing process. Our battlefield success depends upon the timely use of threat information which allows us to project enemy air targets and attack routes. Our "war-gaming" of this information leads to defense designs which maximize the effectiveness of our fires and ensures our survivability.

The importance of reliable communications, particularly the automatic data link, cannot be overstated. This "nervous" system of the Hawk and Patriot defenses carries decision-making information and the orders by which we command and control.

Commanders need to establish a command "hot line" to prioritize threats and synchronize defenses. Commanders must receive a wide overview of the battlefield situation through an exchange of information between intelligence and operations officers.

The most effective "computer" is still the human brain. Firing crew personnel must understand that, while both Patriot and Hawk rely on software assistance, system and overall defense effectiveness requires man's smart use of this automated capability. Proper programming of system computers results from battle staff interpretation of higher headquarters' orders coupled with defense requirements of METT-T.

Future exercises of both Patriot and Hawk units should include data recording to capture more details. In addition, exercises should focus on specific aspects of the air battle —

airspace control, electronic counter-countermeasures, firing doctrine and special interceptor operations.

Overall Assessment

Operation Hammer was an extraordinary training opportunity for the 10th ADA Brigade. We were given the chance to do what others only read about, and we would do it again tomorrow if given the opportunity.

10th ADA Brigade soldiers and leaders performed brilliantly despite the rigors and challenges the exercise presented. Their extraordinary safety and discipline record serves as an outstanding example of U.S. Army professionalism. We learned better methods of air deployment, how to design and execute air defense and how to logistically support our operations. Operation Hammer enhanced our sense of "jointness" within the NATO Alliance and reinforced our confidence in wartime readiness.

We believe our participation in Operation Hammer significantly increased the overall readiness of the 32nd Army Air Defense Command, and we eagerly await future operations of this magnitude. □

Colonel Donald Nowland is the commander of the 10th Air Defense Artillery Brigade, Darmstadt, Germany.

Valverde

ADA battalion officers ponder lessons from bloody Civil War

by 1st Lt. Dennis L. Nordhoff

The nation's air defenders of today still can soak up a lesson or two from the battlefields where bursts of gunfire and the rumble of cannon pitted Union and Confederate forces against one another in mortal conflict.

So strongly does he believe it that Maj. Andre Hakopian, as executive officer of 3rd Battalion, 1st Air Defense Artillery, scheduled visits of battalion officers to the site of the bloodiest Civil War fighting of the U.S. Southwest, a distinction claimed by Valverde, N.M.

Near Valverde, on the frosty morn of Feb. 21, 1862, Confederate units from the "Army of New Mexico" collided with units from the Federal Department of New Mexico.

Brig. Gen. Henry Hopkins Sibley commanded the Confederates. Col. Edward Richard Sprigg Canby commanded the Union forces.

Sibley won the battle but lost the campaign, an irony that hits home to the officers and staff who make the two-and-a-half-hour northward drive with Hakopian to Valverde from their Fort Bliss, Texas, station

on the U. S.-Mexico border.

"It's much easier to study a battle when you can see the terrain where the actual battle was fought," said 2nd Lt. Michael McGinn. "You gain a better appreciation of the tactics used because you can compare them with the tactics you yourself would use to accomplish the same mission."

McGinn, one of the party of officers on a recent walk across the terrain of the Valverde battlefield, said afterward that the first-hand exposure helped him understand the reasoning of the commanders in making the choices they did. "Because of this," he said, "the conclusions you draw about the battle and the lessons you learn are likely to stay with you so that you can draw upon them in combat and stay alive."

The party's guide across the battlefield terrain was Maj. Conrad C. Crane, OAC branch chief and historian from the Combined Arms and Tactics Department, U.S. Army Air Defense Artillery School at Fort Bliss. From his command of historical detail, the modern day air defenders were assured an accurate and perceptive view of the battle, one that, it turned out, helped end all Confederate hope of laying claim to California.

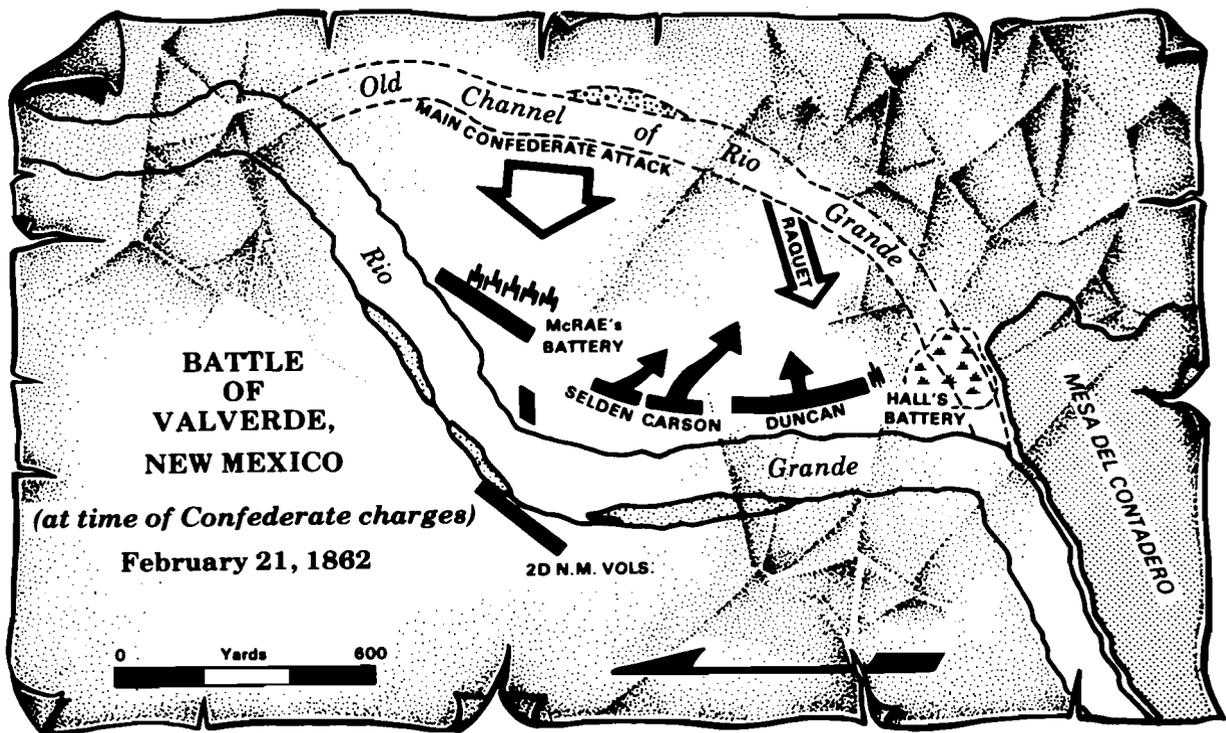
The battlefield lies along the Rio Grande, 10 miles south of San Antonio, N. M. The ruins of Fort Craig, which had been Canby's base of operation for his Union forces, lie five miles farther south.

The southern boundary of the battlefield was the Mesa del Contadero, generally known today as Black Mesa. A ford across the river lay at the mesa's northern tip. A stand of cottonwood trees on the eastern side of the river dominated the ford and offered a naturally strong position.

Sibley's plan was simple, as he set forth at dawn from the El Paso area, the air crisp and cold. He would march his 2,500 men, 15 artillery pieces and logistics wagon trains northward, capture the supplies that he needed and drive the federals out.

He underestimated his opponent. Canby organized his campaign to control the Rio Grande valley by securing and making impregnable his own Fort Craig. Canby knew Sibley's logistical problems. Likewise, he knew that he himself did not really have to fight at all and would do so only under specific and favorable conditions.

Already Canby had benefited from the strategy. Five days



earlier, positioning a Confederate force in a nearby gulch, Sibley had tried to lure him from Fort Craig. Canby refused battle.

But on the fateful, frosty morn of Feb. 21, Sibley moved his Confederates across the river north of the fort in a threat to Canby's Santa Fe supply lines, and Canby sent Brevet Lt. Col. Benjamin Roberts with a column of regular cavalry and militia "to occupy the ford" and deny the Confederates access to the river. Their horses had been without water, acquiring a thirst that caused 400 to break away a day earlier and added to Sibley's woes.

The first few hours focused upon gaining control of the stand of cottonwood trees. Roberts, with a column of regular infantry, intended to put his artillery among the trees to anchor his line while he rolled up the Confederate line forming behind sand ridges not far back from the river.

But either Robert's subordinate, Maj. Thomas Duncan, did not understand the intent of the order he received, or was too concerned with his flanks, for he kept edging away from the trees. Roberts was forced to take personal charge and place his artillery to sweep the position and drive the Confederates out of the trees. Then, with his arriving infantry, he swept the Confederates back into the old river channel.

With the grove of cottonwoods and most of the field in Union hands, Canby arrived and positioned most of his artillery and some supporting infantry to anchor his left. He planned an assault to roll up the Confederate left flank. Simultaneously, a federal militia unit attacked and destroyed much of the lightly guarded Confederate train of supply wagons.

Earlier, Sibley, weakened by an extended illness and unable to remain in his saddle, turned

command over to Col. Thomas Green. Green correctly anticipated the next moves of the Union forces and ordered a mounted charge from his left which, though routed, drew union forces to that flank.

The Confederates then launched a dismounted assault from their right, aiming for the now exposed federal artillery. Although the Union gunners fought bravely, their supporting infantry volunteers broke and ran, taking some regulars with them.

The Confederates captured the guns and turned them on the fleeing federals. Canby realized that he had more to lose than Green and retreated to Fort Craig. A "skillful withdrawal," was the way his own report of the battle read.

Green, however, in his account, had the federals in wild flight. "A few fires upon them with their own artillery," he wrote, of his use of the captured guns, "(and) a few volleys of small arms and our old

Texas war shout completely dispersed them. They fled from the field, both cavalry and infantry, in the utmost disorder, many of them dropping their guns to lighten their heels. . . . Our victory was complete.”

Canby's version was that only the native New Mexicans, not his regulars, had fled pell-mell. At any rate, he easily reformed and marched back toward Fort Craig, gathering up most of the stragglers along the way. He returned to the post as darkness settled over the field of Valverde.

Sibley admitted that the Confederate victory at Valverde should have resulted in the capture of Fort Craig. But the bulk of his forces were dismounted, thoroughly exhausted and in no condition to chase the enemy. And they never recovered from their disastrous loss of supplies and equipment, even though their casualties that day were fewer than the Union's. Green gave Confederate losses as 36 killed, 150 wounded and one missing — roughly eight percent of Sibley's whole force. Canby put

Federal losses at 68 dead, 157 wounded and 34 missing. A Texan correspondent described the Rio Grande as being “literally dyed with blood.”

Canby went on to a distinguished career, becoming the only general officer to die in the Indian Wars.

Roberts served with the 3rd cavalry after the war. He retired as a military science instructor at Yale University.

Green went on to a distinguished career under Gen. Richard Taylor in Louisiana, where he was killed while attacking gunboats.

Sibley was relieved from command during the Red River Campaign in 1863 and faded into obscurity. His last military assignment was as general of artillery in the Khedive's army in Egypt in the early-1870s.

“Although the Confederate Army possessed the field of battle, they really lost the engagement,” said 1st Lt. Hale Adams, another of the party of ADA officers on their tour of the battlefield. “Due to the loss of their trains, their supply system grew even worse. Facing starvation, the Confederates

could not take Fort Craig but had to abandon the field and march north. The supply problem dominated the campaign and ultimately led to their downfall.”

First Lieutenant Jeff Heyward drew a lesson from what he considers breakdowns in communications on that historic battlefield. “This battle illustrates a problem commanders face everyday,” he said. “That is making your instructions clear and precise so that your subordinate unit commanders understand your intent. I think Lt. Col. Roberts failed in this regard because . . . he personally had to emplace his artillery.”

First Lieutenant Larry Cruz said, “Actually seeing the battlefield and surrounding terrain told me that Sibley's overall strategic concept was flawed. The Confederate logistics plan was ludicrous because it neglected the limiting conditions of operations conducted in the Southwest. Because Canby took advantage of the peculiar characteristics of warfare in the Southwest, he conducted a masterful campaign.”

“It will be a long time before I forget any of these lessons,” said Adams. “The battle of Valverde underscores the high cost of such lessons.”

Adams concluded that, as a result of staff rides such as those arranged by Maj. Hakopian, officers now have the opportunity to study actual battles and internalize their lessons for future use. “Fewer mistakes will be made in actual combat,” he said. “Soldiers' lives will be saved. This is why staff rides to actual battlefields are so important.” □

1st Lt. Dennis L. Nordhoff is adjutant of 3rd Battalion, 1st Air Defense Artillery, Fort Bliss, Texas.



Officers of 1/3rd ADA hear from Maj. Conrad Crane an explanation of troop movements during the Battle of Valverde as seen from Col. Canby's front porch at Fort Craig. (Photo by Andre Hakopian)

Defining the Parameters of Light ADA

The recent history of light air defense has been a rocky one

by Capt. Mike Doyle

The original operations and organization (O&O) concept for the light division called for the air defense assets to remain to the rear of the brigade rear areas and to provide air defense for the division rear area only. Initially, some elements of the Army believed that a single Stinger battery under the control of division artillery could handle the rear area air defense mission. The dissolution of the air defense artillery (ADA) battalion would significantly decrease the number of C-141 sorties required to move the division, which was a key issue as the division was still 28 sorties over the 500-sortie target originally called for.

Fortunately, this concept was crippled during the brigade certification exercises conducted during March and July 1986, and was soundly crushed during the division certification exercise, Celtic Cross IV, in August 1986.

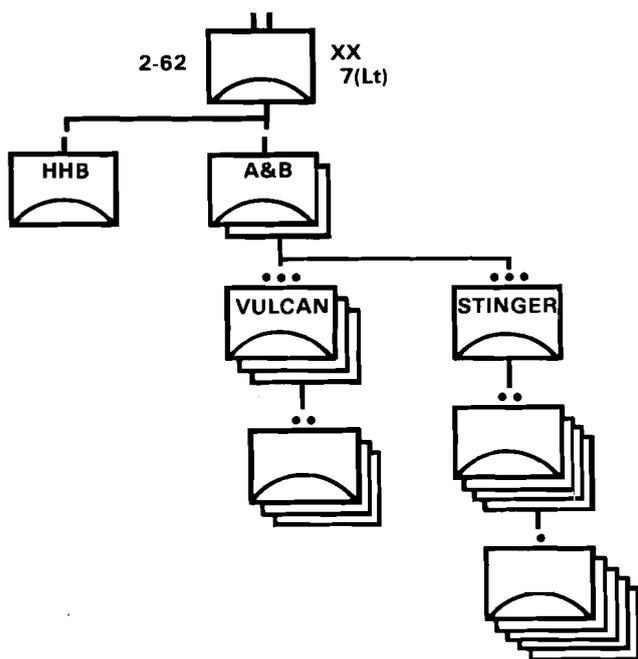
The certification exercises tested the validity of the organization of the division and brigades, as well as the combat support and combat service support slice elements that support the maneuver forces. During these exercises, air defense assets were allocated based on an analysis of mission, enemy, terrain, troops, and time available (METT-T), and not the original O&O concept. The 2nd Battalion, 62nd Air Defense Artillery, Fort Ord, Calif., maintained clear skies above the division area of operations throughout the division certification field training exercise (FTX). We learned later that our ability to perform our mis-

sion convinced the subject matter experts observing the exercise that an ADA battalion was an absolute must for the light division. And so it was that, after sitting on pins and needles for months waiting for a decision about whether or not we would remain part of the division, our own performance and light fighter attitude ensured us a home within the 7th Infantry Division (Light).

Let's take a brief moment and review the organization and missions of both the division and the "Aim High" battalion. The division's mission is to "rapidly deploy as a light infantry combined arms force to defeat enemy forces in low-intensity conflict and, when properly augmented, fight and win in a mid- to high-intensity conflict." The division is organized into three infantry brigades composed of three battalions each. These forces represent the ground maneuver forces of the division. The firepower of these infantry brigades is supplemented by the Field Artillery, Aviation, Combat Engineers, and Air Defense Artillery, not to mention the combat support and combat service support elements that are so critical to the division.

The mission of the 2/62nd ADA is to "provide forward area air defense to nullify the effects of enemy air and allow maneuver commanders freedom of action, provide early warning throughout the division and, as a secondary mission when the air threat allows it, provide Vulcan ground support for selected missions." The battalion is organized into a headquarters and headquarters battery and two line batteries. Each line battery is organized into a headquarters platoon, three Vulcan platoons of three squads each, and one Stinger platoon. The Stinger platoon is organized into four

sections of five teams each (see artwork).



Making It Work

How does a 322-man, two-line-battery battalion provide the air defense we're so famous for?

The towed Vulcan is the organic air defense gun within the division. Its light weight allows it to be transported by the UH-60 Blackhawk helicopter organic to the division. This mobility makes it an ideal weapon system for a division geared toward terrain that would stop a self-propelled Vulcan dead in its tracks (pun intended).

Some of us in the air defense community have been guilty of character assassination of the Vulcan weapon system. For years we've rung the death knell of one of the most lethal cannons in the U.S. Army. Instead of berating its admitted weaknesses such as a low-hit probability against high-speed aircraft flying crossing patterns, lack of armor protection for its crew, mobility dependent on a prime mover and its limited on board ammunition, we should be asking ourselves, "How can we get the most out of this weapon system?"

Vulcans are usually emplaced on commanding, high terrain to maximize their limited range. Requirements for fields of fire seem to differ from unit to unit but it is "generally, usually, mostly" accepted that the greater the fields of fire, the more

effective the system will be.

Let us now leave the traditional and venture into the sublime. Vulcans can be extremely effective with fields of fire of 180 degrees and, in some instances, much less than 180 degrees. Blasphemy you say! Let's look and see.

The rugged, restrictive terrain most suitable to light infantry operations is also usually canalizing in nature and enemy pilots can be expected to try and avoid high- to medium-altitude air defense (HIMAD) or Air Force air defense systems by flying low, using terrain-following techniques to get to those high priority targets in the brigade and division rear areas. Here at 2/62nd ADA, we have accepted this premise and have assigned air defense missions to Vulcan platoons to neutralize this threat.

Basically it works like this. A Vulcan platoon is assigned a point asset such as a brigade support area, a forward arming and refueling point airfield, or a tactical operations center to defend. An extremely diligent analysis of METT-T is made, concentrating on the terrain and threat capabilities. Vulcans are then emplaced on low ground along the likely avenues of approach provided by the canalizing terrain (see artwork). Given a fairly restrictive flight path, which precludes radical maneuvers by the enemy aircraft, the Vulcan is extremely hazardous to that pilot's future aspirations. The pilot has two immediate courses of action: he can go on and fly through a continuous shield of 20mm high-explosive incendiary rounds, or he can pull up and out of the terrain that is restricting his maneuvers.

The first course of action will normally result in the Vulcan squad stenciling another MiG silhouette onto the side of their gun. The second course of action should satisfy the Vulcan squad as they get to see their fellow air defenders (Stinger or HIMAD) receive credit for a successful engagement. Either course of action results in the safety of the defended asset.

The art of camouflage and concealment is emphasized at all times. The Vulcan squads know that, to survive and win, they must be the ones to initiate the air defense battle. If they can be detected from outside the effective engagement range of the Vulcan, they probably won't receive any retirement checks. Well dug-in command posts (CPs) and operation posts with a minimum of 18 inches of overhead cover are the standard for the light fighters. They considerably enhance the squad's survival if indirect fire is received or if the environment becomes target rich to the extent that all available ammunition is expended.



The Stinger Equation

The Stinger missile is the finest air defense system available to the light division. Without the Stinger to mix with the Vulcan's point asset defense capabilities, enemy air would probably figure out a way to get past the Vulcans and destroy the asset. Tactically, the Stinger is usually task organized with a Vulcan platoon for point defense of selected high-priority assets. It also can be used as an area air defense system. I would like to stress again that the light division is geared toward low-intensity conflicts and operates most effectively in close, restrictive terrain. Stinger teams complement the Vulcans which are, as stated earlier, primarily used to close low-level air avenues of approach.

Generally, the Stingers are positioned on higher ground than the Vulcans when operating as a combat team with a Vulcan platoon. The Vulcans drive the enemy aircraft up, out of the low-level air avenues of approach, providing the nearby Stinger teams with excellent shots at the aircraft. This is a variation of the tactics used in the Federal Republic of Germany by the short-range air defense (SHORAD) battalions responsible for

U.S. air base defense. The SHORAD units engage and destroy the low-flying enemy aircraft or drive them up into the engagement zones of Hawk, Patriot, or Air Force air defense systems.

When used as an area air defense system, some of the Stinger teams are emplaced in much the same manner as the Vulcans. A diligent study is made of all the factors of METT-T, again concentrating on the terrain and enemy capabilities. If canalizing terrain is identified, Stinger teams can be positioned in depth along the low ground. Additional Stinger teams are positioned near commanding terrain to ensure complete air defense coverage. Positioning the Stinger teams along the low ground of canalizing terrain also satisfies a technical characteristic of the Stinger missile. Looking up at an enemy aircraft with a cool sky as the background makes it much easier for the missile to acquire the heat source that becomes its target upon launch.

The new equipment we have received in 2/62nd ADA has also helped us in our pursuit of better ways to maximize our air defense assets. Specifically, the M-998 high-mobility, multipurpose wheeled vehicle (HMMWV) has done much to enhance the survivability of the Stinger teams. Its mobility, agility, and high ground clearance gives it a cross-country ability much greater than the old M-151 series of 1/4-ton jeeps. It has a much larger cargo area than a jeep and a Stinger team can load all the MTOE equipment plus the basic load of six Stinger missiles without a trailer. The HMMWV's cross-country abilities allow it to go places in two-wheel drive that the old jeep and trailer could not get to in four-wheel drive. This means that Stinger teams can be positioned in areas that were at one time considered inaccessible to wheeled vehicles.

It's been a very busy year for us and we have made tremendous progress in our attempts to define the parameters of light ADA. We are constantly trying new ways to fight more effectively. Many of our ideas and concepts have worked well and, of course, some have not. We're thankful for the NCOs and junior officers who came up with most of these new and exciting ideas. They seized the initiative with both hands and were not afraid to depart from the textbook solutions. I certainly hope that they continue to grow and to experiment in their efforts to improve air defense in the light divisions. □

Captain Mike Doyle, formerly a battery commander with 2/62nd ADA, is currently the assistant division air defense officer for the 7th Infantry Division (Light), Fort Ord, Calif.

Do We Still Need Heroes?

ADA living legend serves as role model for Officer Basic Course graduates

by Blair Case

A disillusioned nation recently awoke to discover it had somehow run out of heroes. After decades of anti-heroes, Americans found that they still need someone to look up to. Brigadier General Donald Lionetti, assistant commandant of the U.S. Army Air Defense Artillery School, decided newly commissioned ADA lieutenants were no exception. So he invited retired Brig. Gen. Stephen M. Mellnik, the assistant commandant when 2nd Lt. Lionetti was an officer basic course student, to deliver the graduation address.

Mellnik's mission: Define the characteristics of leadership to a class of graduating officer basic course students. Mellnik's comments appear in blocked italics.

What can a model 1932 second lieutenant say to a group of model 1987 lieutenants that will be of some use to them?

The 80-year-old warrior could have told them about Manila, Bataan, Corregidor, and Mindanao. He could have spoken of the Japanese invasion of the Philippines, the Death March, the degradations and deprivations of prisoner of war camps, the escape to Australia, and the challenge of orchestrating a guerrilla resistance in occupied territory. An old soldier's recitation of combat experiences, however, seem inevitably condescending to younger soldiers. So, he left that part out.



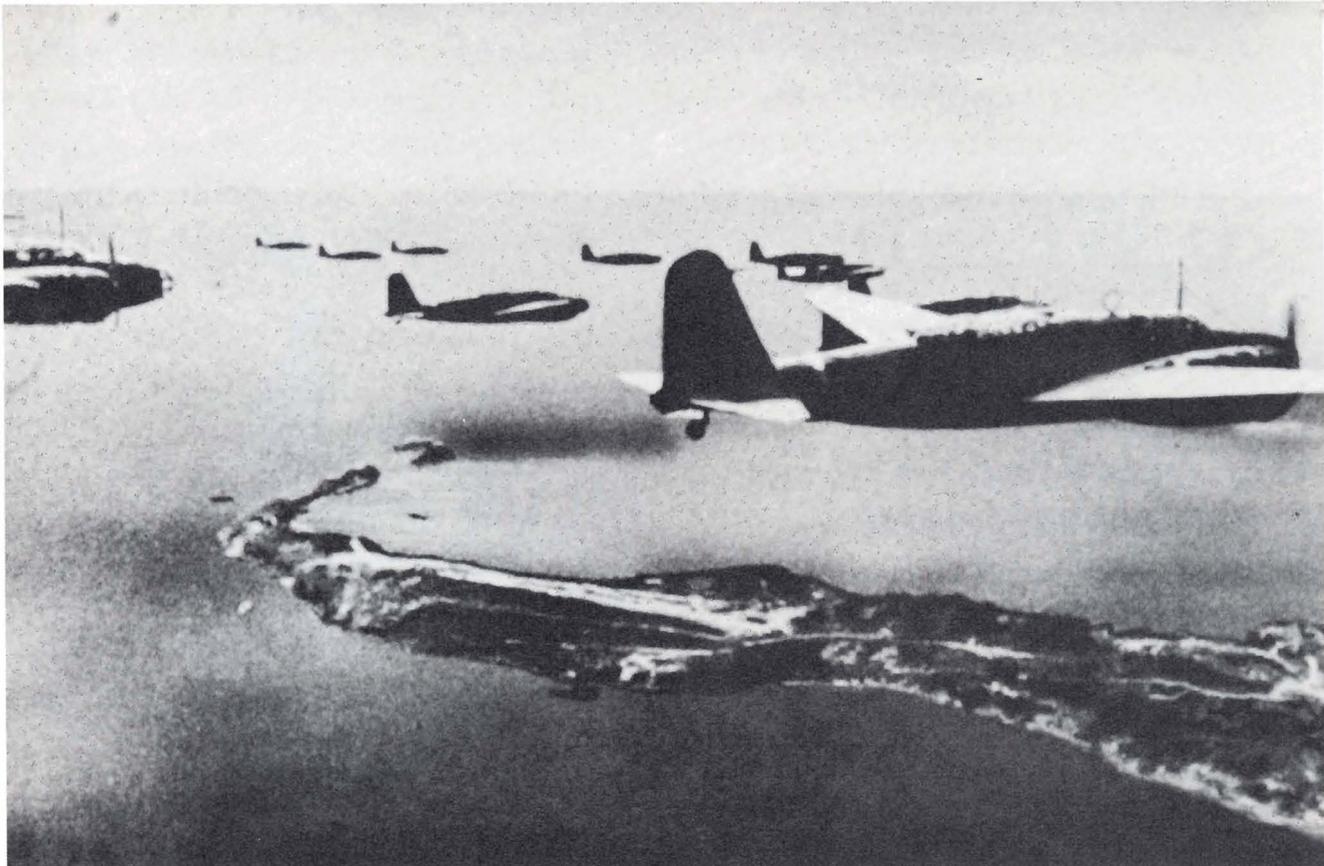
Brig. Gen. Stephen M. Mellnik

In 1932, I felt I knew everything, and I had strong opinions on most things. I have a sneaking suspicion that members of this class feel the same way.

Perhaps Capt. Steve Mellnik still felt that way in 1939, when he arrived in the Philippine Islands for a two-year tour of duty which took six years to complete. He was assigned to Corregidor, the island bastion in Manila Bay, and commanded a battery of Philippine Scouts until mid-1941, when he was transferred to Gen. Douglas MacArthur's staff in Manila. His new job was to establish artillery and anti-aircraft defenses. The Japanese invaded before the artillery project could be completed. As enemy forces reached the outskirts of Manila, Mellnik returned to Corregidor with MacArthur on Christmas Eve, 1941.

During the grim days on Corregidor, Mellnik commanded a battalion until he was captured by the Japanese in May 1942. He spent 11 months as a prisoner of war in Bilibid Prison, Cabanatuan, and the Davao penal colony in Mindanao. Mellnik and nine other Americans escaped from Davao in April 1943. For the next five months, the escapees organized guerrilla units to harass the enemy, established radio communications with Australia, arranged for a submarine rendezvous, and arrived in Australia.

Rejoining MacArthur's staff, Mellnik coordinated guerrilla campaigns that were instrumental



Japanese bombers over Corregidor.

in the recapture of the Philippines, joined in MacArthur's triumphant return to the islands, and stood once again on Corregidor to view the bombed-out ruins of Battery Geary, his first command.

As MacArthur pinned the Distinguished Service Cross on his chest, Mellnik thought "of the heroic thousands who died anonymously on distant battlefields and in prisoner of war camps." These soldiers, thought Mellnik, were more deserving of recognition. Feeling "contrite and unworthy," he silently prayed his "fallen comrades would forgive me."

I have trained, directed and observed young men and women for some 30-odd years. My units varied in size from a squad of eight men to a command of tens of thousands. The conditions varied from tropical jungles to Pentagon offices, from Manila to Heidelberg, and from parade ground ceremonies to wartime combat. Regardless of the situation or the condition of the problem, I discovered that man, intelligent man, was the decisive element, and that leaders of men were my most valuable assets.

Mellnik wrote two books about the war: "*Philippine War Diary, 1939-1945*" and "*Ten Escape from Tojo*." Both books contain a significant clue to their author's perspective about what counts most in combat. Their indexes omit the names of units and places. Instead, they list only the names of people whose self-sacrifice, heroism and persistence helped, sometimes in small ways, make history.

To Mellnik, it's clearly people who count, and Mellnik is a keen observer:

- " 'Pic' Diller, a quiet, oldish-looking doughboy, held two jobs: he was General MacArthur's aide-de-camp and the USAFFE press officer. His penetrating mind and keen sense of humor attracted me immediately."

- "A rare combination of thinker and doer, Dick Sutherland [MacArthur's chief of staff] drove himself and the staff at a furious pace. Intolerant of mediocrity, he rebuked sloppy work and inefficiency with withering scorn."

- "First Sergeant Benito Cabel, a Scout with 26 years of service, was my invaluable right hand. He was serious, businesslike, and addicted to the use of long words and phrases, which he strung together in a formal monotone."

• “[Maj. Johnny King] was inordinately proud of his Oklahoma Indian ancestry. Radiating dignity and resolve, he seldom spoke unless he had something concrete to say. When people teased him about his ancestry, he would remark that it was too bad his forebears had not been more selective in admitting immigrants.”

In his books, Mellnik even pauses to characterize soldiers who played only minor roles in the drama of the Philippines, often simply with the phrase “an alert-looking soldier” or “an alert-looking guard,” alertness being one of the qualities that Mellnik, evidently, believes separates leaders from the led.

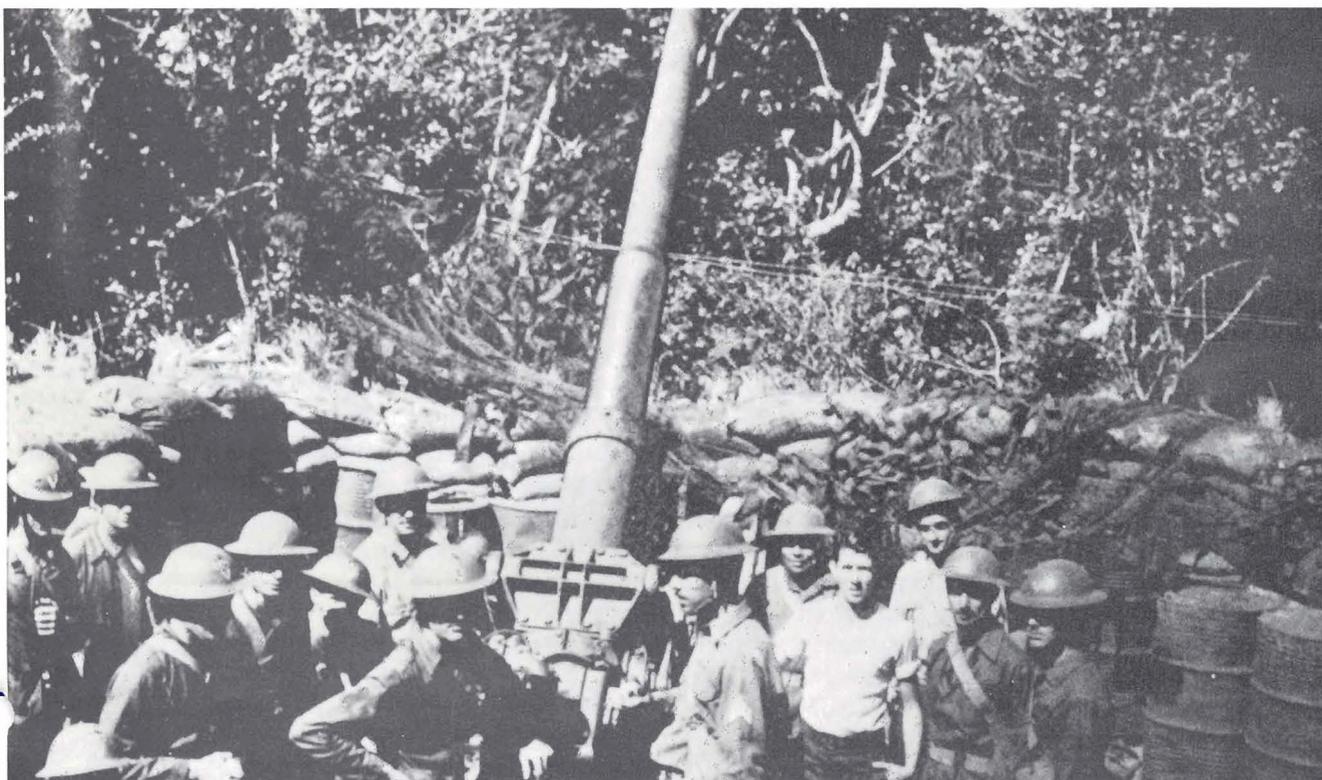
My discovery that leaders were my most valuable asset was neither original nor unique. When I attended the Army War College, I asked the head of IBM, who gave a lecture to our class, to identify the company’s most important asset. He answered without hesitation, “quality manpower.” He added that IBM could give up its name, real estate, factories and machines; but if it could retain its quality manpower, it would regain its pre-eminent position in less than five years.

An executive’s most important task is to identify his quality manpower. Your superiors will be observing you closely to deter-

mine if you are average, below average, or if you show signs of belonging to the high quality category. Are there such signs? I worked hard to find them. In spite of my studies, however, I was unable to find a common denominator for success — the surest indicator of quality manpower — because the qualities contributing to success varied with the individual. However, my studies led me to one fundamental conclusion and several important observations.

The fundamental conclusion is short and to the point. It is that “man can do much more, and better, than he thinks he can.” I’ll repeat that conclusion: every man can do much more, and better, than he thinks he can. This conclusion appears to have almost universal application. In measurable fields of endeavor, studies showed that the average person accomplished about 35 percent of what he later found he could accomplish. Also, that one man out of 11 made optimum use of his physical and mental resources.

Mellnik and his fellow escapees provided the United States with its first information on the treatment of Americans captured by the Japanese. Their front-page revelations of Japanese atrocities startled the nation and strengthened its



Anti-aircraft batteries on Corregidor lacked the stamina to defend a fortress.

resolve. During the siege of Corregidor and his long agony in the death camps, Mellnik learned things about the well of human endurance that men who never have occasion to probe its depth will never know.

On Corregidor, for example, a commander confessed to Mellnik that he couldn't understand how his troops withstood the physical and mental stress. "They perform acts of extraordinary heroism in routine fashion," he said. "And they never tire. As soon as the barrage lets up they leave shelter to repair field fortifications or equipment. They accomplish miracles. How they do it on half rations is beyond my comprehension."

I wondered why men failed to make better use of their talents. My analyses showed that after stripping out the varying effects of such items as illness, IQs, physical defects and emotional disturbances, three causative factors stood out.

First, the acceptable standards of performance were too low. People expect praise for tying their shoelaces properly.

Second, individuals are rarely challenged to exert themselves. That's because we accept mediocre service and fail to do something about it.

Third, very few men know how much their minds and bodies can do.

Perhaps, at this point in his speech, Mellnik may have thought of Cabanatuan PW Camp Number One. As the following entries from his diary attest, he watched men pushed to the limits of their endurance and beyond:

• "6 June 42. Three more groups of 1,500 each arrived on successive days. Few brought mosquito nets or blankets. Most in horrible shape from dysentery, malaria and malnutrition. They collapse in camp streets, die, and lie for days because their companions are too weak to bury them."

• "4 July 42. Eight hundred and ninety men died of illness and malnutrition last month. Fifty died yesterday. If we keep dying at this rate, and I am the last to die, I have seven months to live."

He watched others cling to life with fanatic determination. The death rate declined as the PWs learned to adapt: "The September death toll, 380, was almost the same as that in August, in spite of the doleful conditions. Perhaps the worst was past and the future would bring improvements. 'We're over the hump,' said Johnny. 'We've lost three-thousand three hundred and thirty-nine men; that's one out of three that started in this camp. The two still living have licked every disease in the

book. Barring plague or accident, we three will survive.'"

In summary, we fail to make better use of our talents because we are equipped with eight-cylinder bodies which we run on only three cylinders. I can say without fear of successful contradiction that each of you can improve your performance to a marked degree, and that many of you can double your performance.

I mentioned earlier that my studies led to one conclusion and several observations. The observations concern those qualities and characteristics which identify the potentially successful person. What are they? How are they acquired? Is one born with them? Can they be developed?

There are as many opinions concerning those qualities as there are executives. I'll discuss three which, in my opinion, separate the men from the boys, and the leaders from those who are led. These qualities are —

- *the ability to talk and write clearly,*
- *the ability to make decisions based on facts and comparative data, and*
- *the ability to attract favorable attention.*

I'll discuss these items individually.

In no other field are educated Americans as weak as they are in their ability to convey ideals either orally or on paper. Regardless of your chosen career, your success will greatly depend on your ability to advise, persuade, clarify or instruct.

The person who reads your written words can only assume that they represent your thoughts. My own experience is that people have a positive genius for misunderstanding the spoken or written word. Therefore, as a guiding principle, you should express your thoughts so simply and clearly as to make it difficult, if not impossible, for them to be misunderstood.

When Captain Mellnik was assigned to command Battery D of the 91st Philippine Scouts on Corregidor, he inherited a communications problem. "Communicating with Scouts was difficult because their inadequate English made every conversation an adventure," he wrote after the war. "Since they were most reluctant to say 'no' and too proud to admit that they did not understand, their answer to a question was usually suspect. I achieved my best results by speaking slowly and calmly, discussing only one topic at a time and avoiding slang and sarcasm. I also learned to

confirm my oral instructions in writing.”

Mellnik could also have recited another classic example of failed communications from his personal memoirs — one that didn't involve a language barrier. “Corregidor was dismayed to learn that during the withdrawal to Bataan, a North Luzon Force commander directed the evacuation of the garrison at Fort Wint, located on Grande Island in Subic Bay. This was a most serious blunder. Protected by a mine field and cannon, Wint's 600-man, all-Scout garrison could have denied enemy use of Subic Bay for weeks. Rationalizing the decision that opened Subic Bay to the enemy, we concluded that the harassed NLF commander was unaware of Wint's purpose. His mission was to shepherd USAFFE troops behind a defense line on Bataan. Wint was a friendly force in front of that line and therefore subject to capture. From that point of view his decision was logical.”

Why does the exchange of information cause so much misunderstanding and confusion?

One reason is fuzzy thinking: the speaker does not arrange his thoughts in logical order, does not identify the main idea in his mind, lets his thoughts come out in jumbled order and forces his listener to put the verbal jig-saw puzzle together. I occasionally describe this situation by saying, “His tongue was in high gear while his brain was in neutral.” So, I suggest you practice putting your brain in high and warming up the system before putting your tongue in gear.

The ability to communicate clearly is an acquired characteristic which will improve with practice. Listen carefully as others talk and notice the way they use rumors, wild opinions and some facts to support their views. When you talk, label your information. You owe your listener the courtesy of letting him know whether you are expressing an opinion, a ball-park guess, or the results of research or direct observation. The person to whom you are listening may be repeating a rumor which he is passing off as fact. If the information is important to you, be skeptical; check with other sources, and then double check. If you don't check, you may stumble badly.

A second characteristic of the successful person is his high regard for facts and his use of comparative data in reaching a decision. He first gathers sufficient facts to identify

the important elements of the problem, analyzes those elements, compares them with known standards and makes his decision. “But,” you might say, “that's only common sense.” I can assure you that common sense is a very uncommon commodity. Let me illustrate this point.

Mellnik had plenty of illustrations to choose from. For example, Corregidor, prior to the war, was widely assumed to be an impregnable fortress, honeycombed with tunnels and bristling with cannon. Few thought an enemy would dare assault the island; even fewer thought such an assault, if launched, would succeed.

Captain Mellnik conducted a personal survey of the island bastion and came away disillusioned: “My study showed that the fortified island could hold their own against a strong enemy naval force ... [but while] Corregidor was capable of fighting a successful toe-to-toe battle with battleships and cruisers, it was not prepared to cope with prolonged air attacks or massed, land-based artillery. Its case-hardened steel projectiles could slice through battleship armorplate like a hot knife cutting through butter, but such shells were ineffective against personnel. All cannon on Corregidor stood out in the open; not one was turreted or under protective cover. Our mobile three-inch ack-ack guns were designed to protect a dispersed field army against air attack; they lacked the stamina to defend a fortress.”

Instead, Mellnik decided to illustrate his point with a more mundane example — the purchase of a car.

If you bought a particular make of car recently, how did you arrive at the decision? The high quality man would investigate the car's safety features, horsepower, fuel consumption, maintenance history, financing terms and trade-in value among other things. He would compare this data with similar information on two or more makes in the same price range, and make his decision accordingly.

How does the average man buy a car? In most cases his decision to buy a particular make is based on trivial reasons such as his friendship with the salesman, his liking for a particular type of upholstery, the amount of chrome trim on the car, an uncle's opinion, his girl-friend's liking for a particular car's silhouette, or some meaningless but catchy

advertising phrase such as chemo-thermal hydraulic over-under suspension. In making a decision to buy a car, the average man seldom does more than blow the horn, look under the hood in a knowing fashion, jiggle a few wires, kick the tires, and sign on the dotted line.

These examples should make it clear that a high regard for factual data, and the use of such facts in reaching decisions, are just as important in your personal lives as they will be in your work.

We've talked about the value of clear communication and the virtue of making decisions based on facts. Let's address the subject of attracting favorable attention.

In the past, this quality caused you to be selected as a playmate, friend, dancing partner or member of an athletic team. In the real work-a-day future where you are competing with your contemporaries, a similar selection process will affect your career one way or another.

In the death camps, Mellnik discovered, being selected as a "playmate" could mean the difference between life and death. The strong, the energetic and the resourceful forged close alliances with men like themselves: "Tall, sharp-eyed and intense, he [Commander M.H. McCoy] seemed determined to change his PW status. He possessed a remarkable memory, a brilliant mind, and complete confidence in his ability to get out of trouble. Since we enjoyed exchanging views, we stood next to each other at work calls to be selected for the same work detail."

What characteristics do you need to attract favorable attention and lead to your identification as a quality person? You will agree they include enthusiasm, vitality, curiosity and a certain daring. Such attributes stem from two personal factors: health and self-confidence. What can you do to develop them?

Let's consider health. Your body is a rugged but extremely complex chemical machine which uses food to create heat, energy, and the materials to repair itself. You take good health for granted because your bodies are young and strong — possibly stronger than they will ever be again. As years pass, your bodies will tend to deteriorate and become susceptible to disease. This aging pro-

cess is accelerated by improper body care or lack of care. It is accelerated further by exposure to poisons such as nicotine, alcohol and other drugs which intelligent people avoid.

The two most important elements of body care are proper food and exercise.

As intelligent individuals you should make it your business to know what foods your body needs. You should be as familiar with vitamins, minerals, carbohydrates, proteins, cholesterol and the adverse effects of obesity as you are with your car's needs.

Unlike a car which has fixed characteristics, the body actually adapts to its environment. It strengthens muscles which are used, and lets unused muscles atrophy. The phrase "Use it or lose it" applies to every part of your body. I cannot overstress the importance of proper body maintenance.

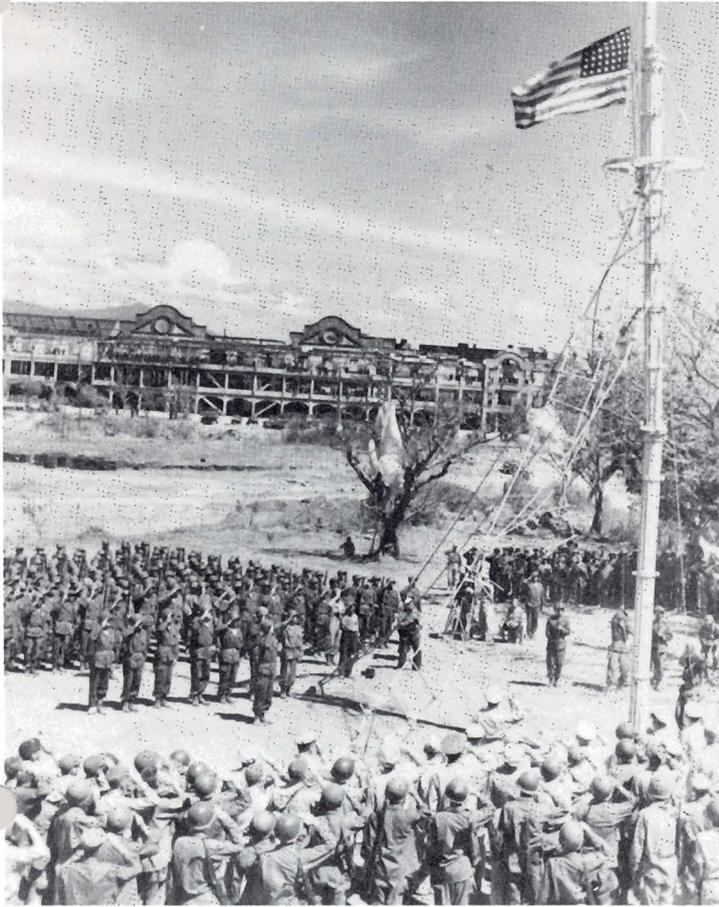
Mellnik is no recent addition to the growing ranks of health food freaks and physical fitness nuts. He learned to appreciate the intricate metabolism of the human engine in a much tougher school than fitness centers and health spas.

For example, Mellnik and his fellow PWs carefully calculated the effects of malnutrition: "It's only a question of time until we run out of flesh. Nakamura promised to give us three mess kits of rice a day; that's nowhere near enough. Our bodies need 1,600 calories a day; three mess kits of rice contain 1,200. That 400-calorie deficit will make us lose a pound of flesh every nine days. Lord knows what the deficit in proteins, minerals and vitamins will do to us."

With disease accelerating the rate of their deterioration, Mellnik and his friends fought back from the brink of starvation by finagling jobs on work details (offering them a chance to steal food and conduct raids on a Japanese chicken farm) and by sharing their precious resources. Eventually, their returning health allowed them to contemplate not only survival, but escape as well.

The other attribute of the attraction quality is self-confidence. This trait stems from a conviction that your talents are adequate to cope with your problems. You will develop such a conviction when you have a thorough knowledge of your goals, your tools, your talents and your problems. This knowledge will require continuing attention because the factors influencing your lives vary from day to day.

To summarize what I've said about the at-



U.S. troops run up the Stars and Stripes over Corregidor following its recapture.

traction factor. The magnet which will draw people's favorable attention to you is a combination of alert enthusiasm, a healthy body and self-confidence. If you possess the technical competence expected of you, your chance of being tagged as "a quality person" is quite high.

Members of the graduating class, you differ widely in many respects: the courses you took at the colleges you attended, the degrees you received and the careers you will pursue. But you are very much alike in two respects: you are young and you are hungry. Young enough to take chances and make mistakes because you have time to recover from them. Young enough to experiment with new ideas and to stretch your minds and bodies to their limits — because that is what youth is all about. And you are also hungry: hungry for recognition, new experiences and attainment of power, success and security. Such hunger is the normal attribute of healthy youth. In satisfying this hunger you will find much happiness, and you'll also experience headaches and periods of indiges-

tion. The world is your oyster if you have the will, courage and strength to open it.

Following his fourth attack of malaria, in what Hollywood script writers would call an anticlimax, Mellnik was returned to the United States and served in the Far East Branch of G-2, War Department General Staff, and G-2, Third Army. Later, he attended the Army War College, commanded the Nike Air Defense Group in Pittsburg and the 34th Air Defense Brigade in Mannheim, Germany. He organized and commanded the 7th U.S. Army Support Command, served as assistant commandant of the Air Defense Artillery School and as commanding general of the 1st Region prior to his retirement in 1963.

Regulations which govern Army periodicals ban articles which tend to "glorify" individuals with the exception of "historic personages." The publication of this article, therefore, officially makes Mellnik a historic person — a label to which he strenuously objects. Mellnik is still prying open oysters. A newlywed at 80, he reviewed this article in manuscript form on the beach at Mazatlan with his bride. □

THE SIXTH SENSE OF SAFETY



IN TRAINING AND LIVING

Stinger Safety! On their own at NTC

“The danger to Stinger teams at the NTC is very real”

by Capt. Michael Williamson

Air defense employment at the National Training Center (NTC), Fort Irwin, Calif., is a challenge to both leaders and soldiers. A greater challenge, though, is protecting them from harm. An NTC training rotation consists of two battalions — generally one mechanized infantry and one armor from a Forces Command heavy division or separate brigade — going at it for 14 to 18 days of force-on-force engagements (and separate live-fire exercises).

Air defenders are tasked to support the maneuver elements. Stinger teams in particular are dispersed from the forward edge of the battle area to the brigade rear. This dispersion and the pace of the battles are typically such that Stinger supervision and detailed control of even a minor portion of critical action are simply not possible by either the platoon leader or the section chief.

The safety challenge, therefore, falls not only to the leadership but also to the individual Stinger teams and gunners. The danger to Stinger teams at the NTC is very real. There were 251 accidents at the NTC for all 13 of the FY 86 rotations. Three soldiers died, two soldiers were permanently disabled, and the Army lost 2,933 mandays to injuries. Of the three deaths that occurred during the FY 86 NTC rotations, one was a Stinger gunner.

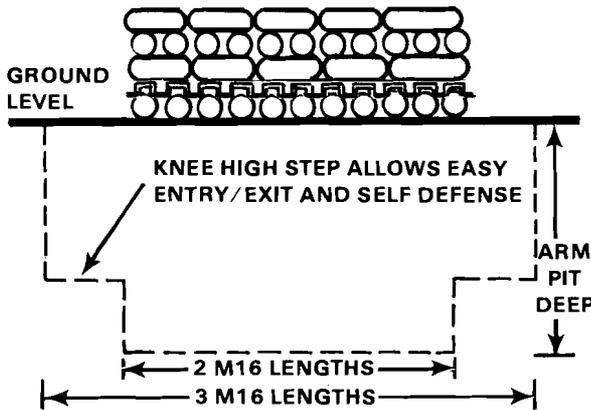
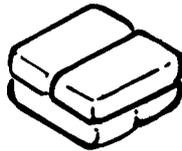
The realism of the force-on-force exercises at

the NTC demands Stinger teams take exact safety precautions. Initially, Stinger teams must select a position. Stinger teams should select positions that afford good fields of fire; however, they must also consider the safety of that position. During offensive operations, Stinger teams dismount to provide air defense to the maneuver element. They must ensure the positions they select do not impede the traffic of armored fighting vehicles.

Smoke and battlefield haze have a serious safety impact. Offensive operations in smoke require tighter formations, slower speeds and easy to recognize routes. Stinger defense operations in smoke require prepared and rehearsed alternate positions and observation posts that are generally much closer to the supported maneuver element. The size of the defensive battle position dictates the selection of Stinger positions. For instance, a Stinger team has more position options in a battalion battle area than in a platoon battle area. Whenever time permits, a Stinger fighting position should be prepared. Aside from the training value, the safety aspects outweigh the time required to prepare an adequate position. A well-prepared position not only provides artillery and small arms protection during actual hostilities, it also provides a relatively safe haven during training exercises. Figure 1 describes a sample fighting position recommended by air defense observers and controllers at the NTC.

STINGER TEAM FIGHTING POSITION

FRONT VIEW

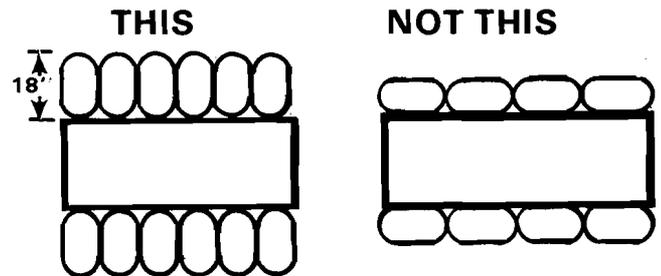
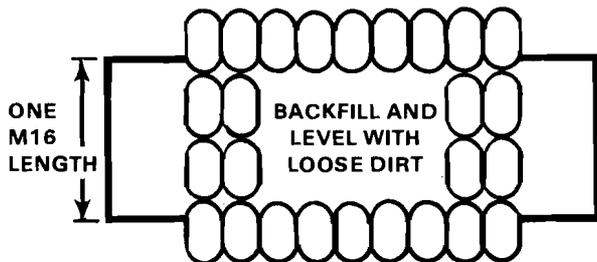


A MINIMUM OF 18" OVERHEAD COVER IS REQUIRED. TO ACHIEVE THIS USE 3 LAYERS OF SANDBAGS IN AN INTERLOCKING PATTERN. FILL SANDBAGS NO MORE THAN 3/4 FULL. DO NOT TIE THE ENDS. JUST FOLD UNDER TO EASE FILLING AND DUMPING FOR REUSE LATER.

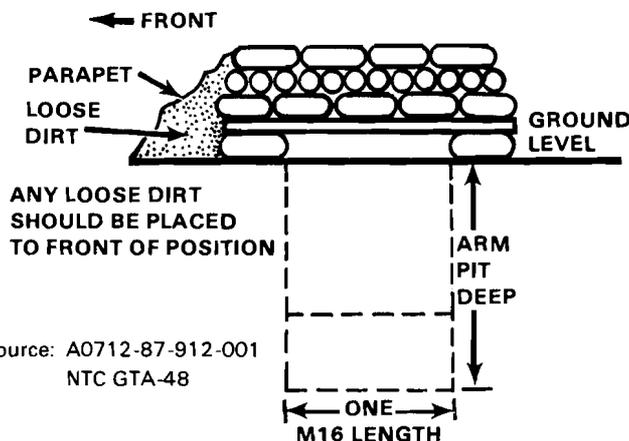
USE LONG ENGINEER PICKETS TO SUPPORT THE ROOF. WHEN STACKING SANDBAGS 3 LAYERS HIGH, PICKETS WILL BE PLACED EVERY FIVE INCHES TO SUPPORT APPROXIMATELY 5 TONS OF DIRT. OPENING OF PICKET MUST FACE DOWN .

PLACE ONE LAYER OF SANDBAGS ON EACH LONG SIDE OF THE HOLE TO REINFORCE THE SIDES TO SUPPORT THE PICKETS. THE BAGS MUST BE LAID PERPENDICULAR TO THE HOLE TO SUPPORT THE EDGES.

TOP VIEW



SIDE VIEW



MATERIALS REQUIRED

- 250 SANDBAGS
- 19 TO 20 ENGINEER PICKETS
- MATTOCK/PICK
- SHOVEL

TIME LINE

4 TO 6 HOURS TO DIG HOLE. BASED ON LIVE FIRE SOIL CONDITIONS.

2 TO 4 HOURS TO CONSTRUCT OVERHEAD COVER

6 TO 10 HOURS FIRST TIME TOTAL

Source: A0712-87-912-001
NTC GTA-48

Figure 1. Sample Fighting Position

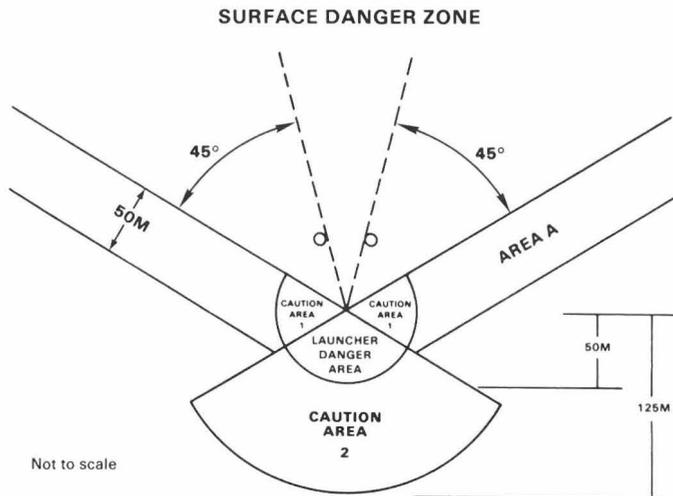


Figure 2. Danger and Caution Areas for Firing Stinger Surface to Air Guided Missile

Because the NTC uses the multiple integrated laser engagement system (MILES) to simulate Stinger weapon system engagements, it is easy to overlook weapon specific safety concerns. Nevertheless, observers, controllers and air defense leaders must address all safety precautions. Prior to firing a Stinger, safety precautions dictate taking into account the backblast and quadrant elevation (QE). QE for Stinger is

that angle between the weapon boresight and forward area terrain. Stinger gunners must be acutely aware of the backblast that their Stinger weapon produces. Gunners must ensure that the area behind the weapon is clear of personnel and equipment to a distance of 50 meters (164 feet), about 180 degrees behind the gunner. The diagram at Figure 2 shows the surface danger zone.

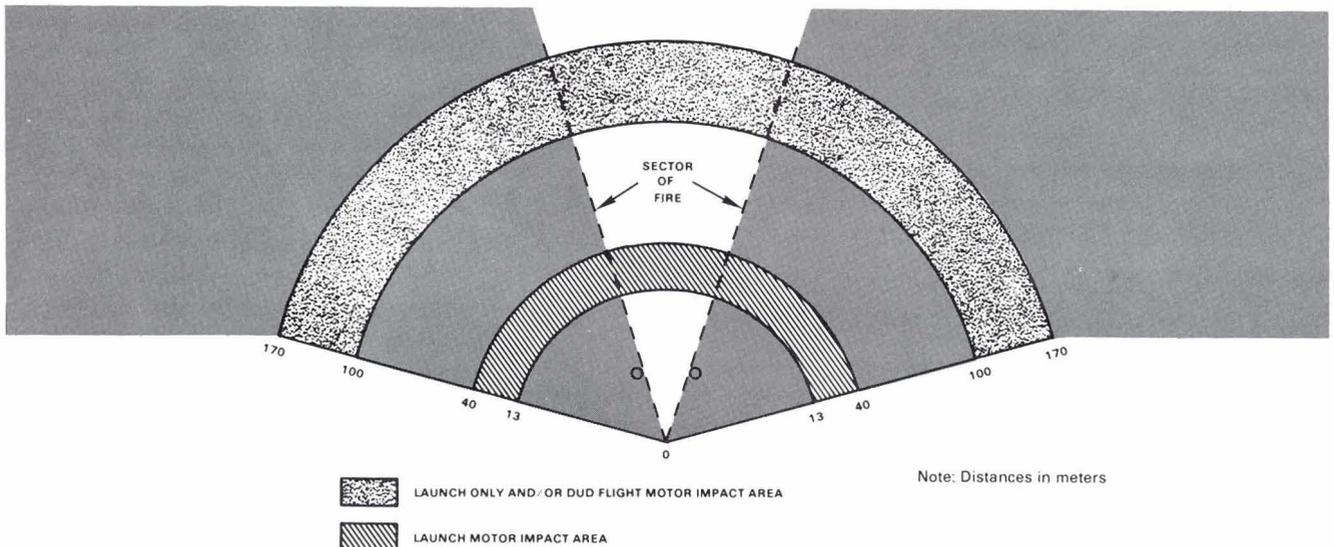


Figure 3. Debris Hazard Area

When standing on level ground, do not fire at a QE angle greater than 65 degrees. The maximum QE is established to reduce the effect of ground debris that is blown back at the gunner. The minimum QE depends on the surrounding

terrain. A 10-degree superelevation angle is built into the open sight assembly. This superelevation angle prevents the missile from ground impact due to the effects of gravity. Figure 3 illustrates debris hazard areas.

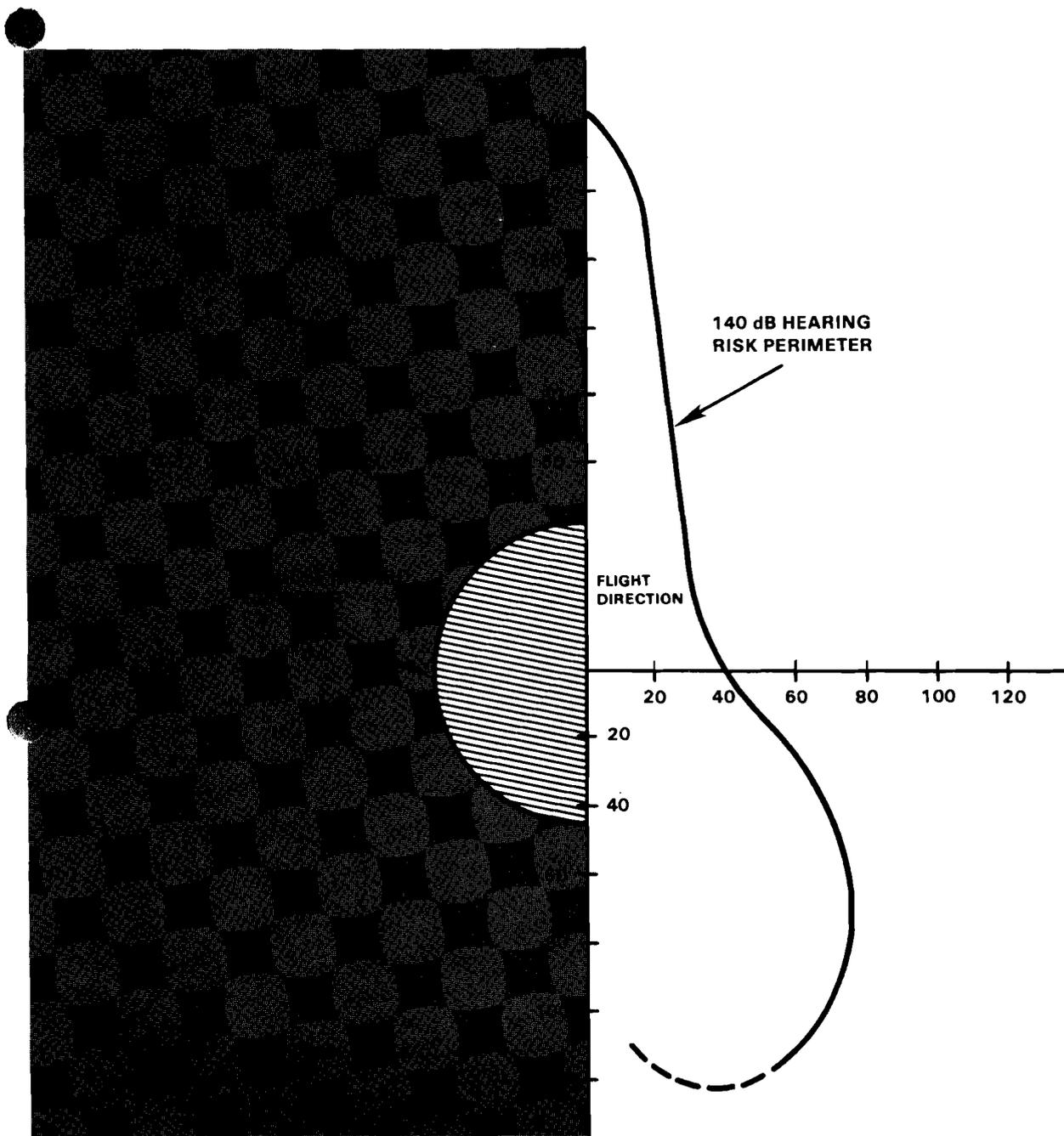


Figure 4. Noise and Particle Hazards Area

Another safety precaution trainers should address is hearing protection. During actual firing of a Stinger, the missile produces approximately 140 decibels of launch noise. All personnel within 400 feet of a Stinger missile launch must use hearing protection. Figure 4 addresses noise hazard distances.

The NTC offers the Stinger gunner a tremendous opportunity for application of his air defense skills. Additionally, it allows the Stinger teams to train with combined arms soldiers with whom they may together face hostilities. It is our

responsibility, as soldiers and air defenders, to use this resource wisely, and to train in a safe and realistic manner.

Whether the training occurs at the NTC or anywhere air defenders train, safety must be a top concern. The Stinger safety items addressed in this article are not all encompassing. The responsibility for safe training rests with the officers, the NCOs and the individual soldiers. □

Capt. Michael Williamson is the branch chief of the FAAD System Developer/Instructor Branch, Short-Range Air Defense Department, U.S. Army Air Defense Artillery School, Fort Bliss, Texas.

ADA Career News

Officer

ADA Assignments, MILPERCEN

by Lt. Col. Frederick C. Beauchamp

DOD Reorganization Act Update

On December 4, 1987, the president signed into law a series of changes to Title IV of the DOD Reorganization Act of 1986. This law pertains to joint officer personnel policies. Here is a review of the significant changes and "no relief" to proposed changes to Title IV that are now law:

- Statutory joint tour lengths remain at three and one-half years for field grade officers and three years for general officers.
- A provision now exists for cumulative "credit" for officers serving joint tours of less than statutory length.
- Reassignment to joint positions within the same organization counts as continuous joint service.
- Title IV now acknowledges that Combat Arms officers possess critical occupational skills (COS), and sets forth a number of rules pertaining to COS officers. The most significant of these rules is that a COS officer may now be reassigned after two years with full joint duty assignment (JDA) credit. This two-year tour is limited, however, to the COS officer's initial joint duty assignment.
- A limited number of officers may now complete two joint duty assignments in lieu of attending joint professional military education (JPME), followed by a JDA to become a joint staff officer (JSO).
- A new requirement calls for indefinite promotion tracking and reporting of all JSOs and other officers who have served in joint assignments. This report will be submitted to Congress annually.

Figure 1 is a breakdown of JDA positions by service as of November 25, 1987; Figure 2 is a breakdown of critical joint duty positions (i.e.,

Figure 1

Service Balance on Joint Duty Assignment List (JDAL)

	Total	% JDAL
Army	3,081	36.4
Navy	1,834	21.7
Air Force	3,086	36.5
Marines	451	5.3

Total: 8,452 joint positions

duty positions that can only be filled by an officer designated as a JSO).

Figure 2

Critical Joint Duty Position Breakdown

	05	06	Total	% JDAL	% Crit Persons
Army	185	190	375	36.4	37.5
Navy	86	118	204	21.7	20.4
Air Force	180	187	367	36.5	36.7
Marines	27	27	54	5.3	5.4

Total: 1,000 critical joint positions

Of the 3,081 Army joint positions, 55 are specifically coded for an Air Defense officer (two colonels, 30 lieutenant colonels and 23 majors). Of the 375 Army critical joint positions, two are coded for an Air Defense Artillery officer (one colonel and one lieutenant colonel). Most Combat Arms officers will serve their joint tour(s) in their functional area or in branch/combat arms immaterial-coded positions.

A DA board met in January to nominate officers for designation as JSOs. They reviewed the files of 291 ADA officers. We expect the results of this board to be announced early this spring.

From the Lieutenant Colonels Desk

by Maj. Stan Greene

Clearing Up the Confusion

A little confusion exists about the intent of the Department of the Army when determining an officer's availability for assignment. Presently, the Army's goal is to leave personnel at a CONUS location for 48 months. This goal is attainable for some officers, but not for all. This is due in large measure to the significant number of overseas positions we must fill in cycles of 36 months or less. As officers rotate back to CONUS, someone must be made available to fill the void. Since Army requirements are worldwide, you, as officers, can expect to be alerted for an overseas assignment if you haven't been overseas in the last five or six years. All of this means that overseas or other high priority requirements (for example, Fort Leavenworth or joint duty) may cause you to be alerted and moved earlier than 48 months.

Another area I should clarify is time on-station versus time in a current assignment. If you are holding one position and then get transferred to

ADA Career News

another agency or unit in the same locale, your "availability clock" does not start over. Except in a few instances, you will still be vulnerable to reassignment as close to 48 months as possible, regardless of how long you have been in your current duty position. If you are being considered for a critical position where longevity is an issue, contact our branch so that we can offer advice about possible ramifications. You cannot presume that you will be on-station for a full four years.

The bottom line is that our profession of arms dictates that we will have to move around at various times, which may not be convenient either personally or professionally. Army requirements will force some of us to receive unwanted notifications of movement. While we at the branch would like to minimize those times of inconvenience, it is not always possible to do so.

From the Majors Desk

by Maj. Mike Penhallegon

Joint Professional Military Education

Slating for the FY 88-89 Command General Staff College (CGSC) will be announced shortly. The primary factor influencing this year's slate is the requirement for 51 percent of Army students entering JPME programs to be assigned to joint billets after graduation. The chairman, Joint Chiefs of Staff, has tasked services desiring JPME accreditation of their service colleges to submit implementation plans. Service colleges will begin using the pilot program during academic year 88-89. Fort Leavenworth plans to use a JPME program and desires to train approximately 100 Army students and all sister service students attending CGSC this coming academic year. This means that the Armed Forces Staff College is no longer the only staff college to feature a curriculum geared toward joint duty.

Lieutenant Colonel Beauchamp's article on Page 50 listed some changes to Title IV of the DOD Reorganization Act of 1986. The complete impact of these changes on slating is not known, but opportunities for the Advanced Military Studies Program, the CO-OP Degree Program and follow-on training with industry or advanced civil schooling will probably be limited or deleted for those in JPME school seats.

From the Captains Desk

by Capt. Bob Woods

Answering Your Questions

Throughout the last year, Air Defense Artillery Branch personnel visited numerous battalions to present the ADA professional development briefing. Subsequent to the briefing, we interviewed officers of the battalion. The interviews fell into two primary categories: officers who are pending reassignments within the next year and routine professional development concerns. This article's focus is on a few common questions discussed during an interview.

When does the ADA Branch say I am eligible for reassignment? Look in Section IX of your Officer Record Brief (ORB). In the upper left-hand corner is a small section entitled Date of Availability. This is the date that we will expect you to report to your new assignment.

What determines my availability? The four-year CONUS stabilization policy is now a way of life. Any CONUS assignment after the Officer Advanced Course will be a four-year tour. Occasionally, we must break stability on an officer to meet the requirements of a particular assignment. The assignment officer will then look at officers with three years, 11 months time-on-station, then three years, 10 months . . . until a qualified individual is found.

Once the officer is identified, the ADA Branch generates a stabilization-break request and processes it through the approval authority. The approval authority for these requests ranges from the chief of the Combat Arms Division through the Assistant Secretary of the Army. However, the vast majority of officers in the company grades stay on-station for all four years.

Overseas assignments have different guidelines. Korea is still a one-year unaccompanied tour. A tour in Germany may be the standard three years or may last up to six years, depending on whether or not you make a full-cost move while stationed there. One primary fact that you must understand is that these moves in Germany can be initiated by an individual or directed by the chain of command. Units in Europe are working very hard not to command-direct any moves.

Is this a good DA photo? Obviously, this is a

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very subjective decision. Remember, your photo is the first document that the board member sees. It is similar to meeting your new battalion commander for the first time. You want to make a good first impression. Use the following guidelines to help you get the best possible photo:

- Carry your uniform to the photo lab.
- Bring someone with you to check your appearance prior to taking the photo. This last minute inspection could be quite beneficial.
- Remember that, as a general rule, board members don't like mustaches.
- Ensure your decorations are authorized and worn properly; for example, General Staff Officer insignia instead of Air Defense Artillery insignia is a common mistake.
- Go to a photo lab that does quality work. If they don't take the time to tape your uniform, you're in the wrong shop.
- Take your photo at least six months prior to the start of the board. This will give you plenty of time to have it reshot if the results are not satisfactory.

How important is battery command?

Nothing is more important than battery command. Your success as a battery commander will have a large impact on the rest of your career. Your performance as a battery commander is an indicator of your potential for success in assignments of even greater responsibility.

The most common question concerning the Senior Rater Profile has to do with the belief of the center of mass concept. The outbrief from every majors' board over the last two years has proven that the officer who has maintained a center of mass or better profile will be promoted. However, a battery commander rated below center of mass has a problem.

This article has addressed the most common questions. If you have any more concerns, be sure to contact me at AV 221-0025/0026 or drop me a line at U.S. TAPA, 200 Stovall Street, DAPC-OPE-A, Alexandria, VA 22332-0414.

From the Lieutenants Desk

by Capt. Mike Locke

Don't Lose Out on CVI

Greetings! I'm Capt. Mike Locke, your friendly Lieutenants Assignments Officer. In this article I'm going to highlight some important aspects of

the CVI process that have caused problems for officers on recent boards.

The Conditional Voluntary Indefinite (CVI) Program, as described in AR 135-215, is a hurdle all other than regular Army (OTRA) officers must pass if they want to remain on active duty past their initial obligation. OTRA officers and their chain of command must take the CVI process seriously, because CVI is a "one-time" shot. If you become non-select for CVI, it is very, very unlikely that you will be favorably considered at a future board. Here are some pointers to help you with CVI.

You now submit your application with your primary (first) look for captain. The regulation which says submit between 24 and 27 months of commissioned service has been superseded. If you send your application in before DA announces your board, they will send it back.

Use the right format. Figure 2-2, AR 135-215, is the correct format for CVI. You must list three shortage branches even if you have no desire to branch transfer. If you do wish to volunteer for branch transfer, Figure 2-2 shows an optional paragraph below your three choices to highlight your desire. The list of shortage branches changes from time to time, so check with your S-1 before you apply. As of this writing, the shortage branches are Military Intelligence, Quartermaster, Transportation Corps, Signal Corps and Ordnance. *Don't forget to sign your application!*

You must endorse your application through at least the first O-5 in your chain of command. Your battalion commander must also include a height and weight statement on you.

If your active duty obligation is only three years, pay attention to the "start date" of your Captains Promotion Board. If you won't have 90 days left on active duty on that day, you need to submit a Short-Term Extension (STE) on Active Duty Request so you will still be around when the list is released. Request the STE in the first paragraph of your CVI application with words to the effect of "... and request I be granted a short-term extension on active duty to hear the results of the board." If you need an STE, you must endorse your application through the first O-7 in your chain of command. Failure to do so could result in your STE being denied.

Make sure your Officer Record Brief (ORB) has the following items correctly posted: first lieu-

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tenant date of rank, current service agreement/expiration date (found in Section III, Service Data) and your component (RA or USAR). Obviously an incorrect date of rank to first lieutenant can cause the board to think you're not eligible for consideration.

An incorrect expiration date on your service obligation can cause the board to return your application because they think you'll be out of the Army before they release the results. If you went to Europe as a three-year obligee, your expiration date should have been changed to match your DEROS. And if your component is listed as RA, but you are a USAR officer, the board will not know to consider you for CVI. How do you fix ORB problems? Go to your MILPO (RPC in Europe) and stay on them until they make it right. Get your chain of command involved and make the system work!

Assuming you are selected for captain/CVI, you will go before the rebranching board designed to fill shortage branches with combat arms officers. If you volunteered for branch transfer, you probably (not definitely) will get it. If you want to stay in air defense, get your bosses to recommend that you "Stay ADA" in your endorsements. No guarantees, but it has to help your chances.

Warrant Officer

Promotion Selection Board

The CWO3 and CWO4 Army of the United States (AUS) promotion selection board will convene on or about April 5, 1988, to consider eligible warrant officers for promotion and Regular Army (RA) integration.

Subject to approval by the Secretary of the Army, the tentative zones of consideration will consist of all eligible warrant officers with the following temporary date of rank (TDOR).

For CWO3, AUS and RA integration:

Above the Zone: CWO2 TDOR 830831 & earlier
Promotion Zone: 830901 through 840229
Below the Zone: 840301 through 840831

For CWO4, AUS Board:

Above the Zone: CWO3 TDOR 311130 & earlier
Promotion Zone: 811201 through 821130
Below the Zone: 821201 through 831130

Applications for RA integration from CWO2s are not required and will not be submitted.

Enlisted

Regimental Affiliation

Senior Army leadership directed that all combat arms soldiers, officer and enlisted alike, be affiliated by the end of FY 86, and that all soldiers be assigned in recurring regimental assignments (when possible). To date, all combat arms soldiers requiring regimental affiliation have not been affiliated.

If you are not yet affiliated, there are 12 regiments from which to choose. Based on your preference, you may be affiliated to a regiment with your current ADA MOS. Six regiments have either SHORAD or FAAD MOSs and four regiments have Hawk or Patriot MOSs. Two of the twelve are training regiments. If you need assistance in becoming regimentally affiliated, use your chain of command.

Are you part of the chain of command? Do you need help to determine who is not affiliated? The Office, Chief of Air Defense Artillery (OCADA), can provide you with a by-name roster of soldiers not yet affiliated. You can contact OCADA at AV 978-7635/6217.

Corps Chaparral Units

Recent restructuring of Chaparral units changed MOS and additional skill identifier (ASI) authorizations. Chaparral crew members (MOS 16P) were previously capped into MOS 16R at E-7. Soldiers holding MOS 16P will now progress from E-1 to E-7 in MOS 16P.

Chaparral platoon sergeant positions are correctly documented as requiring MOS 16P40. Current 16P40 positions manned by 16R40s will be replaced by 16P40s as the 16R soldiers PCS. MOS 16P40 is overstrength, so no 16Rs will be able to reclassify to 16P for some time.

The Chaparral maintainer 24N ASI authorizations have also changed. Previously the ASI X7 (Forward Area Alerting Radar) maintainer was reserved for the Vulcan mechanic 24M. There are no Vulcans in the corps Chaparral units; therefore, MOS 24M is not authorized. Under the change, soldiers in MOS 24N serving in corps Chaparral units are authorized ASI X7. Soldiers will be trained en route to positions requiring the ASI.

(Continued from Page 4.)

NCO EVALUATION REPORT For use of this form see AR 623-205. The personnel agency is DCSPER				SEE PRIVACY ACT STATEMENT IN AR 623-205, APPENDIX E			
PART I - ADMINISTRATIVE DATA							
a. NAME (Last, First, Middle Initial)		b. SSN	c. RANK	d. DATE OF RANK & PMOS/C			
e. LIMIT ORG. STATION, ZIP CODE OR APO MAJOR COMMAND				f. REASON FOR SUBMISSION			
g. PERIOD COVERED FROM (THRU) YY MM YY MM		h. RATED MONTHS	i. NCO RATED CODES	j. NO. OF ENCL.	k. RATED NCO COPY (Check one and Date)		l. PSC INITIALS
					1 Open to NCO		m. CAD CODE
					2 Forwarded to NCO		n. PSC CODE
PART II - AUTHENTICATION							
a. NAME OF RATER (Last, First, Middle Initial)		b. SSN	c. SIGNATURE				
d. NAME OF SENIOR RATER (Last, First, Middle Initial)		e. SSN	f. SIGNATURE				
g. NAME OF REVIEWER (Last, First, Middle Initial)		h. SSN	i. SIGNATURE				
PART III - DUTY DESCRIPTION (Rater)							
a. PRINCIPAL DUTY TITLE				b. DUTY MOSC			
c. DAILY DUTIES AND SCOPE (To include all appropriate people, equipment, facilities and dollars)							
d. AREAS OF SPECIAL EMPHASIS							
e. APPOINTED DUTIES							
f. Counseling dates from checklist/record							
		INITIAL	LATER	LATER	LATER	LATER	LATER
PART IV - VALUES/NCO RESPONSIBILITIES (Rater)							
a. Complete each question. (Comments and mandatory for "No" entries)							
PERSONAL		1. Probs discipline and contribution to the goals and mission of the Army and nation does person espouse		2. Is committed to and shows a sense of pride in the unit		3. Is a member of the team	
COMMITMENT		4. Is disciplined and obedient to the rank and name of a superior order		5. Is honest and truthful in word and deed		6. Maintains high standards of personal conduct on and off duty	
CONFIDENCE		7. Has the courage of convictions and the ability to overcome fear		8. Upholds the standards of the Army and the ability to improve his		9. Upholds the standards of the Army and the ability to improve his	
COURAGE		10. Upholds the standards of the Army and the ability to improve his		11. Upholds the standards of the Army and the ability to improve his		12. Upholds the standards of the Army and the ability to improve his	
ARMY ETHIC		13. Upholds the standards of the Army and the ability to improve his		14. Upholds the standards of the Army and the ability to improve his		15. Upholds the standards of the Army and the ability to improve his	
LOYALTY		16. Upholds the standards of the Army and the ability to improve his		17. Upholds the standards of the Army and the ability to improve his		18. Upholds the standards of the Army and the ability to improve his	
DUTY		19. Upholds the standards of the Army and the ability to improve his		20. Upholds the standards of the Army and the ability to improve his		21. Upholds the standards of the Army and the ability to improve his	
SUPPORT		22. Upholds the standards of the Army and the ability to improve his		23. Upholds the standards of the Army and the ability to improve his		24. Upholds the standards of the Army and the ability to improve his	
SERVICE		25. Upholds the standards of the Army and the ability to improve his		26. Upholds the standards of the Army and the ability to improve his		27. Upholds the standards of the Army and the ability to improve his	
INTEGRITY		28. Upholds the standards of the Army and the ability to improve his		29. Upholds the standards of the Army and the ability to improve his		30. Upholds the standards of the Army and the ability to improve his	
b. Rater comments							

DA FORM 2186-7, SEP 87

REPLACES DA FORM 2186A, OCT 81, WHICH IS OBSOLETE

RATED NCO'S NAME (Last, First, Middle Initial)		SSN	THRU DATE
PART IV (Rater) - VALUES/NCO RESPONSIBILITIES			
d. COMPETENCE		APFT	
<ul style="list-style-type: none"> Duty proficiency, MOS competency Technical & tactical knowledge, skills, and abilities Sound judgment Seeking self-improvement, always learning Accomplishing tasks to the fullest capacity 		HEIGHT/WEIGHT	
<ul style="list-style-type: none"> Endurance and stamina to go the distance Displaying confidence and enthusiasm Looks like a soldier 			
EXCELLENCE (Exceeds std)		SUCCESS (Meets std)	NEEDS IMPROVEMENT (Same/About)
c. PHYSICAL FITNESS & MILITARY BEARING			
<ul style="list-style-type: none"> Mental and physical toughness Endurance and stamina to go the distance Displaying confidence and enthusiasm Looks like a soldier 			
EXCELLENCE (Exceeds std)		SUCCESS (Meets std)	NEEDS IMPROVEMENT (Same/About)
d. LEADERSHIP			
<ul style="list-style-type: none"> Mission first Genuine concern for soldiers Instilling the spirit to achieve and win Setting the example: Be, Know, Do 			
EXCELLENCE (Exceeds std)		SUCCESS (Meets std)	NEEDS IMPROVEMENT (Same/About)
e. TRAINING			
<ul style="list-style-type: none"> Individual and team Mission focused performance oriented Teaching soldiers how common tasks are performed Sharing knowledge and experience to right soldiers and win 			
EXCELLENCE (Exceeds std)		SUCCESS (Meets std)	NEEDS IMPROVEMENT (Same/About)
f. RESPONSIBILITY & ACCOUNTABILITY			
<ul style="list-style-type: none"> Care and maintenance of equip./facilities Soldier and equipment safety Conservation of supplies and funds Encouraging soldiers to learn and grow Responsible for good, bad, right & wrong 			
EXCELLENCE (Exceeds std)		SUCCESS (Meets std)	NEEDS IMPROVEMENT (Same/About)
PART V - OVERALL PERFORMANCE AND POTENTIAL			
a. RATER Overall potential for promotion and/or service in positions of greater responsibility		b. SENIOR RATER BULLET COMMENTS	
AMONG THE BEST		FULLY CAPABLE	
MARGINAL			
d. RATER List 3 positions in which the rated NCO could best serve the Army at his/her current or next higher grade			
c. SENIOR RATER Overall performance		d. SENIOR RATER Overall potential for promotion and/or service in positions of greater responsibility	
1 2 3 4 5		1 2 3 4 5	
Successful Fair Poor		Superior Fair Poor	

X in one of these blocks also introduces another new feature of this form — all X's placed in the boxes are done in pen and ink by the rating official — no typewriters.

Part III is a very important portion of the new form: the duty description. Not only is a well-written duty description essential for counseling the rated NCO at the beginning of the rating period, but selection board experience has shown the duty description to be far more critical to centralized selection than is generally assumed. Parts IIIa and b are self explanatory. Part IIIc, Daily Duties and Scope, should include only the most important routine duties and responsibilities. Ideally, it includes the number of persons supervised, equipment, facilities and dollars involved, and any other routine duties and responsibilities critical to mission accomplishment.

Part III d, Areas of Special Emphasis, represents a new concept. It emphasizes those items that need to receive top priority effort, at least during the first part of the rating period. The rater shows this part to the rated NCO during the first counseling session. This is another way of letting the rated NCO know what is expected. At the end of the rating period, when it is time to fill out the form, this area should include, and therefore highlight to anyone that reads it, the most important items that applied at any time during the rating period.

Part III e is for appointed duties, which are not normally associated with the duty position. These are what

used to be known as additional duties.

Part III f is for the dates that the quarterly counseling took place. This information is supplied by the rater from the counseling checklist.

Part IV is the evaluation of performance by the rater. This part uses as criteria the Army values and NCO responsibilities developed by the NCO Professional Development Study Group. As you have already seen, these are covered in greater depth on the checklist. The rater needs to read the checklist before evaluating just as he should before counseling. Part IV a requires a yes or no response from the rater concerning many of the basic values. Comments are mandatory for all "no" ratings. These are placed in the space provided at the bottom of the page. Again, the goal in this section is to get all good NCOs to meet standards, and to discover those who do not. Therefore, comments on "yes" entries are optional and a rated NCO should not be hurt because this space may be left blank.

A very important feature of the new system is the bullet narrative. Bullet narrative rules will be rigidly enforced in the new system. These rules apply to all narrative space in Parts IV and V, which is the rest of the form. These rules have been adopted to —

- emphasize results and excellence,
- make the report easier for selection boards to read, and
- minimize the impact of writing ability.

On the reverse side of the form, the rater continues

evaluating performance with the NCO responsibilities. On the left, each responsibility is listed and highlighted by trigger words. For each responsibility, the rater places an X in one of the four boxes.

The "success" rating is a new concept. The normal rating that most NCOs should receive most of the time is "success." A report with all "success" ratings is the equivalent of the "125" EER. Bullet examples are optional for "success" ratings.

The "excellence" rating is difficult to achieve and is, in fact, achieved by only a few. Specific bullet examples are mandatory for all "excellent" ratings. Examples used to justify an excellent rating on this part of the form must be specific and must include measurable results. These results are achieved by very few and are clearly better than those achieved by most. If the bullets do not include specific and measurable results which are achieved by a very few, then they are the equivalent of a success rating.

Specific bullet examples are also mandatory for all "needs improvement" ratings.

If the rated NCO is a good performer, but the rater does not have specific examples, then the space is left blank and the NCO is considered to be exactly as rated — "successful," fully proficient in that responsibility and, as a result, a solid asset to his organization and the U.S. Army.

A single bullet example can be used only once, so the rater must decide which responsibility fits best. The same bullet narrative rules apply here as well: double space between bullets and no more than two lines per bullet.

In Part Va the rater checks a box to indicate the NCO's overall potential for promotion:

- *Among the best* — indicates NCOs who have demonstrated success and or excellence; a very good, solid performance; and a strong recommendation for promotion and or service in positions of greater responsibility.
- *Fully capable* — indicates NCOs who have demonstrated success; a good performance and, should sufficient slots be available, a promotion recommendation.
- *Marginal* — indicates NCOs who need improvement

in one or more areas; do not promote at this time.

A rated NCO with all "success" ratings in Part IV can be rated "among the best" in Part V. In Part Vb, the rater lists up to three duty positions for which the rated NCO is recommended.

The senior rater is an independent rating official, whose primary mission is the evaluation of potential. The senior rater combines personal knowledge of the rated NCO with the knowledge gained from the rater's evaluation to make his or her own evaluation. The senior rater should pay particular attention to any examples used by the rater to justify "excellence" or "needs improvement" in Part IV. If the examples don't seem to meet the criteria or the senior rater disagrees then he or she should talk to the rater to see if the examples can be changed or an agreement can be reached. Of course, the senior rater cannot force the rater to change an evaluation that is in compliance with the regulation. The senior rater checks a block to indicate the rated NCO's overall performance and potential:

- *Successful/superior* — a "1" or a "2" rating on both scales represents a very good, solid performance and a strong recommendation for promotion; of course, a "2" is not as good as a "1." A "3" rating also represents a good performance and, should sufficient slots be available, a promotion recommendation — but of course, it is not as good as a "2."
- *Fair* — NCOs who need improvement and or additional training in one or more areas; do not promote at this time.
- *Poor* — NCOs who need significant improvement or additional training in more than one area; do not promote.

After placing X's in the appropriate boxes, the senior rater makes mandatory bullet comments that are focused on potential. The senior rater may comment on performance; however, his emphasis must clearly be on the potential of the rated NCO (i.e., a recommendation for promotion, schooling, assignment, etc.). The same bullet narrative rules apply here except that the senior rater is not restricted to the use of examples like the rater is in Part IV. □

Faulty Visual Publication Identification

Air Defense Artillery confused two of the leading defense trade journals in its January-February 1988 edition. The following sentence appeared in "Army Picks ADATS," an article about Martin Marietta's air defense anti-tank system's victory in a recent forward area air defense (FAAD) shoot-off: "*Defense Weekly*, an influential

trade journal, picked Liberty as the 'apparent winner' over ADATS in a front page story that appeared the morning of the announcement."

It was actually *Defense News* — not its competitor, *Defense Week* — that made the incorrect prediction.

Air Defense Artillery regrets the error. □

Training Tips

ADA Year of Training

The U.S. Army Air Defense Artillery School and U.S. Army Air Defense Center, Fort Bliss are formulating initiatives to refine and improve ADA training. Undertaken in support of the "Army Year of Training" theme, the initiatives will have a long-lasting and profound effect on the way ADA soldiers train.

"The Army has named 1988 'The Year of Training,' " said Brig. Gen. Donald M. Lionetti, the school's assistant commandant, "but our goal is to develop and implement corporate strategies that will make every year the 'year of training' for Air Defense Artillery."

While some of the actions mandated by the "Fort Bliss Army Theme Action Plan" will affect only soldiers stationed at Fort Bliss, many will affect ADA units around the world. Some of the initiatives expected to emerge include the following:

- Establish a certification process that will enable air defenders to earn a "Master Air Defender Badge."
- Redesign basic electronics instruction to reduce the failure rate and shorten the training cycle.
- Develop training materials to support the introduction of Hawk to Army National Guard units.
- Implement a "Top Gun" program for Vulcan gunners.

Air Defense Artillery will publish details of the action plan, along with implementation milestones, in its May-June issue.

FAAD Training Materials

The development of forward area air defense (FAAD) weapon systems battle drills and mission training plans (MTPs) is in full swing. The first phase of these training products is complete. The Individual Training Division of the Directorate of Training and Doctrine (DOTD) and the Short-Range Air Defense (SHORAD) Department have completed the front-end analysis (FEA) collective phase and have prepared generic draft copies of the resulting products for the line-of-sight rear pedestal-mounted Stinger (PMS) and line-of-sight forward (heavy) air defense anti-tank system (ADATS). These products have been handed over to the Unit Training Division of the SHORAD

Department for further development. The Unit Training Division has the ultimate task of developing MTPs and battle drills for each FAAD weapon system.

MTPs are developed for each type of platoon, battery headquarters and battalion headquarters and headquarters battery, whereas battle drills are for squads, crews or teams of each weapon system.

To develop an MTP, the Unit Training Division first gathers all individual soldier tasks, common collective tasks, officer and or leader tasks and tables of organization and equipment. Subject-matter experts use these documents for reference material as they refine FEA products into the various chapters of each MTP.

Battle drills are prepared for selected collective tasks by developing performance measures, illustrations and training instructions.

DOTD has established developmental milestones keyed to acquisition events. The preliminary draft MTPs and battle drills for PMS and ADATS are scheduled for July 1988. The milestone for coordinating draft completion is December 1988. Test units use the coordinating draft for training and evaluation, then provide comments for use in finalizing these documents.

Address questions about these training products to Commandant, USAADASCH, ATTN: ATSA-DTU-SA, Fort Bliss, Texas 79916-7090, or call the ADA hot line (915) 568-3159 or AV 978-3159.

New Family of Manuals

The U.S. Army Air Defense Artillery School (USAADASCH) is winding up its plans for the transition of doctrinal literature from field manuals to training circulars. When completed, just four ADA doctrinal field manuals will grace your library. This will include the capstone air defense artillery manual, FM 44-100, *US Army Air Defense Operations*, with which all other air defense artillery tactics, techniques, procedures and training are aligned. The remaining field manuals are FM 44-100A, (S) *ADA Operational Planning Data* (U) (new); FM 44-70, *Army Small Arms Air Defense* (new); and FM 44-80, *Aircraft Recognition* (new). Except for these four field manuals, all USAADASCH training literature will be published in either training circulars, Army training and evaluation programs or soldier's training publications.

USAADASCH is ensuring close coordination between all agencies concerned with literature development so that no information gaps occur as a result of this transition.

FM 44-100 will reach the field in early FY 89. The publication of the first of the training circulars will occur shortly thereafter, followed by phased publication of the remaining training circulars into FY 93.

Feedback

MTS Training

Some officers and NCOs in USAEUR have expressed concern about the training conducted at the moving target simulators in Europe. For example, soldiers claimed that the training they received at the MTS in Giessen was different from that received at the MTS at Baumholder. They feel there is no standardization of training POIs used of the tests given at the end of MTS instruction. They would like USAADASCH to develop a standard POI and a standard evaluation process to be used worldwide.

Units desiring guidance on instructor or individual training at the MTS should use FM 44-18-1, *Stinger Team Operations*, together with FM 44-17, (C)*Instructors Manual: Moving Target Simulator(U)*. These two manuals provide standardized training methodology, evaluation guides, and other helpful information for all MTS users. USAADASCH will include MTS standards in the evaluation guides of the next revision to STP 44-16S, programmed for early FY 89. FC 44-17 expired in December 1987 and will not be updated.

Developing Air Threat Information

A common complaint on exercises, such as Reforger '87, is that adequate enemy air threat information was not provided to the divisional ADA battalion.

A lack of air threat information is more often a result of inadequate tasking or prioritization by division or corps operations than a lack of S-2/S-3 concern or investigation.

ADA battalion commanders and S-2s take great efforts to obtain air threat intelligence preparation of the battlefield (IPB) for the battalion, but maybe we should ask, "What can *we provide* to the intelligence channels?" and "What analysis

can *we perform*?"

In support of the division G-2's third dimension IPB, air defenders can provide valuable intelligence information about the enemy air threat. The battalion S-2 should monitor and record the division early warning (DEW) net for threat information. (Once the air battle management operation center [ABMOC] portion of the battalion operations center is established, this task will become easier.) The DEW net incorporates reports on aircraft from Air Force, high- to medium-altitude air defense (HIMAD) and forward area alerting radar (FAAR) sources. If the S-2 plots the DEW information as spot reports on his map, he develops intelligence information about the enemy's air campaign. By logging tracks he can manually recreate the enemy air avenues of approach. (Automated command posts of the future will graphically present this type of data.)

The battalion S-2 can also monitor ADA engagement reports to determine exactly what type of aircraft are attacking and where. In addition, he can task FAAR operators and liaison teams at HIMAD control vans for an overall assessment of the "air picture." The battalion S-2 can then provide his ADA batteries, as well as the division G-2, information on enemy air avenues of approach, air targets (quantities and directions), aircraft types and attack profiles.

This information will assist the division and corps G-2s in analyzing the air campaign of the enemy and providing better enemy air situations in subsequent operation orders. A well developed analysis of the enemy air campaign also provides the G-2 a better understanding of the enemy's intentions and ground campaign. The G-2 should require the ADA battalions, using intelligence acquisition tasks, to provide this intelligence information daily.

During Reforger '87, one ADA battalion commander accomplished this analysis intuitively. He was able to conclude after his daily travels on the battlefield that enemy aircraft were attacking down the division boundary. He then began coordination with the adjacent ADA battalion to ensure FAAR and ADA coverage of this air avenue of approach. His efforts were not totally successful, but the point is his S-2 should have provided this type of analysis on a daily basis. Through better ADA-intelligence teamwork, the corps will gain valuable data for both the maneuver unit and ADA planning. (*ADA Lessons Learned Bulletin No. 1-88*)

Scanning

Stinger Second Source

Raytheon Co.'s Missile Systems Division, Lexington, Mass., has been selected by the U.S. Army Missile Command as the second source for production of the Stinger air defense missile. The Army awarded the company an initial \$26.4 million contract to produce 400 missiles. There is a \$54.4 million contract option for an additional 1,500 missiles. The option will be awarded by April 30, 1989.

Under Army plans, beginning in 1990, Raytheon will compete with General Dynamics, the missile's developer and prime contractor, for annual production contracts.

Raytheon will produce the Stinger at its manufacturing plant in Lowell, Mass. Major subcontractors on the program will be Atlantic Research Corp., Greenville, Va., providing launch and flight rocket motors; and Raytheon's Special Microwave Devices Operation, Northboro, Mass., which will provide the infrared detector unit and other related components.

Bushmaster

Production of a high-rate-of-fire M-242 Bushmaster automatic cannon by McDonnell Douglas has been virtually assured by recent contract awards from the U.S. Army and Marine Corps for air defense weapons systems.

The Army selected Martin Marietta-Oerlikon Buhrle from four candidate teams to build the air defense anti-tank system (ADATS) for its line-of-sight forward (heavy) (LOS-F-H) requirement for air defense.

Designed to protect ground forces from helicopters, low-flying aircraft and ground attack, ADATS would use the 25mm Bushmaster cannon in a hybrid missile/gun combination, said Rye Ryden, director of ordnance programs for McDonnell Douglas Helicopter Co., which produces the cannon.

ADATS would use the high-rate, 500-shot-per-minute version of the Bushmaster, currently the primary weapon on the Army's Bradley fighting vehicle and also used on the Marine Corps' light armored vehicle (LAV-25). The gun will cover the close-in zone where missiles are not effective against aerial targets, Ryden said.

Switching only five parts in the current production M-242 gun converts it to the high-rate, 500-shot-per-minute air defense gun, Ryden said. "Along with accuracy and reliability, this will allow cost savings for the Army in logistics support," he continued.

To date, more than 4,500 Bushmasters have been delivered to the Army by McDonnell Douglas under contracts covering deliveries of more than 8,000 through 1991.

The Army plans to acquire 562 ADATS vehicles between 1990 and 2000, outfitting two divisions in Europe by 1992. Operational testing of ADATS prototypes will begin in late 1988 and continue through 1989, with production of 166 units scheduled to begin in 1990.

In addition, the Marine Corps awarded one of two competitive contracts to FMC Corp. for two prototype weapons stations for the light armored vehicle air defense (LAV-AD) program. The prototype will use high-rate Bushmaster cannons as well as missiles and rockets and will be delivered in August 1989 for evaluation.

A production contract award for 125 systems is scheduled for January 1992.

Commonality is also a factor in the LAV-AD program as the Marine Corps' LAV-25 currently uses the standard production Bushmaster. To date, McDonnell Douglas has delivered 475 M-242 cannons for the LAV-25 program.

Soviet Helicopters

The Soviets continue to form attack helicopter units. Each Army will have a regiment with five Hoplite scout helicopters, 42 Hind gunships and 30 Hip assault helicopters. Each division will eventually have a helicopter squadron with six to eight of each type of helicopter (Hind, Hip and Hoplite). Only those in the Group of Forces in Germany have received these regiments and only the elite divisions have received their squadrons. Some category-II and -III divisions probably will not get helicopter squadrons.

Soviet helicopters usually operate in pairs. They fly toward the target at an altitude of less than 50 meters, then pop up to 200 meters to spot the target. Soviet helicopters, like Soviet fighters, operate under strict ground control. They are vectored toward a target, rather than sent to an area to seek their own targets. Soviet helicopters are equipped with wings that provide lift and extra speed while moving, but make hovering difficult.

Because of this, Soviet helicopters attack from a dive, rather than from a hover. Against tanks the helicopters pop up at one to five kilometers and make a diving attack while guiding the missiles. When attacking with rockets or cannon, the attack begins from no more than 2,500 meters. (*For Your Eyes Only*)

Germans Get New Roland

The West German air force and navy recently took delivery of the first production FlaRakRad version of the Roland air defense missile system in Ottobrunn near Munich. The system is designed to protect stationary objects against hostile low-flying aircraft. A version installed on a tank chassis has been produced for the army to protect mobile units.

Roland was developed by German and French companies with the Euromissile consortium, a joint undertaking of West Germany's Messerschmitt-Boelkow-Blöhm GmbH and France's Aerospatiale.

Each configuration of the system is compact and autonomous, providing air defense under all-weather and electronic countermeasures conditions as well as against maneuvering targets, according to Euromissile. (*Defense News*, Oct. 12, 1987)

Lightweight Early Warning Detection Device

The Marine Corps will get a man-portable radar system to alert and cue Stinger missile gunners to the approach of hostile aircraft. Called the Lightweight Early Warning Detection Device (LEWDD), the new system will have man-portable subassemblies, a total weight of under 200 pounds, a 20-kilometer range and a set-up time of less than five minutes. A demonstration of candidate off-the-shelf systems is scheduled for late 1988, according to a Marine Corps request for proposal (RFP) released recently. (*Armed Forces Journal*, February 1988)

Italy Plans for Patriot Missiles

Italian Defense Minister Valerio Zanone and U.S. Defense Secretary Caspar Weinberger have signed a letter of intent for the future procurement of 20 Patriot surface-to-air missile batteries.

The letter, signed in Washington, will be followed by talks leading to the signature of a full memorandum of understanding between Italy and the United States, that will include details of the agreement on industrial cooperation and

technological transfer between Raytheon, producer of the Patriot, and the Italian consortium Italmissile, formed by Selenia, Snia BPD and OTO-Melara.

The value of the contract, estimated at about \$2.5 billion, makes it one of the major procurement programs of the Italian armed forces for the years 1990-2000. Italy will be the fourth NATO country, after Germany, the Netherlands and the United States, to buy the Patriot. In a speech to the Center for Higher Defense Studies in Rome, Zanone said the new agreements with the United States are part of broad efforts to modernize Italian defense capability. A modernization program, accompanied by an extraordinary spending bill in addition to the ordinary defense budget, will soon be submitted to parliament.

The industrial cooperation draft agreement for Patriot, according to Enrico Gimelli, managing director of the Selenia-Elsag Group, "foresees that the missiles will be manufactured in Italy. However, the systems could be imported from the United States." A still undisclosed fraction of the contract will consist of direct compensation, with the United States buying certain Italian weapon systems. These probably will include Selenia's Spada surface-to-air missile.

Gimelli said this "could mean the first step in a new stage of industrial cooperation between Italy and the United States in the defense sector. But the procurement of Patriot represents for our country a sizeable economic burden that must (be balanced by) adequate industrial compensation."

U.S. To Sell Chad Stinger Missiles

The United States has reversed its position and agreed to sell Chad Stinger anti-aircraft missiles to defend against Libyan air attacks, according to a Defense Department spokesman.

"In response to the continued air threat from Libya, we have decided to honor Chad's request for Stingers," Lt. Col. Keith Snyder said.

He declined to discuss the number of missiles and the delivery schedule, but defense sources, speaking anonymously, said 24 Stingers and seven launchers worth a total of \$2 million would be delivered.

Snyder conceded that past U.S. policy had been not to supply the sophisticated weapon to African governments, although the South African-backed UNITA rebel movement in Angola has received

Stingers under a covert aid package. "Obviously, there has been a shift," Snyder said. (*Defense News*, Oct. 12, 1987)

Patriot on Schedule

The Army has signed the largest multi-year contract in its history for production of Patriot through 1992. The five-year contract was for \$3.55 billion. "That production contract is fully on schedule," said A. O. Oldacre, deputy project manager at the Patriot Project Office. "Last year a record 21 Patriot fire units were produced by Raytheon, who's the prime contractor, and Martin Orlando, who's the major subcontractor for launchers and missile assembly.

"We've produced approximately 1,800 missiles to date, and the program is nearly a third of the way through production of missiles," Oldacre said. "There is a vigorous preplanned product improvement program that is being carried out along with the production program plan. This will keep Patriot current with the threat through the year 2000 as we now foresee."

Actual hardware cost is about \$70 million per fire unit or battery. Related equipment costs bring the price tag to around \$100 million for international customers.

"I think it's the best air defense system that the Free World has ever had; I don't think that's any exaggeration," Oldacre said. "It's a system that can defeat any known electronic countermeasures, and it does it through built-in software so that operation by the soldier is very simple. It's easy to maintain by built-in test and diagnostic equipment. It's highly mobile and it's extremely effective.

"Patriot has been one of the Army's biggest success stories in terms of deployment to Europe. We are currently deploying the sixth Patriot battalion to Europe (to the 32nd Army Air Defense Command in Darmstadt, Germany). Every one has been ahead of schedule and has had the highest percentage of equipment fills of any air defense system."

Users of the system include the U.S. Army — at Fort Bliss, Texas and with the 32nd AADC in Europe — plus the German Air Force and the Royal Netherlands Air Force. Italy is negotiating for purchase of the system, and Japan is co-producing Patriot.

Development of the system began in the mid-1960s. Engineering development started about

1972. After a proof-of-principle phase, which interrupted engineering development for about two years, production began in 1980. The first unit was fielded in the U.S. in 1984, and fielding began in Germany the following year.

Improved Vulcan

Air Defense Artillery, following a one year setback caused by funding delays, began fielding the product-improved Vulcan air defense system (PIVADS) in January this year. The Vulcan is a short-range air defense (SHORAD) weapon system designed for deployment against the low-altitude air threat.

The kit modifies the gunner sight, target-tracking computer, turret drive gears and fire control system. It also incorporates a built-in test capability that automatically identifies and isolates system failures. The PIVADS kit, being installed in both the self-propelled and towed versions of the gun system, improves Vulcan's probability of hit by accurately predicting target lead angles. SHORAD officials estimate it will take two years to modify all the fielded systems.

Israeli Missiles

The Department of Defense has given the go-ahead for initial testing and evaluation of the Israeli-made "Popeye" air-to-ground missile for possible purchase by the U.S. military, according to the *Jerusalem Post*.

The United States also plans to fund 80 percent of the initial research and development costs of a new Israeli-made anti-tactical ballistic missile (ATBM). Israel would fund the balance.

Chaparral to Get RSS

The Army has issued a draft request for proposals for production of a sophisticated seeker that will maintain Chaparral's accuracy at far longer ranges and under severe countermeasures conditions.

Ford Aerospace designed the original Chaparral as well as the new seeker and is determined to keep the production contract for itself. However, the Army expects to pay about \$1.3 billion for design, production and support of new seekers. Two firms, Hughes Aircraft Co. of Canoga Park, Calif., and Raytheon Co. of Bedford, Mass., will try to win the contract for themselves. The imminent competition also is open to international contractors.

The key to the new version of the Chaparral is

its sophisticated infrared sensor, called the rosette scan seeker (RSS). Similar in many ways to the reprogrammable microprocessor being developed for Stinger hand-held air defense missiles, the RSS is based on software that can be reprogrammed quickly and cheaply to deal with evolving threats, such as varying aircraft heat signatures, flares and other infrared countermeasures. The RSS is electronically reprogrammed using an external wire. Removal and replacement of the modules is not necessary.

The RSS is more accurate than the existing Chaparral guidance unit because its seeker and guidance electronics provide two-color detector spectral discrimination and scanning spatial discrimination. Thus, the RSS can tell the difference between targets and infrared countermeasures.

—A small detector that scans in a rosette pattern makes the RSS guidance unit more effective at longer ranges. The unusual scanning pattern enables the detector to cover a wide field of view, improving target acquisition. (*Defense News*, Nov. 2, 1987)

ADA Yearbook

1988 is a banner year for Air Defense Artillery. Twenty years ago, on May 28, 1968, Secretary of the Army Stanley R. Resor ordered a reorganiza-

tion of the Artillery Branch of service. Field Artillery and Air Defense Artillery, which had been one branch since 1957, were to be separate branches. To commemorate this event, the Air Defense Artillery Association will publish a 20th Anniversary ADA Yearbook this spring. The yearbook will contain pictures and listings of U.S. ADA units and unit commanders worldwide. ADA Association members will receive their copy by mail. Thousands of copies will be distributed free to ADA units.

ADA Commanders Conference

The Air Defense Artillery Commanders Conference, May 23 through May 27, 1988, at Fort Bliss, Texas, may be somewhat reduced in attendance this year. The current intent is to conduct an executive-level session limited to ADA general officers, brigade and battalion commanders and key staff personnel serving in ADA related positions.

The conference agenda will focus on force structure changes, force modernization and fielding plans, and the year of training and will include updates on forward area air defense; command, control, communications and intelligence; active tactical missile defense; and high- to medium-altitude air defense interoperability.

Letters to the Editor



Remembering Red Canyon Chapel

Your article on Red Canyon Chapel (November-December issue) brought back many good memories.

I have enclosed a picture of the chapel I took while at the Red Canyon Range Camp. I don't remember the exact date, but I re-

member clearly that Father Walsh said Mass the day I took the picture and Maj. Ed Rumpf was conducting the firings.

I also remember that Nike, the burro, sang his best on Saturday night after the troops fed him his beer ration.

Bill Vaughan
El Paso, Texas

Oops!

I made a mistake in "The Changing Face of 32nd AADCOC," on page 31 of your January-February issue. In the cutline I identified the planes behind the Patriot radar as *Tornados*. They are in fact *Jaguars*. An eagle eye in the G-3 shop noticed it.

You may want to print a small correction. That's what I get for being in a hurry.

Capt. G. L. Johnson
AD PAO
32nd AADCOC

We've had numerous calls from other "eagle eyes" letting us know about this mistake. Just goes to prove our visual aircraft recognition training is really working!

Coming in the next issue . . .

The U.S. Army Air Defense Artillery School launches "The ADA Year of Training."
