

AIR DEFENSE ARTILLERY



PB 44-88-4 (TEST)

JULY - AUGUST 1968

GENERAL ORDERS

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 14 June 1968

No. 25

AIR DEFENSE ARTILLERY BRANCH

Effective 20 June 1968, pursuant to the authority contained in Title 10, United States Code, Section 3063 (a) (13), Air Defense Artillery is established as a basic branch of the Army.

By order of the Secretary of the Army:

HAROLD K. JOHNSON,
*General, United States Army,
Chief of Staff.*

Official:

KENNETH G. WICKHAM,
*Major General, United States Army,
The Adjutant General.*

AIR DEFENSE ARTILLERY



Professional Bulletin of the United States Army Air Defense Branch

PB 44-88-4 (TEST)

JULY — AUGUST 1988

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ON THE COVER ...

Twenty years ago, General Order No. 25, reproduced on the front cover, annulled the 18-year-long marriage of antiaircraft artillery and field artillery and established Air Defense Artillery as an independent combat arms branch. Staff writer Mary French describes the birth of Air Defense Artillery in "The Day the Artilleries Split," Page 8.

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By order of the Secretary of the Army:
CARL E. VUONO
 General, United States Army
 Chief of Staff

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

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Maj. Gen. Donald R. Infante
 Commandant, USAADASCH

Blair Case
 Editor in Chief

Hubert Koker
 Editor

Raymond Richardson
 Art Director

Lisa Henry
 Managing Editor

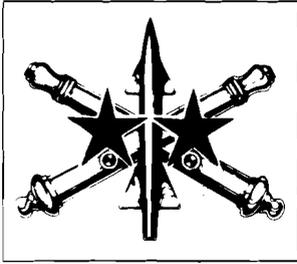
Dennis Kurtz
Nancy J. Pierce

Mary French
 Associate Editor

Frank A. Hughes
Maggie Aguilar
Mark Yerrington

Mina Spore
 Phototypesetter

Contributing
 Illustrators



Intercept Point

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

Make Training Priority No. 1 Part II

This is the second "Intercept Point" in a series on training — in this the Year of Training. I have been blessed across the years with mentoring from some superb trainers. My earnest hope is that this series captures most of the training thoughts of these great soldiers and trainers.

The last "Intercept Point" focused on —

- the training challenge. Our youngsters are smarter and better. We have less bucks to train with. If we don't challenge them we lose them. This must not happen! They are the most important essential to a quality Army.
- training program musts. Include the full battlefield environment every time. Hit hard on the need for individual training proficiency, especially in common tasks and weapons qualification. Reminded of are essentials — *Train to Standard*. Leaders, know your standards and explain them to your soldiers.

- training management guidelines. To manage, one must establish priorities — your plate will always runneth over. Specific events must be scheduled and defined. STABILITY, STABILITY, STABILITY — publish a plan and make it happen.

This "Intercept Point" builds on three areas by addressing the following:

- Training objectives. In the broad sense, why do we train?
- Training truisms. Thoughts from old soldiers with the focus on leader responsibilities.
- Combined arms training. Why it is especially important in Air Defense Artillery and some bases to assume it happens.

Let's begin by discussing the broad training objectives of any unit in our Army. They are especially important to air defenders who, at times, tend to become enamored with only the technical aspect. Here's one view of why we train — four simple training

objectives.

Leader development. If your training is top based (for example, the officers do all the teaching), shame on you. The key to success in combat is effective sergeant leadership. Every soldier has a sergeant. Hold sergeants responsible for training their soldiers. Get your leaders involved in training if you expect them to grow and develop.

Technical proficiency. Every soldier must know their individual weapons and their crew-served weapons (Stinger, Vulcan, Chaparral, Hawk and Patriot). They must know what they can and cannot do, and how to fix something quick when it breaks. They must know how to do this in a dangerous place — on the battlefield. They must know this so well that, under great stress, their reactions are instantaneous and correct. This requires repetition, repetition, repetition and more repetition. Train a defined standard in a realistic environment.

Tactical proficiency. Being at the right place at the right time is nothing to leave to chance in war. Combat power, to be effective, must be synchronized and integrated. That requires knowledge of the bigger set of objectives. An example is the case of the Vulcan platoon leader who requires the task force commander's objectives (present and future) and the case of the Patriot battalion commander who requires the Army commander's objectives (past and present). Our focus in ADA is on allowing our combat arms brethren to accomplish their objectives by saving combat power. AirLand Battle (ALB) knowledge at every level is an absolute essential.

Battlefield survival. The battlefield is an extremely unsafe place. To survive on the battlefield requires the highest degree of mental preparedness. The type that comes only from being tactically and technically proficient. The type that comes from knowing the environment because it's familiar. Also required is the highest degree

of physical preparedness. Battles are not fought on an eight to five schedule, five days a week. To be physically tough requires a tough physical training program. How's your unit's?

The bottom line. We train our soldiers to fight effectively and confidently, as part of the combined arms team, and live. Does your unit's training program accomplish this over-arching objective?

The Year of Training leaves an indelible imprint of basic truisms on any professional soldier. The following truisms are those that any commander must pass through his training program to begin to evaluate its quality.

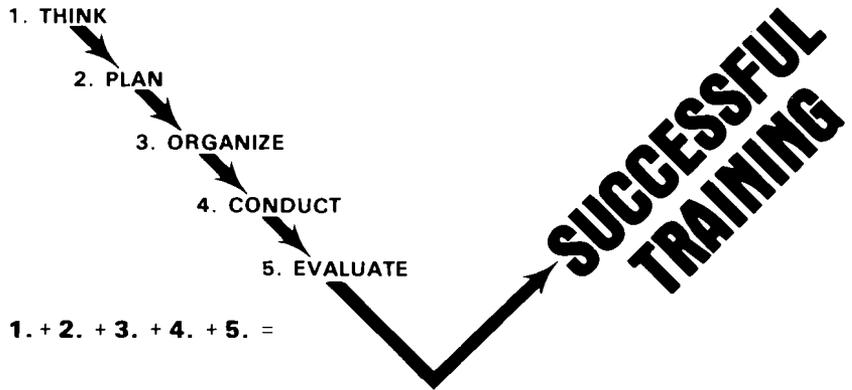
Training is all encompassing. Everything a unit does or experiences is training. Training may be bad or good, but it will never be neutral. Good training requires the execution of a sequence of operations.

Training is a five-phase operation. Regardless of the level, these five phases (shown in the diagram) must occur. If your unit follows this sequence, chances are your training program is pretty good. I guarantee that those units that don't follow these five phases have inadequate programs.

Units are truly tested only in a combat environment. Anything less does not put it all together. All the stresses, all the integrations, all the little "got-ya's" that sum up to losing are not caught. That's why events such as the National Training Center or a NATO tactical evaluation (TACEVAL) are so important. They are as close as we come to combat in peacetime. Training in a combat configuration is essential to winning in combat. NTC and TACEVAL results usually portray how your unit would do in combat. Believe it. Learn from them. For example, no one to date has died from a NATO TACEVAL, but applying the lessons learned from them has potentially saved many lives.

Good training occurs only in a good atmosphere. The person who creates the training atmosphere is

FIVE TRAINING PHASES



the commander. If there is an open environment that allows for learning from mistakes, training will flourish. If the training atmosphere is one of "no defects," the team will be uptight and good training is doubtful. Think back to Super Bowls past and great teams who stayed tight and lost. Units who train tight will fight tight — and lose. The converse is also true.

If you don't agree with the above, you are still a training rookie no matter how many years of service you have. Training should not only be pertinent to the mission, it should also be fun!

Air defense for air defense's sake is almost irrelevant and immaterial. For air defense to be effective, it absolutely must be part of the combined arms. Combined arms thinking must be a way of life for every soldier — especially air defenders. The following are some thoughts on institutionalizing combined arms in your training program.

Synchronization is what war is all about. Achieving the synergy that comes from synchronization is not quite as easy as winding a Timex. The key is putting all the parts together so that they work when required, as required. This also produces ductility which, when the unexpected occurs (which in war is almost always), allows the team to bounce back without breaking and win.

Combat power is all encompassing. Give an enemy a preferred attack option and he will exploit it to his advantage. Our goal is a force

that leaves the enemy with equally horrible, disastrous options. Witness the difference of Stinger in Afghanistan. Stinger is combat power — enough to make the difference between winning and losing for the Afghan rebels. The point is that combat power is much more than tanks and artillery. Engineers explaining obstacles and electronic warfare jamming an enemy radio is combat power. Use every bit you can get. Think all encompassing. Those that want to know the value of air defense at the right time and place must read about the Remagen Bridge in WWII. This saga will be published in book form by Lt. Col.(P) Paul Semmons.

Night, as a general rule, comes once every 24 hours. The side that controls the night controls up to half of the day. Combined arms synchronization must be practiced in both a day and night environment, as must every aspect of training.

AirLand Battle is a 3-D term. Those that think in 2-D cannot win. Those that think and plan for a 3-D capability stand a chance. Remember the little missile that could and did in Afghanistan.

Enough for this Intercept Point. I will close by reminding each of you of Gen. Carl E. Vuono's guidance: "TRAINING IS OUR #1 PRIORITY."

First to Fire!

OKeT



**NCO
to
NCO**

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

OMPF Training

This is the Army "Year of Training." Commanders and trainers are beginning to thumb through the more recent manuals such as field manual (FM) series 25-1 through 25-5 and FM 25-100. Soldiers and trainers are sharpening their warfighting skills, both individually and collectively. Even with a drastically reduced defense budget, our leaders are discovering innovative ways to continue realistic training and are finding ways to do more with less. Most units do a fairly good job with individual and collective training.

Another side of training exists that we, as air defenders and non-commissioned officers, don't do very well. We are not well trained in preparing and maintaining our official military personnel files (OMPF). Perhaps we don't do a good job in this particular area be-

cause we only think about our files when we fall into a zone of consideration for promotion or for a Department of the Army selected school. We need to train ourselves and our soldiers to maintain a good looking OMPF. Just as any training — individual or collective — is ongoing, you need to update your OMPF as often as necessary and not just once every three to five years.

Because of the constraints of time and distance, you do not have the opportunity to appear in person before DA centralized selection boards. Instead, your OMPF is your representative. The board uses the contents of the OMPF to decide which soldiers to select. Consequently, an OMPF that is incomplete, in error, or otherwise fails to properly represent your qualifications may result in a negative decision by the board.

Get a current copy of your OMPF and review it in detail. Carefully audit it and sign your personal qualification record (PQR). Be absolutely certain that a current, correct hardcopy photograph of you is on file at the U.S. Army Enlisted Records and Evaluation Center (USAEREC) at Fort Benjamin Harrison, Ind. Three parts of your file — your photograph, your microfiche and your PQR — contain more than 95 percent of the information on which the selection board members will decide whether or not to select you.

If there is ever a time when "a picture is worth a thousand words," it is when your hardcopy photograph represents you before a DA promotion or selection board. Although your photograph is only required every three years, there is no prohibition on having one made sooner. If you have lost weight, been promoted, have several new awards and decorations or have a better fitting uniform since your last photograph, have a new photograph made. Ensure that the photograph is correct and sharp, that your image does not blend with the background and that you have accurately assembled the menu board.

Remember, photographs are no longer placed on microfiche. They will be seen by the boards in hardcopy only. A sloppy appearance (mustaches, long hair, blouses too tight, sleeves too long and trousers too short), unauthorized awards and decorations or appearing overweight could adversely affect your selection chances. A missing photograph may lead board members to think that you are apathetic or trying to hide something.

Senior NCOs must make sure that photographs of their NCOs are clear and correct before releasing them to the USAEREC.

Only by talking, checking and training can we expect to improve our OMPFs and our chances of promotion. The OMPF is an excellent subject for your NCOPD classes.



VAPOR TRAILS

11th ADA Brigade at First Fire II

Earlier this year, soldiers from the 11th Air Defense Artillery Brigade took part in First Fire II at Fort Bliss, Texas, and Holloman Air Force Base, N.M. This exercise tested the brigade's capabilities for air defense of the modern battlefield and marked the first time ever that all existing ADA weapon systems were deployed under one command.

The 11th Brigade was joined by the following units: the 2nd Battalion, 1st Air Defense Artillery, a Hawk battalion; the 5th Battalion, 62nd Air Defense Artillery, a Chaparral/Vulcan battalion; and the brigade Headquarters and Headquarters Battery.

3-6th ADA Employs Threat Weapons

Soldiers of D Battery, 3rd Battalion, 6th ADA Brigade, recently spent two rotations at the NTC in Fort Irwin, Calif., and returned with honors. Fighting the air defense battles only on visual sighting made nearly impossible by the dust and smoke, D Battery soldiers significantly reinforced the NTC OPFOR air defense, proving to the NTC combined arms team that air defense is an indispensable force in fighting, winning and returning.

D Battery deployed with XM-42s, fully functional launcher simulators of SA-7 and SA-9 infrared-guided rockets, and the ZSU-23-4 radar-guided cannon. The D Battery soldiers operated threat simulators provided by the Army Development and Acquisition of Threat Simulators pro-

gram. This equipment is custom-built to duplicate the functions and appearance of threat air defense equipment.

For its performance, D Battery received certificates of achievement and an NTC award, the Order of Hamby, for tactical excellence.

3-1st ADA Moves to Fort Hood

The 3rd Battalion, 1st Air Defense Artillery, formerly assigned to the 11th Air Defense Artillery Brigade, Fort Bliss, Texas, has become part of the 31st Air Defense Artillery Brigade at Fort Hood. The 166th Ordnance Company also made the recent move with the 3-1st. The 31st is an integrated brigade containing Hawk, Chaparral and Stinger battalions.



2-62nd ADA Makes a Most Valuable Player

Eighty-six soldiers from A Battery, 2nd Battalion, 62nd Air Defense Artillery, demonstrated combined arms teamwork in the 3rd Infantry Brigade's MABEX at Twenty-Nine Palms, Calif., where the battery averaged more than 100 engagements per day. The air defenders supported the 3rd In-

fantry Brigade's Task Force Strike, which acted as the OPFOR against Marine and Air Force elements. The training included night flights which, according to Capt. Tom Schossau, A Battery commander, "really kept us on our toes."

During four days of actual combat play, A Battery proved its value as a combined arms player. In one instance, two Stinger teams deployed on the battlefield and occupied forward positions on each side of the entrance to a valley where air defense was heavily concentrated. This caught the Marine pilots off guard, enabling the Stinger teams to shoot down five helicopters. "Hitting the enemy's air forces early and unexpectedly was crucial," said Schossau. "By striking first, we destroyed them before they had the opportunity to drop their ordnance load." A Battery went for an all-out attack: while its Stinger teams battled enemy aircraft, its Vulcan crews waited along the pass to engage Marine light armored vehicles and assault vehicles.

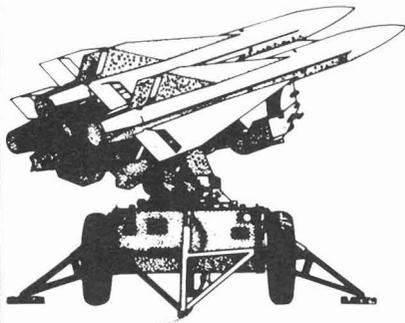
"When you combine the weapons systems of infantry, air defense artillery and armor, the synergy you get increases your capability of killing the enemy," Schossau said.

1-68th ADA Takes Part in NTC Experiment

During a recent field exercise at the NTC in Fort Irwin, Calif., the 1-68th ADA provided low-altitude air defense for the maneuvering elements of the 1st Cavalry Division and, at the same time, took part in an experiment.

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Part of the training at the NTC included conducting tests to determine the advantages of equipping the Vulcan with Stingers. "They are both excellent weapon systems with their own advantages," SSgt. Joe Guzman said. "The Vulcan can fire at a very rapid rate, which allows the operator to lay out a defensive pattern. But the Stinger gives the operator longer range."



Fort Lewis Hails New ADA Regiment

Recently, Fort Lewis, Wash., welcomed the Army Regimental System's newest member as soldiers of the 1st Battalion, 4th Air Defense Artillery, solemnly encased their colors and proudly picked up the banner of the 1st Battalion, 52nd Air Defense Artillery.

The reviewing party consisted of Col. (retired) F. R. Stevens Jr., who served as the reviewing officer and is the honorary colonel of the 52nd ADA Regiment; the host of the ceremony, Col. Zigmund J. Roebuck, commander of the 35th ADA Brigade; Commander of Troops, Lt. Col. Vernon W. Hatley; and CSM William M. Perrins.

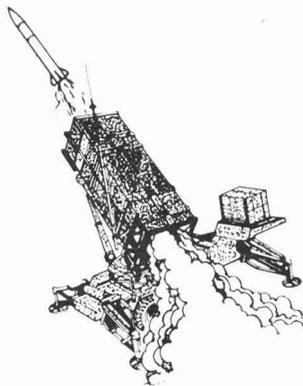
The activation ceremony unveiled a rich history surrounding the 52nd ADA Regiment. The regiment first organized in July 1917 at Fort Adams, R.I., as the 7th

Provisional Regiment, Coast Artillery Corps.

The history of 1-52nd ADA began in 1907 as the 134th Company, Coast Artillery Corps, Fort Michie, N.Y. It was redesignated in September 1971 as the 1st Missile Battalion, 52nd Air Defense Artillery. The battalion participated in 19 campaigns, from Champagne-Marne during World War I to the Philippine jungles of World War II to the UN defensive during the Korean War. 1-52nd ADA was awarded the Presidential Unit Citation for the defense of Korea.

The newly activated regiment and battalion were welcomed to Fort Lewis by an onslaught of rain. According to Col. Roebuck, "We ordered a little rain today to welcome 1-52nd ADA to the Pacific Northwest and to show any potential adversaries that Hawk is an all-weather weapon."

1st Lt. Delilah J. Parsons

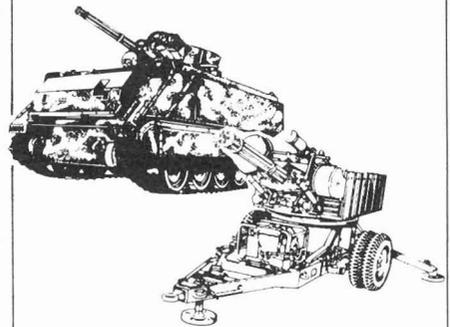


Patriot Battalion Assigned to 11th Brigade

The 11th Air Defense Artillery Brigade received its first Patriot battalion: the 3rd Battalion, 43rd Air Defense Artillery, commanded by Lt. Col. MacArthur Deshazer. Not only is this the 11th Brigade's

first Patriot battalion, but this is also the first Patriot battalion with a NATO mission assigned to a CONUS-based FORSCOM unit.

The 3-43rd's Patriot system joins the Hawk, Chaparral, Vulcan and Roland systems already in the brigade.



2-5th ADA Faces MRCATs

Soldiers from A Battery, 2nd Battalion, 5th Air Defense Artillery, recently completed a Vulcan gunnery at Trapnell Multi-Use Range. The gunnery tested the firing skills of 16 crews. "The purpose of the gunnery is to qualify the 16 crews," 1st Lt. Kenneth Mitchell, range OIC, said. "We also try to surpass our scores from the last gunnery."

The crews engaged a variety of targets with their 20mm Vulcans. Some of these targets were pop-ups while others were stationary versions of OPFOR vehicles. But the target that posed the greatest challenge for the Vulcaners was the miniature radio-controlled aerial target (MRCAT), which simulates OPFOR aircraft and is hard to hit because of its small size. Although the MRCAT was hard to hit, the Vulcaners shot down the first two targets sent up.

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2-59th ADA Fires at Grafenwohr

A, B and C Batteries, 2nd Battalion, 59th Air Defense Artillery, deployed to Grafenwohr Training Area (GTA), Federal Republic of Germany, to complete aerial and ground gunnery with their Vulcan weapon systems. This marked the first time that Vulcan weapon systems conducted an aerial gunnery at GTA. The service practice was part of the First Armored Division's gunnery exercise, IRONTHUNDER '88A, conducted at GTA.

A Battery was responsible for the coordination, safety and range operations of the Vulcan aerial gunnery on Range 310. To facilitate the realism of the gunnery exercise, the Vulcan platoon leaders received an operation order and task force execution matrix with graphics from the task force commander (Capt. Paul M. Keith, A Battery commander) the night prior to the platoon firing mission. The platoon leader briefed his platoon to ensure understanding in a time-sensitive environment.

Before sunrise, the Vulcan platoon occupied an assembly area designated in the operation order and conducted final preparations for firing. The platoon conducted an evaluated ammunition upload and completed a safety briefing and checks. They gave task force situation reports via FM-radio monitored by the platoon leader.

The platoon leader led his squads onto the range and conducted an evaluated emplacement, live-fire target engagements and displacements according to the platoon execution matrix. The platoon leader gave firing commands to the squads via FM-radio. The platoon leader was in total control of his squads and made all decisions on required actions.

The safe firings and the development of C² skills and confidence in platoon tactical abilities, while qualifying Vulcan squads, ensured future service practices at GTA.

1st Lt. Mark K. Carlson

2-1st ADA Lends Support

Soldiers from C Battery, 2nd Battalion, 1st Air Defense Artillery, participated in Devil Strike XIII at the National Training Center (NTC), Fort Irwin, Calif., in support of the 1st Brigade, 1st Infantry Division, from Fort Riley, Kan. The purpose of the rotation was to test light and heavy infantry with Vulcan guns and Hawk missiles in a combined arms scenario.

Capt. Timothy D. Bond, commander of the battery, said, "NTC rotation is a chance for us to be integrated into the combined arms environment with infantry, armor and aviation — the whole gamut. It's as close as you can come to battlefield conditions without firing in anger."

2-5th ADA Conducts Live Fire

A and B Batteries, 2nd Battalion, 5th Air Defense Artillery, got a chance to fire real ammunition at simulated enemy aircraft during their annual Vulcan gunnery at Trapnell Multi-Use Range, Fort Hood, Texas.

This training hones the skills of the Vulcaneers, many of whom are fresh out of AIT. Even though the live-fire exercise occurs only once a year, firing real ammunition at simulated aircraft pays off by improving the Vulcaneers' combat readiness and overall skills.

A Tradition of Maintenance Excellence

A Battery, 2nd Battalion, 59th Air Defense Artillery, received accolades and thanks recently from the First Armored Division for its outstanding performance in the Chief of Staff, Army, Maintenance Excellence Competition. A Battery won this prestigious competition in the heavy category through division level, and placed second in a very close decision at VII Corps level.

The staunch competition to represent VII Corps at this level is highly indicative of the ACES tradition of pride in performance and an extraordinary commitment to maintenance as it directly equates to unit readiness.

A Battery began participating in the competition by compiling its maintenance statistics for FY 87 and writing the unit maintenance profile, combined in a book describing the A Battery maintenance program.

Initial levels of competition were judged primarily on this book. VII Corps evaluators reviewed the A Battery maintenance profile and then made an on-the-spot inspection to verify the battery's maintenance excellence.

Wheeled and track vehicles, NBC equipment, small arms and field kitchens as well as maintenance and supply records underwent the intense inspection. A Battery's success was attributed to key facets which focus on the operational mission, such as command emphasis, officer and non-commissioned officer leadership, training and operator pride.

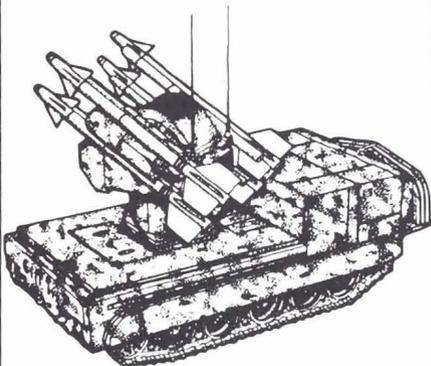
A Battery's tradition of maintenance excellence began in 1986 when it was selected to represent the First Armored Division at VII Corps level in the light category, and again in 1987 in the heavy

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category. That made A Battery the only Army unit to win the award for two consecutive years in different categories.

A Battery also plans to compete in the FY 88 program. There is little doubt that A Battery is a strong contender for VII Corps and USAEUR titles, as well as for the FY 88 All-Army Award.

1st Lt. Mark K. Carlson



7-7th and 504th Move to Fort Lewis

Fort Ord's 7th Battalion, 7th Air Defense Artillery, and the 504th Ordnance Detachment are relocating to Fort Lewis, Wash., this year, according to a recent announcement by Secretary of the Army John O. Marsh Jr.

The 7-7th, whose specialty is the Chaparral heat-seeking missile, and the 504th, a missile maintenance detachment that supports the 7-7th, will join the 35th Air Defense Artillery Brigade, a subordinate unit of I Corps, at Fort Lewis. The relocation was originally planned for 1992, but construction and organizational relocations at Fort Lewis accelerated the move.

The move will increase I Corps' and the Army's overall level of combat readiness because the units will train in peacetime with the corps they would normally support in war.

4-61st ADA Gunners Aim High

The 4th Battalion, 61st Air Defense Artillery, Fort Carson, Colo., held its biannual service practice earlier this year. The 4-61st ADA has two Chaparral batteries, each consisting of 12 Chaparral squads with four members per squad. The unit's Chaparral gunners aimed their sights at ballistic aerial targets (BATs), with the top two squads from each battery firing in the dark of pre-dawn and the remaining four firing in MOPP 4 after sunrise.

For those firing rights, each squad completed missile upload, emplacement, target engagement and march order battle drills. Senior NCOs evaluated the battle drills and awarded missiles to the squads with the highest averages.

"The shoot this year was better training for the soldiers because it was more realistic," said SSgt. Charles Matson, squad leader for D Battery's top squad. "I shot in MOPP 4 and it was different, but I feel confident that I could do it in war if I had to," said Spec. John Headley, a D Battery senior gunner. The other gunners were D Battery's Spec. Marty Case and Spec. Edward Bosley, and C Battery's Sgt. Keven Feimster, Spec. Kent Suyenaga and Spec. Michael Moyak.

2-5th ADA Fires Last Chaparral

Soldiers from the 2nd Battalion, 5th Air Defense Artillery, Fort Hood, Texas, fired their Chaparrals for the last time during a recent gunnery practice at Trapnell Multi-Use Range. The battalion gave up its Chaparral assets to the newly formed 2nd Battalion, 2nd Air Defense Artillery, a part of III Corps.

At a separate event, the 2-5th ADA held a reorganization ceremony in which they assumed the Vulcan/Stinger battalion configuration and bid farewell to the Chaparral air defense missile systems.



2-62nd Goes to Red Flag

The "Light Fighter Air Defense Artillerymen" of the 2nd Battalion, 62nd Air Defense Artillery, received valuable training at Exercise Red Flag 1-88. The 2-62nd ADA Stinger teams had the opportunity to visually identify 24 different aircraft in flight.

During the exercise, tactical units from all branches of the U.S. Armed Forces and allied countries engaged in a mock war through realistic combat scenarios on the extensive bombing and gunnery ranges near Nellis Air Force Base, Nev.

The 2-62nd ADA Stinger teams had a dramatic effect on the outcome of the "war." On an average day they engaged 40 to 50 fast movers that were using evasive and tactical maneuvers and terrain masking to avoid detection.

The Day the Artilleries Split

Born the day its parents, field and antiaircraft artillery, divorced, the Air Defense Artillery Branch came into the Army as a combat arm with a proud yet stormy family heritage. Out of the Coast Artillery Corps, with its own proud heritage of the first-line defense of the nation at home and abroad, came the antiaircraft artillery which was married to the field artillery in 1950. The union, blessed by Chief of Staff, U.S. Army, Gen. J. Lawton Collins, lasted 18 uneasy years.

The marriage of the two branches occurred in the midst of the Korean crisis. America, immersed in the Cold War, battened down; unity and social consensus was important. Individuality was looked upon with suspicion. This view was even projected upon the Army: it was too splintered, with too many arms. Contrast this with the kaleidoscope individuality of the defiant 60s, then juxtapose this with the uneasy coexistence of the two artilleries.

The decade in which the divorce between field and antiaircraft artillery took place was itself an era of disquietude. Throughout most of the 60s idealism reigned supreme; the world was seen through a pair of rose-colored granny glasses, a plastic, polyester reflection of youthful idealism. Apocalyptic rhetoric, bourgeois baiting, moon shoots, transcendental meditation, assassinations, be-ins, sit-ins, love-ins, love beads, flower children, protests, marches on the pentagon — everything was image, everyone was a star for at least 15 minutes

and everyone had something to say. In the midst of all the hype and artificiality of the dizzying psychedelic magical mystery tour that was the 60s, the media, mainly TV, oddly enough, was the force that brought reality back.

Through the medium of television, with its all-inclusive high-definition intimacy and immediacy, the idealism of the 60s began to lose its luster. The events of 1968 — the 1968 Tet Offensive in Vietnam, the assassinations of Bobby Kennedy and Martin Luther King Jr., and the riots at the Democratic convention in Chicago — as witnessed on television, had a great impact on the nation, sowing the national psyche with the seeds of cynicism and self-doubt. Likewise, in 1968, in the midst of the sudden recognition of reality, came the reorganization of the artillery branch. The Army, however, did not need television to bring reality home. The Army learned about reality through experience.

On May 28, 1968, Secretary of the Army Stanley R. Resor, himself a former Redleg, ordered a reorganization of the Artillery Branch. Establishing a separate Air Defense Artillery Branch was a natural and logical step, demanded by the professional requirements of both field artillery and antiaircraft artillery.

For air defense, missile science required a well-trained officer corps able to operate and maintain highly technical and sensitive missileery. For field artillery, the conflict in Vietnam required officers experienced in the use of tube artillery.

The Vietnam War, demoralizing for the Army as a whole, was particularly frustrating for air defenders. The Duster and Quad 50 crews participated in every major campaign from the Mekong Delta to the DMZ. Some reached the outskirts of Phnom Penh. The automatic weapon battalions fired more than 14 million rounds of ammunition, but their targets were Viet Cong or North Vietnamese Army infantry. They called it "mowing grass." The Hawk units, however, lay silent, waiting for air attacks that never materialized.

Meanwhile, the Army realized that scientific advances within the military were causing a growing division of doctrine, mission, training, equipment and techniques to evolve within the Artillery Branch. This, in turn, led the Army to question the ability of the Artillery Officer Corps to meet future military requirements, namely, in providing officers trained in the highly complex missile technology.

Proposed air defense weapon systems included the Chaparral missile system, the Vulcan gun system and the developmental surface-to-air missile, or SAM-D, which later became Patriot. Another new air defense weapon system, the Sentinel missile, was designed to complement the Nike Hercules. The Nike Hercules could engage high-performance aircraft at high and low altitudes. The Sentinel's purpose was to engage and destroy the more advanced threat represented by the intercontinental ballistic missile and the sea-launched ballistic missile.

Thus, based on its examination of the professional and technical needs that the Vietnam War and future air defense weapon systems required, the Army concluded that two career branches could better handle the existing dual mission of the Artillery Branch.

In 1967, the Department of the Army took its first step toward splitting the Artillery Branch by establishing separate air defense and field artillery advanced courses. Then, on June 14, 1968, Gen. Harold K. Johnson, Army Chief of Staff, granted a legal separation to field and antiaircraft artillery under DA General Order No. 25.

At the time of the separation, about one-third of the 25,000 artillery officers were air defense specialists by training and experience. The immediate problem was to identify which officers were to be in Air Defense Artillery and which in Field Artillery.

There was not an overwhelming rush of artillery officers opting for ADA. The new branch was in desperate need of qualified officers, and ADA's career management task force, headed by Col. Joseph D. Fimiani, had, in most cases, to turn down the

requests of air defenders for Field Artillery assignments.

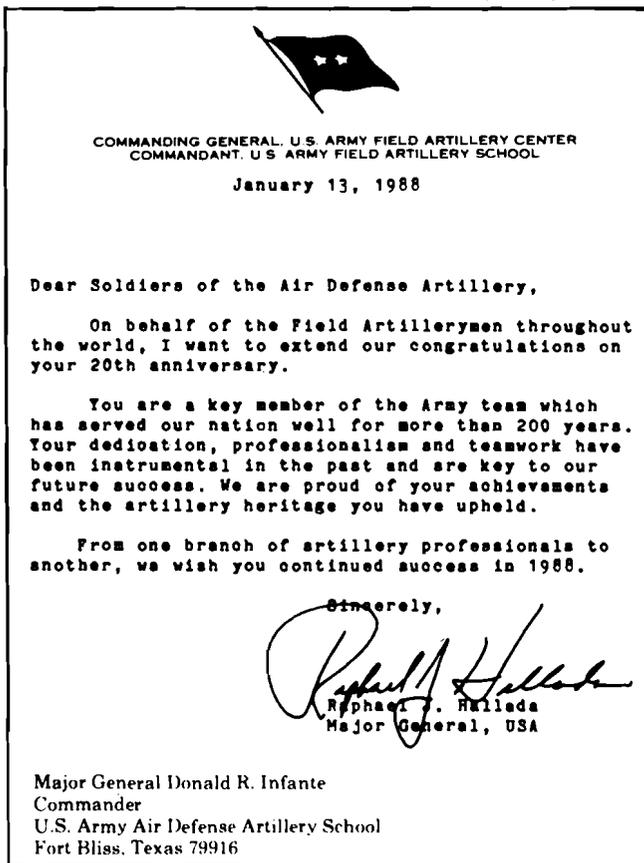
Fimiani knew the frustrations that air defenders were feeling. In a November 1968 interview in the *Air Defense Monitor*, Fimiani said: "Artillery integration has relegated the air defense officer to non-hard skill jobs — adjutants, supply, headquarters battery commanders, and intelligence — during both the Korean and Vietnam conflicts."

Another factor that added to the difficult birth of ADA was that, in the waning days of the Cold War, given the changes in the political and social climate, many air defenders sensed the new spirit of detente, only a few years away, and what that would mean for missilemen. Cold War anxieties were running high, and antiballistic missile

development and deployment would most likely be reduced or stopped altogether as part of U.S.-Soviet arms limitations negotiations.

Despite its difficult birth, the new branch came into official existence with more than 7,000 officers and warrant officers on its rolls. After an uncertain infancy during the early to mid-seventies when the very existence of the branch was in doubt and a difficult adolescence clouded by the loss of the Sergeant York weapon system, ADA at 20 is healthy, strong and a born fighter, not unlike its parents.

"It was," *Army* magazine pointed out, "a much talked about marriage." The wonder was not that the union between field artillery and antiaircraft artillery broke up after 18 years, but that it had lasted as long as it did, and that the two partners had done each other no lasting harm.



ADA is Alive and Well

ADA is alive and well and actively engaged in preserving its health. This was the overall, though implicit, message of the 1988 ADA Commanders Conference. The theme of the conference was based on the 1988 Army theme: The Year of Training; however, the underlying message of the conference was that ADA is back on track after a period of uncertainty about its future a few years back. The three-day conference was structured around ADA's past, present and future.

Maj. Gen. Donald R. Infante, chief of Air Defense Artillery, in his welcoming speech, contrasted the state of ADA's health with that of a few years ago. In 1985, ADA's overall condition was not so good: branch pride was at an all-time low, the Sergeant York battle was lost, and ADA's role in the AirLand Battle and in the combined arms team was not understood or appreciated.

Now the branch's condition is much improved. Infante credited an understanding of the essential role ADA plays in AirLand Battle doctrine and as a member of the combined arms team, the *Air Defense Artillery* bulletin, professional education reforms and pride-building efforts such as the ADA

March and the growing membership in the ADA Association with getting ADA back on the road to good health.

In keeping with Infante's upbeat assessment of the branch's state, the presentations following the welcoming address sounded a chorus of positive notes. Almost as if in the same key, Gen. Crosbie S. Saint, Lt. Col. Peter Franklin and Lt. Col. Jeffery E. Furbank all stressed the same thing: ADA is proving itself to be a vital member of the combined arms team.

Saint, now Commander in Chief U.S. Army Europe and 7th Army, Commanding General Central Army Group, Allied Forces Central Europe, Allied Command Europe, stressed the importance of knowing AirLand Battle doctrine. The individual units each have an important part to play in the next war which Saint believes will be a "free for all." It is imperative that each unit is in the right place at the right time — to focus combat power. This is especially true of ADA. Saint recommends that corps commanders put up their ADA umbrella first. "My only capability to overcome the enemy — to take him by surprise," Saint said, "is to move quickly. Convoys, air assault,

moving the force — all can only succeed with air defense.”

Similarly, in his presentation on Light Division Training Challenges, Franklin, commander of the 2nd Battalion, 62nd Air Defense Artillery, pointed out that not only is respect for ADA growing, based on NTC, Joint Readiness Training Center (JRTC), Marine Brigade Exercise (MABEX) and the Honduras deployment experiences, but Infantry brigade and division commanders want their air defense. “Love of air defenders increases in direct proportion to the perceived air threat,” said Franklin.

Furbank’s presentation: Joint Training: Exercise Green Flag, proffered some interesting implications not only for joint training but for the total Army working together. Once a year, the U.S. Air Force runs Green Flag. This exercise has the most jamming and free play.

Furbank, commander of the 1st Battalion (Patriot), 43rd Air Defense Artillery, presented the following lessons learned: The impact of jamming on Patriot was negligible, “just a crackle on the radio;” the total Army works — active ADA units and a National Guard Hawk unit established voice and data communications and successfully carried out their mission; and Army/Air Force interoperability works — AWACS C² was sent to Hawk and from Hawk to Patriot.

Another positive note sounded during the conference was the accent ADA is putting on the Total Army concept. In the past, National Guard training and progression was a National Guard problem. But now, as the presentation: The National Guard: Modernization Training Challenges, given by Maj. Gen. Edward D. Baca and Maj. Gen. Robert E. Ensslin shows, National Guard training and active duty training are better coordinated, and ADA is committed to supporting and improving its National Guard units.

Baca, the New Mexico adjutant general, mentioned the successful participation of a New Mexico National Guard Hawk unit in Exercise Green Flag and stressed that approximately 50 percent of combat capability in the Total Army is in the reserve components. Ensslin, the Florida adjutant general, spoke of the new and dynamic developments taking place in the 164th ADA Brigade. He painted a vivid picture of the growth taking place in the 164th such as the conversion of Duster battalions to Chaparral and receiving an I-Hawk battalion.

While training has always been important in the

branch’s past, it is even more important in the branch’s future. An important area of training is knowledge of AirLand Battle doctrine as was presented in Col. James L. Smith’s speech: An ADA Doctrinal Foundation for Commanders and Trainers: The New FM 44-100. For the first time, FM 44-100, *U.S. Army Air Defense Operations*, the ADA capstone manual scheduled for publication in FY 89, will refer to ADA in combined arms AirLand Battle doctrine. Other areas touched upon during the

conference concerning future training issues include: The Frontier of Space by Brig. Gen. Robert L. Stewart and ADA Force Structure Initiative to Support Emerging Concepts by Lt. Col. John Costello.

Training is also an important element of soldier care. Several presentations dealt with this issue such as Training the Trainer: Leader Development Update by Col. James L. Smith, and The Safety Component of ADA Training by Lt. Col. Bill



Kunzman.

The most controversial, albeit most humorous, issue of the conference revolved around not tactics, weaponry or doctrine but around the “ADA March.” Some ADA commanders like the recently adopted branch song; others don’t. The split seemed about fifty-fifty.

Maintaining a healthy branch is an important goal for the future. Maj. Andre Hakopian and Maj. Robert M. Horne, in their presentation: OCADA — Branch Personnel Issues, stressed the responsibilities of the Office, Chief of Air Defense Artillery (OCADA) in dealing with the important issues of tomorrow such as —

- improving communication with the ADA community,
- developing initiatives, policies and programs to improve branch cohesion,
- developing an Army National Guard force modernization plan,
- developing an enlisted professional development plan,
- enhancing warrant officer service and
- studying women officer issues.

Overall, the future for the branch looks bright. Based on the discussions of the branch’s past and present, it is clear that today’s ADA is robust. It is also clear from the concerns discussed during the conference that ADA commanders are doing their part to keep the branch in shape and keep it strong in the future.

HIMAD MOS Consolidation

The subject of MOS consolidation continues to cause our soldiers speculation and concern. This article will offer the facts about MOS consolidation — where we are and where we are going — and should put to rest most of those rumors in the field.

Weapon system technology is advancing rapidly. Advances in built-in tests (BITs) and built-in test equipment (BITE) mean greater ease in maintaining weapon systems. Easier maintenance allows for more operational time. Advances in other technologies are enhancing operational aspects and adding many commonalities to operator functions of the Patriot and Hawk Phase III weapon systems.

As Air Defense Artillery advances into a high-tech future, we need to adjust our personnel management system to meet evolving and new weapon systems, unit fieldings, reorganizations and other future needs.

In January 1988, Maj. Gen. Donald R. Infante, chief of Air Defense Artillery, was briefed on MOS consolidation and the many concerns that surround this topic. As a result, he directed that the Office, Chief of Air Defense Artillery (OCADA), conduct a study to examine the ADA MOS structure and prepare it to meet the needs of the future.

The bottom line of the pending study was to keep the needs of soldiers in mind. The primary focus explored the following areas in detail:

- Career enhancement and job satisfaction of soldiers. Examine ways to provide soldiers with the best promotion opportunity within Air Defense Artillery and to challenge soldiers in their MOS-specific duties; make soldiers want to stay in Air Defense Artillery.

- Personnel management requirements. Emplace a personnel system that correctly assigns soldiers against appropriate ADA force requirements; make the face match the space.

- Force structure implications. Work within the limits of manpower constraints and force modernization changes to establish a viable force for the future.

- Training resources and associated costs. Examine current training resources and projected weapon systems, classrooms, instructors and other needs against proposed MOS consolidations to assess the impact; the new training must be affordable and doable.

- Soldier task load and skill retention. Ensure critical tasks associated with consolidated MOSs are not excessive and that the skills can be maintained over several assignments, or refreshed in a relatively short period. When possible (read that affordable), refresher training will be conducted en route to the next assignment.

- National Guard transition. Examine implications of force structure and organization to provide for total ADA force needs. MOS consolidation cannot be applied to the ARNG; therefore, any changes

must retain system identity such as Hawk, Chaparral, Vulcan or pedestal-mounted Stinger.

- **Battlefield reconstitution.** Develop consolidations that give commanders greater flexibility when reorganizing units on the battlefield; for example, corps Chaparral will be the primary source to reconstitute the divisional units.

With the Chief's guidance, a panel of subject-matter experts were brought together into a working study group headed by OCADA. The study group included non-commissioned officers and Department of the Army civilians from the Directorate of Training and Doctrine; the Directorate of Combat Developments; the NCO Education System; the Directorate of Evaluation and Standardization; the Army Research Institute; the Hawk, Patriot and SHORAD departments; and the U.S. Army Training Center.

The MOS consolidation study group examined these options:

- **Option One:** Combine Hawk operator 16E and Hawk crew member 16D MOSs into a single Hawk MOS (new 16D). Combine Patriot MOS 24T operator duties with the Patriot crew member MOS 16T (new 16T), leaving the 24T MOS a pure maintainer.

- **Option Two:** Use option one and further combine the single Hawk operator MOS (new 16D) and the new Patriot operator MOS (new 16T) into a single HIMAD operator.

- **Option Three:** Combine the current Hawk crew member 16D and Patriot crew member 16T into a generic HIMAD crew member and combine Hawk operator 16E and Patriot operator 24T duties into a generic HIMAD operator.

- **Option Four:** Combine Hawk MOSs 16D and 16E into a single Hawk operator MOS and combine Patriot MOSs 16T and 24T into a single Patriot operator/maintainer MOS.

A decision entirely separate from this study combined Hawk maintenance MOSs 24C, G and R into a single Hawk maintenance MOS (new 24R). This decision was based on the fielding of Phase III Hawk, which removes all "tube technology" from the system and greatly reduces the length of required training. The study group considered the impact of the new 24R Hawk maintainer MOS in arriving at their recommendations.

The study group recommended Option One, combining Hawk MOSs 16D and 16E into a single Hawk operator MOS and combining Patriot 24T operator duties with 16T into a Patriot MOS.

With Infante's approval of Option One, the study group is developing the training strategy to implement these HIMAD proposals prior to obtaining approval from the U.S. Army Training and Doctrine Command and ultimately from the Department of the Army Deputy Chief of Staff for Personnel (DCSPER). The study group is also soliciting ideas and concerns from air defenders worldwide.

Once DCSPER approval is obtained, cross-training will progress as follows:

- **Hawk (new 16D):** Starting in FY 89, 16Ds and 16Es will receive PIP III new equipment training (NET); following NET the training for MOS (new 16D) will begin.

- **Hawk (new 24R):** Like the new 16D, this transition will start in FY 89. Hawk maintainer MOSs 24C, G and R will receive PIP III NET. New 24R MOS transition training will follow.

- **Patriot (new 16T):** Training will start pending approval from the DCSPER.

The preferred method of conducting cross-training is to attend USAADASCH; however, other training strategies are under study.

Early Outs Brighten Promotion Outlook

"Enlisted promotions, pushed to record lows this year by the tight defense budget, will increase dramatically during the next few months," the *Army Times* reported in July.

The reason is that 10,000 more NCOs than expected left the Army during the three-month early out program which ended June 30. The Army hoped 25,000 NCOs would opt for an early out. Instead, 35,000 volunteered for separation.

A Pentagon forecast projected 3,200 NCO promotions in August — double the monthly levels allowed during most of the year. Personnel officers said promotions will range from 3,100 to 4,000 each month until at least next spring.

ADA NCO promotions rose about 50 percent in

August over July, but ADA personnel managers could not estimate how much of the increase is due to voluntary separations or predict how long the trend will continue. Capt. Clinton Allen, career management field 16 team chief, OCADA, said he believes the increase in ADA promotions may be partially attributed to the effects of the early out program. But he cautioned that the impact on ADA promotions has yet to be fully analyzed.

"The official statement of the effects of current trends will reach our people as history, not as a 'heads up' for things to come," Allen said. "Still, it improves the prospects of NCO promotions in ADA, and every little bit will help in today's highly competitive system."

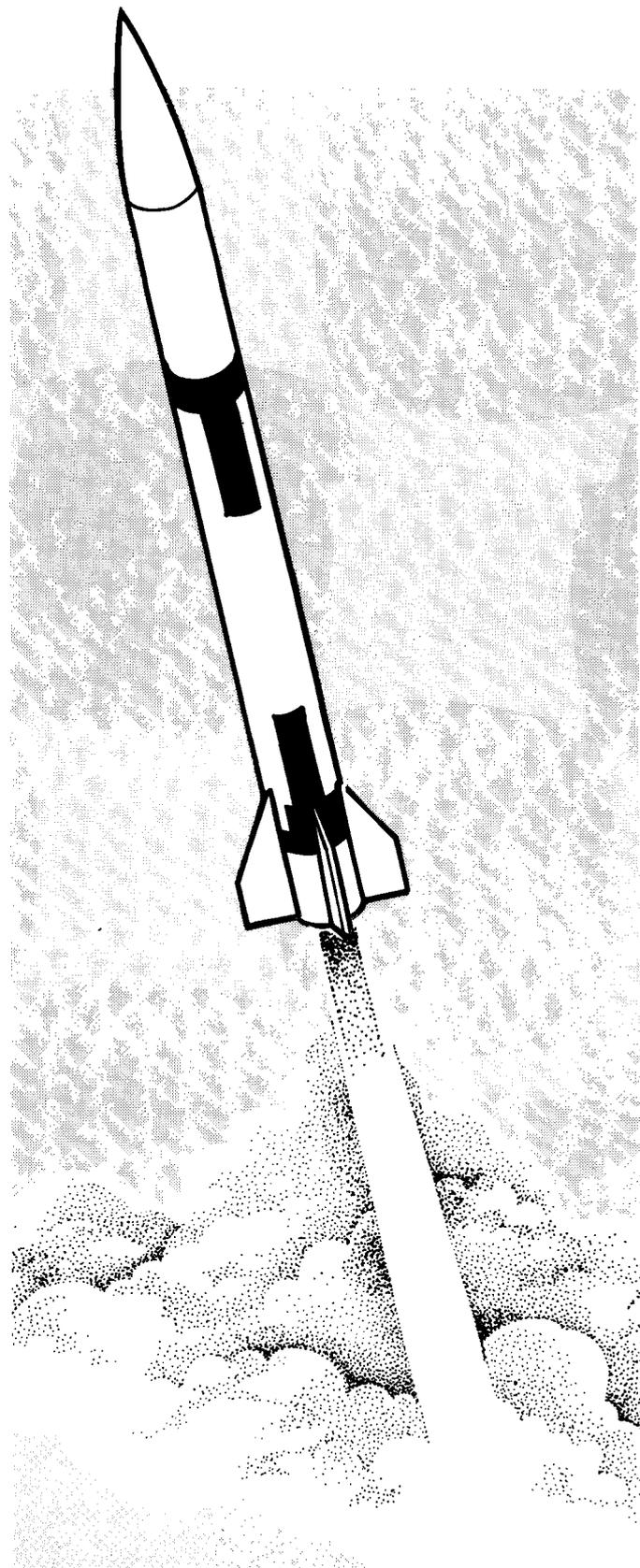
ADA Against TBMs

by Maj. Steven J. Adelman

The tactical missile threat has been recognized for more than two decades. During the early 1960s Hawk and Nike Hercules were designed with an inherent, but limited, anti-tactical ballistic missile (ATBM) capability. Early-on, Patriot was planned to defend against both air breathing and tactical ballistic missile (TBM) threats. During the past two decades, more than a dozen Department of Defense and Department of the Army studies have addressed the ATBM problem.

In December 1986, at the direction of the Deputy Secretary of Defense, the Army Chief of Staff activated a Joint Tactical Missile Defense Special Task Force at Huntsville, Ala., under the direction of Col. Larry Capps. The mission of the special task force was to evaluate tactical missile defense programs, studies and requirements; perform concept analyses and develop alternative system concepts; and recommend a master plan for TMD in both near and long terms.

The special task force was directed to explore counters to the conventional threat in the near-term plan while addressing cruise missile and extended range TBMs with conventional, chemical or nuclear



capabilities in the long-term plan. The task force was then to recommend a balanced program reflecting requirements of active defense, passive defense, counterforce and supporting battle management/command, control, communications and intelligence (BM/C³I).

The special task force's master program plan for TMD addressed four areas:

- *Active defense*, or destruction of tactical missiles in flight, is primarily the responsibility of Air Defense Artillery.
- *Counter force* (now called attack operations) includes detection and destruction of TBM launchers and missiles on the ground.
- *Passive defense* includes actions to create uncertainty in the enemy targeting strategy through deception measures such as decoys and camouflage. Passive measures also include attack warning, mobility and hardening of defended assets.
- *BM/C³I* is the glue that holds everything together. The BM/C³I systems must function in an accurate and timely manner for the other pieces of TMD to work.

The tactical missile threat consists of short-range ballistic missiles (SRBMs), cruise missiles and air-to-surface missiles. Even after the INF Treaty is ratified, U.S. and allied forces will still face a serious threat.

Patriot's two-phased ATM program enables the currently deployed system to engage tactical missiles. The first phase of the program, PAC-1, deployed this summer, requires only software changes and a slight modification to the missile fuze. These software changes will enable the Patriot radar to scan the high-altitude region for TBMs and reduce warhead response time. With these modifications Patriot can perform mission kills of some SRBMs; that is, the Patriot will be able to change the TBM's trajectory so that it misses its target.

On Sept. 11, 1986, the first PAC-1 test firing at White Sands Missile Range resulted in a mission kill of a Lance missile, a surrogate SRBM target. Lance was

used as the target because it is similar in characteristics to SRBMs which PAC-1 is designed to defend against. Production ground equipment and a production missile were used for the test, while the software was an early version of PDB-2. The Patriot radar detected the target and tracked it at a relatively long range, giving the fire unit ample time to launch a missile. The launch and flyout went as planned, with intercept and kill of the Lance missile occurring at a high altitude and at a considerable distance from the fire unit. Since that initial intercept, four PAC-1 firings have occurred with three more successful intercepts. These successes demonstrate that PAC-1 does indeed give Patriot a significant self-defense capability against SRBMs.

The second phase, PAC-2, will be deployed during summer 1991. This phase incorporates further changes in software and provides a redesigned warhead and fuze to give Patriot the capability of a warhead kill against some SRBMs. In a warhead kill, the Patriot missile destroys the incoming SRBM and its warhead, thereby rendering it totally harmless. PAC-2 improves the radar's surveillance capability and allows detection of fast moving, low radar cross section targets at long ranges and high altitudes. The warhead provides larger, higher velocity fragments and more effective fuzing against TBMs. PAC-2 will make the Patriot fire unit much more effective at self-defense and limited coverage of vital defended assets.

On Nov. 4, 1987, the first PAC-2 test was conducted with a Patriot production missile modified to incorporate the new warhead and fuze. The target was another Patriot missile following a ballistic trajectory similar in characteristics to standard threat SRBMs. During this test Patriot ground equipment operated with modified software that allowed the system to function in the dual role of simultaneously engaging air breathing threats and TBMs.

The incoming Patriot target

was detected and placed under track at long range. The new software automatically predicted the TBM's impact point and timed the launch of the Patriot so intercept would occur at the desired altitude of more than 25,000 feet above sea level. Intercept occurred about seven ground miles from the fire unit. The warhead completely destroyed the target.

Since this first firing, two more successful firings with PAC-2 have been accomplished, proving that PAC-2 will enhance Patriot's survivability on the battlefield.

On April 5, 1988, a Hawk Phase III fire unit successfully engaged a TBM test target at White Sands Missile Range using Patriot radar surveillance data supplied by a Patriot information and coordination central. The test target was a U.S. tactical missile programmed to fly a trajectory characteristic of Soviet SRBMs. The Hawk missile intercepted and destroyed the target above 25,000 feet.

In conclusion, PAC-1 and PAC-2 are the first steps toward building an effective defense against tactical missiles. Hawk, operating in conjunction with Patriot, adds another potential TBM killer. However, there are other missile systems in development that may provide longer term application. The Strategic Defense Command is developing an Extended Range Interceptor (ERINT) missile that uses "hit to kill" strategic defense initiative technology and had a successful firing against a Lance in 1987. Research into new ways of addressing the threat must continue, because as the threat evolves our missile systems must continue to provide our theater commanders with the warfighting capabilities they need.

Maj. Steven J. Adelman is the assistant TRADOC system manager for HIMAD, Tactical Missile Defense, Fort Bliss, Texas.

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- lessons learned,
- weapons and equipment and
- foreign forces.

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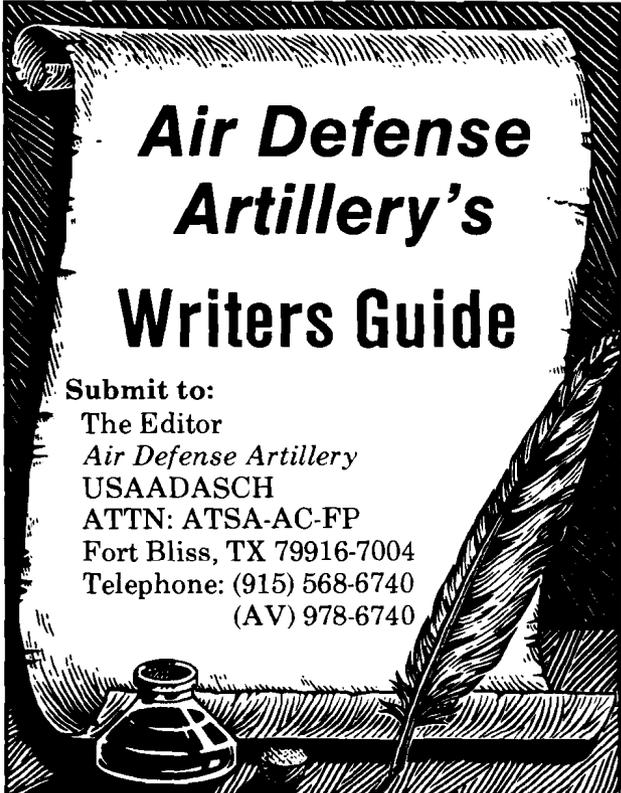
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ILLUSTRATION BY DENNIS KURTZ

Integrating Hawk and C/V

*A new level of
professionalism*

by 1st Lt. Rory A. Wilson

We talked about integrating air defense weapon systems during battery officers professional development and in casual conversation, but none of us expected to actually do it until we received an operation order (OPORD) during our Army training and evaluation program.

The OPORD was simple and to the point. We were to detach one platoon and attach a Chaparral/Vulcan platoon in its place. Our mission was to integrate the weapon systems to enhance their capabilities while increasing survivability.

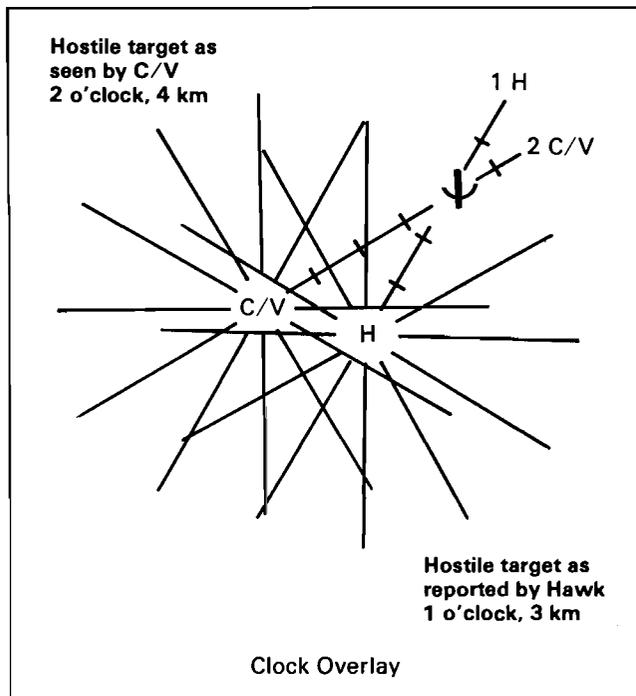
Each battery planned for the integration prior to rallying, but it was not until D Battery, 4th Battalion, 1st Air Defense Artillery (Hawk), and C Battery, 2nd Battalion, 60th Air Defense Artillery (C/V), both

of 94th ADA Brigade, combined resources that the actual details of accomplishing the mission were established.

While the soldiers eagerly watched each other and learned about each other's systems, the officers and key NCOs discussed the mission and how each could help accomplish it.

The first problem in integrating the weapon systems was communications. How were the different units going to communicate with each other? Vital information on hostile and friendly tracks had to be passed as quickly and as simply as possible. If this was going to work, confusion had to be eliminated. Different possibilities were considered, but the easiest and quickest way was to establish the net control station inside the platoon command post (PCP), the Hawk fire control van. In the PCP, tracks seen on the radarscope can be sent via FM radio to other weapons. Monitoring of C/V engagements would also be possible from within the PCP.

The next problem was how to accurately disseminate the location of hostile tracks to the Chaparral or Vulcan points. The Hawk plotting system is based on a large GEOREF scale, while the C/V weapons plotting systems are based on a smaller scale. After trying to assign targets to the C/V points by GEOREF and sectors, a simpler way was found. From within the PCP, targets were located using a clock distance method. A quick FM radio transmission was sent out to all weapon points (HOSTILE TRACK, ONE O'CLOCK, THREE KILOMETERS). Each weapon would then triangulate using their map with a clock overlay displaying both their own and the Hawk system's location. In the example pictured, the same target is seen by the C/V systems at two o'clock, but at 4 kilometers.



This method worked the best, but it too had a drawback. A target's distance is not accurately decipherable from the PCP radarscope. There is a 1- to 2-kilometer error factor in both distance and azimuth when converted to a clock overlay.

We verified that the clock system worked by using the video group tracking radar (VGTR) — a powerful camera that visually tracks targets from within the PCP. Hawk radars locked on the target, then the targets were called out to the C/V points. When the C/V weapon system engaged the track they reported back the type of aircraft. The type of aircraft was verified on the VGTR monitor. Because of low density and diversity of aircraft, a high percentage of track engagements were confirmed.

The air battle integration between Hawk, Chaparral and Vulcan weapon systems was a big success. These three systems are able to mix firepower to win the air battle.

Integration of the weapon systems was not the only thing learned. Once dusk had set in, the C/V weapon systems could not provide air defense. To enhance survivability during a ground attack, the Vulcan guns were set up along likely avenues of approach. The Chaparral systems were placed in masked areas outside the perimeter. Hawk personnel established roving guards and a reactionary force within the perimeter. The security that night was the best any of us had ever seen.

The logistics for this integration were, for the most part, easy to manage. The one exception was the accountability of Class I (subsistence). To help eliminate future problems on DA Form 2970, a closer coordination must be established between the respective food services. During wartime feeding operations the allocations for food are different, so there would be no problem. It is only because the accounting system for peacetime is so stringent that we experienced problems.

The exercise came to a stop too soon. The air battle was being won, security was at its best and the soldiers' stomachs were content. A new level of professionalism had been achieved. The soldiers of D Battery, 4th Battalion, 1st ADA (Hawk), and C Battery, 2nd Battalion, 60th ADA (C/V), are proud to have worked together to accomplish the mission. A future combination of forces is eagerly awaited.

Watch out, Orange Forces — we're the best!

1st Lt. Rory A. Wilson is the executive officer of D Battery, 4th Battalion, 1st Air Defense Artillery, Neubrucke, Germany.

Vulcaneers Test the 'Hummer'

*Towed Vulcan
gets a new tug*

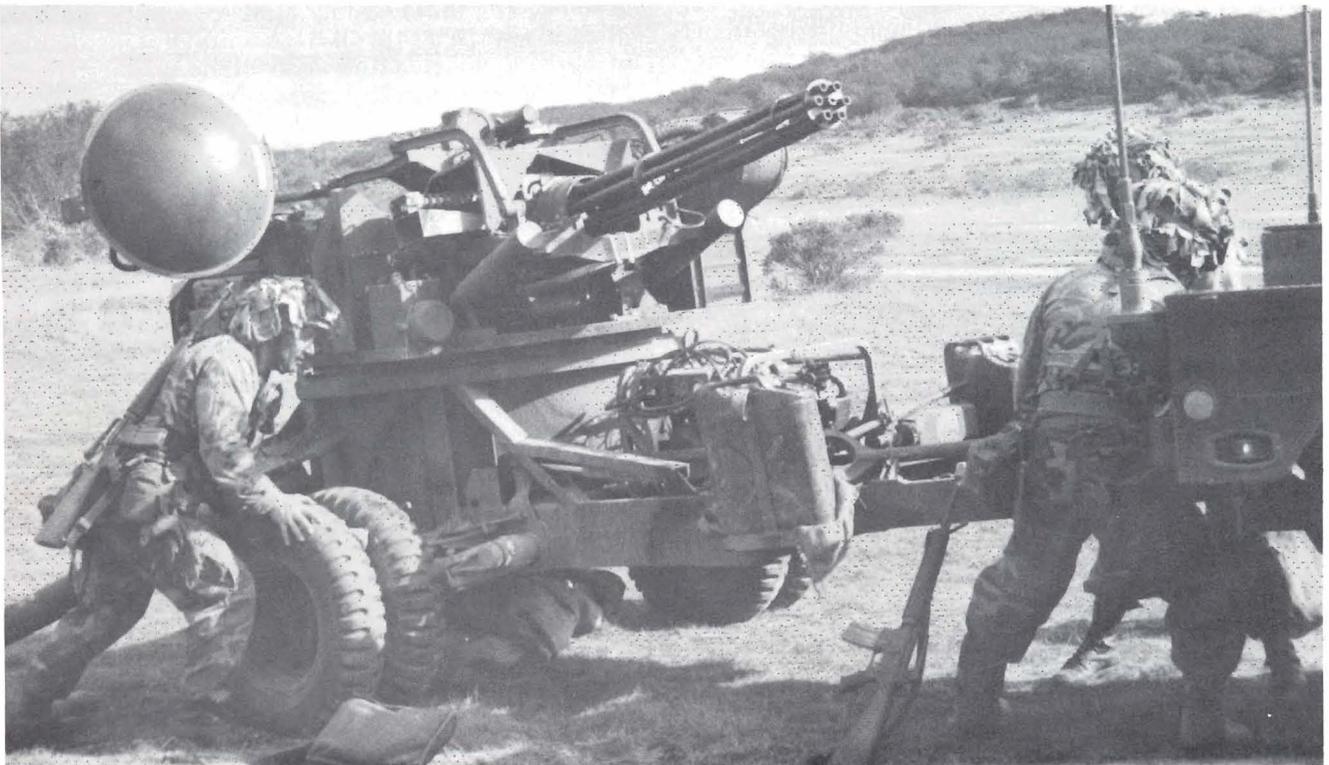
by 1st Lt. Jeff Strenk

Can the M-1069 high-mobility, multipurpose wheeled vehicle (HMMWV) replace the M-561 Gama Goat as the prime mover for the towed Vulcan? Our field tests proved that it can.

The 3rd Platoon, B Battery, 2nd Battalion, 62nd Air Defense Artillery, conducted an extensive, in-depth field test of the M-1069 as the prime mover for the M-167 towed Vulcan. The field test, conducted at Camp Roberts and Fort Ord, Calif., consisted of nu-

merous field exercises, an external battery ARTEP, an external battle drill evaluation and an actual 20mm live ammunition upload during a Vulcan live fire. The HMMWV excelled in all phases of the evaluation, which included tests on power, mobility and maneuverability, maintenance and storage ability. In short, the overall performance of the vehicle was outstanding!

The evaluation began with a rigorous test of the HMMWV's ability to transport the towed Vulcan over the extremely treacherous terrain of Camp Roberts (the same place the M-2/3 Bradley was field tested). Not only is the terrain very steep (several



Soldiers of the 2nd Battalion, 62nd Air Defense Artillery, prepare a towed Vulcan for a road march.



The M-1069 HMMWV has ample storage room for the basic load of 1,500 rounds of 20mm ammunition and all assigned squad field equipment.

mountain slopes are greater than 45 degrees), but two days of rain prior to testing made the hills muddy and even more difficult to negotiate. Squad leader Sgt. Ronald Armstrong said, "The towing capability and mobility of the M-1069 is far superior to that of the Gama Goat. The 'Hummer' takes the gun system to places the Gama Goat never could." This added advantage is of particular importance for air defenders in support of light infantry divisions. Because the light infantry is primarily trained for operations in mountainous or jungle-like terrain, a high premium is placed on mobility.

We moved to Fort Ord for a battery ARTEP to again test the HMMWV's power and maneuverability and to examine its storage capability. As at Camp Roberts, the HMMWV's power and maneuverability were outstanding. There was ample storage room for the basic load of 1,500 rounds of 20mm ammunition, an air guard and all assigned squad field equipment. Platoon sergeant Collins Davison indicated, "the M-1069 definitely gives us more room to play with than the Gama Goat did. The third man has no problem moving around the ammo to get at other equipment. Also, the troop seats in the back are super for tying down equipment."

The HMMWV proved itself virtually maintenance free. Not one significant maintenance problem surfaced during the test period — a welcome change from the almost expected maintenance nightmare that occurred whenever Gama Goats left the motor pool.

Two other areas merit special mention. The very structure of the HMMWV greatly improved squad command and control. Because squad leaders did not

need radios to talk to their senior gunners while traveling, as is the case with Gama Goats, squad leaders now had better control of their people.

Improved command and control resulted in notably decreased mission time. Decreased mission time is something that not only light ADA battalions are pleased with, but that all ADA units should take note of. Meeting mission time is, if not the most important task that we as air defenders have, surely one of the most critical.

Faster traveling time gave leaders more time to plan changes of mission and resulted in Vulcaneers having less non-mission-capable or downtime while en route from positions. And that, in a sense, is what air defense is all about: being able to kill enemy aircraft the first time!

Let me close with some final comments on the test results. Pvt. 2 Timothy Hockenberry, an experimental vehicle driver, said, "I feel that these experimental M-1069s would be great replacements for the Gama Goats. The power, maneuverability, speed and easy access are just unbelievable compared to our Gama Goats."

Senior gunner Spec. Stephen Hall added, "I believe all towed Vulcan units should have them, but us first!"

1st Lt. Jeff Strenk, a 1985 ROTC graduate, is a Vulcan platoon leader in B Battery, 2nd Battalion, 62nd Air Defense Artillery, Fort Ord, Calif.

Guile and Mobility

Red Army air defenders used cunning and maneuverability to parry air attacks

Commentary on "Guile and Mobility"

Air defenders ought to pay close attention to Lt. Col. Desnitsky's article. On the one hand, the tale it tells validates the way we are training to fight today within the parameters of Airland Battle doctrine. In the next war, it will be the Soviets, rather than the Germans, who will fill the skies with hostile aircraft of all sorts; and it will become our job to do what the Soviets did in 1942 to rectify this imbalance. On the other hand, this article tells us that we must anticipate the possibility that the Soviets will prove more adept at improvisation than we currently may be giving them credit for. Note the author's contention that small-unit commanders need the latitude to make independent decisions in case communications with higher headquarters are interrupted. Whether or not Soviet battle doctrine in World War II permitted this, it is clear that Soviet officers nonetheless seized the initiative, and did so successfully, when circumstances required it. We cannot discount the possibility that they will do so again when called upon to fight.

Jesse H. Stiller, Ph. D.
ADA Branch Historian

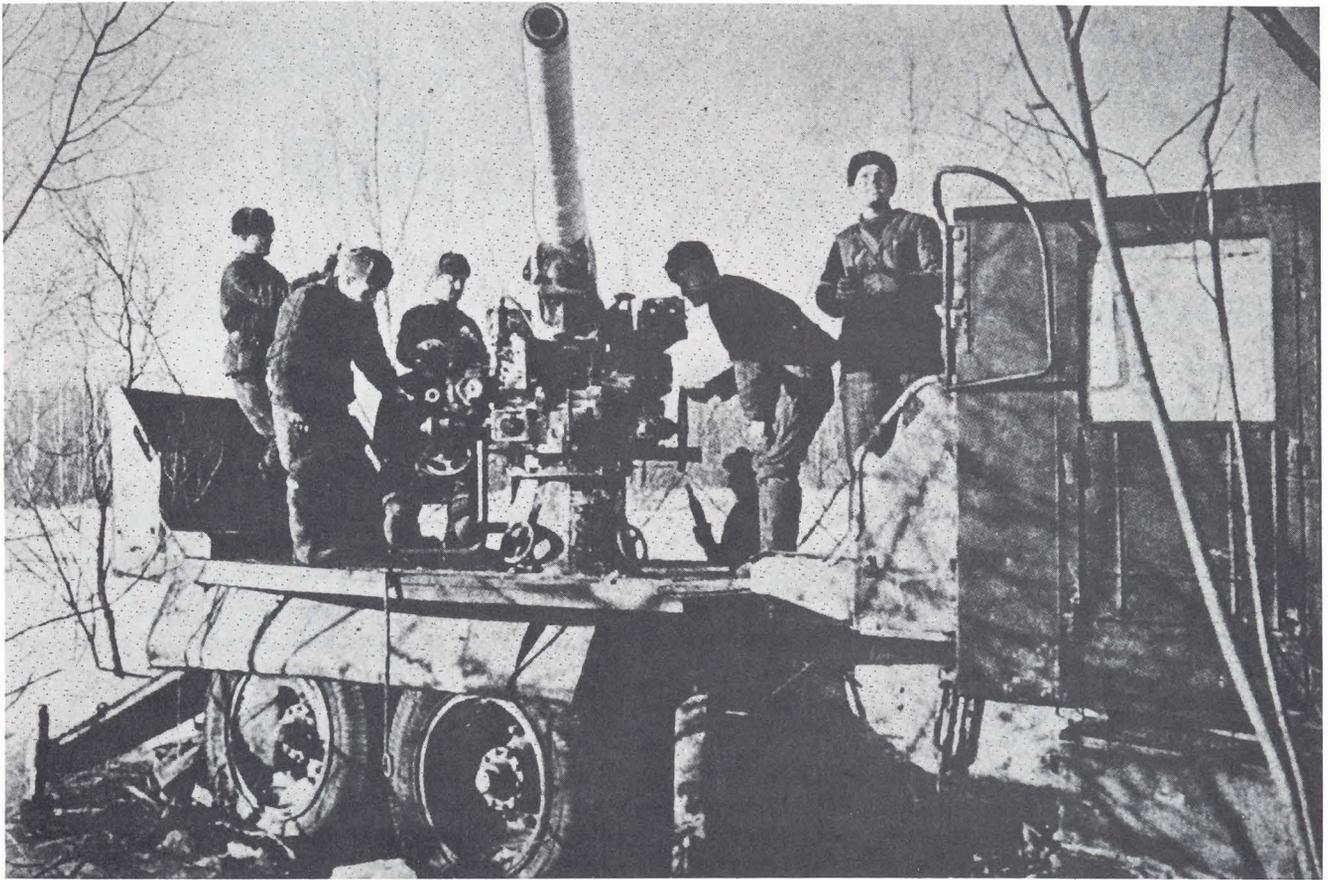
The following article, reprinted from the discontinued *Coast Artillery Journal*, demonstrates how an aggressive and mobile forward area air defense can provide effective protection for maneuver forces. The author, a Soviet officer, wrote the article in 1942 as the Red Army, buoyed by its dramatic victory at Stalingrad, launched a series of counterattacks that turned the tide of battle on the Eastern Front.

by Lt. Col. Desnitsky

At the beginning of the war with the Soviet Union, the German Luftwaffe usually struck its blows in the direction of the offensive of their land troops, extending its operations to a depth of 125 miles to 150 miles. Thereby it tried to strike a blow not only at the rear of Red Army troops and their communications, but also at centers of war industry to disorganize the work there and cause panic and disorder among civilian workers. When doing this, German aircraft attacked simultaneously in several directions fanning out from the axis of the attack.

In one year the Luftwaffe suffered tremendous losses in men — losing over 20,000 planes in that period. These vast losses could not be fully replaced by German industry even with the help of industry in occupied countries. The German high command was therefore obliged to revise its principles of the tactical use of airplanes.

The summer campaign of 1942 showed that the Germans are now using aircraft primarily to support their land troop's offensive on a narrow front.



A heavy Soviet truck-mounted AA gun.

Moreover, they extend air operations only to the immediate rear of their enemy's front, keeping lateral dispersion of action to a minimum. Planes were also heavily used for countering the offensive of Soviet troops. In such case the enemy aircraft were used to strike systematic blows at the first echelon of Soviet troops in their counterattacks, trying to stem their advances in order to gain time for the regrouping of their own land forces to strike a counter blow. If this action failed to stem the advance of Soviet troops, the Luftwaffe (while continuing to attack our first echelon) would direct its main blow at troops of the second echelon, particularly at crossings and narrow passages. If this failed, the Luftwaffe centered its attention on our rear, trying to disrupt the delivery of supplies to the advancing units.

Soviet pilots and anti-aircraft (AA) gunners organize their defense in accordance with the character of Luftwaffe operations. A basic principle in AA defense of troops is maneuver, which can be extensively employed by AA artillery (AAA) and machine guns. A vast stretch of front does not permit the organization of equally strong AA defenses in every direction, nor is this necessary

inasmuch as enemy aircraft usually attack in certain directions only. It is in such locations that a powerful AA defense has to be provided, even at the expense of weakening the defense in sectors of secondary importance.

War experience shows that the greatest effect in bombing troop crossings can be achieved by planes flying not higher than 9,000 feet. The most effective means of combating such enemy air attacks on ground troops is by synchronized fire from small-caliber AA artillery and AA machine guns. Troops of the leading echelon under cover of such AA fire must push forward as far as possible toward the enemy's main line of resistance. This affords the possibility of inflicting a defeat on attacking enemy aircraft before they reach the area where the main forces of your own units are concentrated for the attack. In preparing an offensive operation it is necessary to protect transports and troop concentration on designated points from air actions.

Strong AA defense along lines of communication and at points of troop concentration must be well camouflaged to prevent their detection by enemy air scouts. Therefore, fire at enemy scouts

must be directed only by specially assigned batteries without permanent firing positions, which shift from place to place.

On one sector of the front, Soviet troops were preparing an offense. Two batteries were assigned to harass enemy scouts. The remaining AA units were to hold their fire in order to mislead the enemy reconnaissance service as to the exact location and strength of AA defenses. On the night before the offensive, AA defense units formed for battle. According to plan, a great number of AA guns and machine guns were brought close to the main line. At dawn, Soviet artillery and aircraft began their preparation for the infantry's attack. Germans dispatched their scouts into the air but our AAA held its fire.

Assuming that our troops had not organized for AA defense, German bombers calmly advanced in compact formation, flying at some 6,000 feet. They hoped that they would succeed in pinning our troops to the ground and give them no chance to attack, but on approaching our main line they were surprised by a heavy, effective fire from our AA gunners. Only one of the first group of six Junkers succeeded in dropping its bombs, and these were jettisoned at random so the pilot could seek safety in flight. The remaining five planes, with full bomb loads, were shot down by our AA fire.

Nor did subsequent raiders score any greater success. The density of our AA fire was so high that only a few planes succeeded in breaking through. These dropped their bombs at random. Soviet troops then launched their attack, overcame the resistance of the disrupted German defense, and advanced with little further resistance from the air.

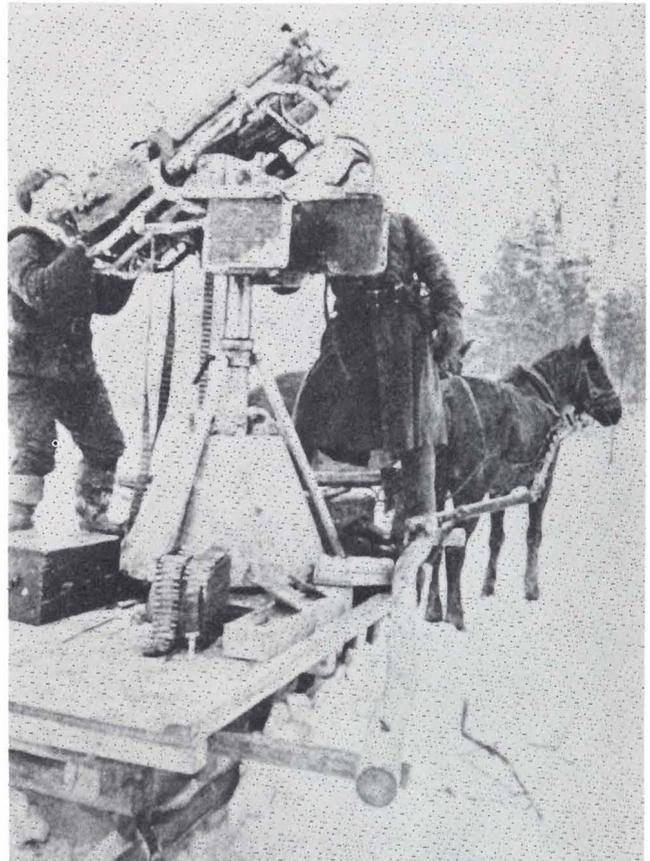
But this was only half the task accomplished by the AA defense. It was also necessary to effect a speedy maneuver to provide constant cover for the advancing units. Rear batteries pushed forward rapidly on the heels of the infantry, which was already occupying firing positions beyond the main line of resistance. That day the Germans lost 18 planes from Soviet ground fire alone.

These heavy losses led the German command to revise its air tactics. On the following day the German bombers raised their ceiling to escape the fire of small caliber AAA, despite the fact that greater altitude reduces the accuracy of bombing. Our AA gunners foresaw this possibility and, during the night, brought artillery of medium caliber close to the positions of our riflemen and tanks. The picture of the day before was reproduced with the exception that the main role was played by

medium caliber AAA.

The Germans did not expect to encounter massed fire at such a high altitude and flew without resorting to AAA defense flying maneuvers. Our gunners entirely disrupted their planes and prevented them from accurate bombing. That day the Germans lost 12 planes. By thus divining the Luftwaffe's actions and maneuvering without revealing its strength before the opening of the offensive, AA defense facilitates the advance of ground troops in offensive operations.

An example of successful maneuvering of AA defense units which provided for the security of our operations is afforded by the movement of a unit under the command of Major Susky. Attacking with one tank division, one motorized rifle division, and aircraft support, the Germans pierced the front of our defense and emerged in our rear near a river crossing. Susky was ordered to protect tank units which were counterattacking. Without scattering his forces, Susky arranged his battle formation to ensure cover for the main counterattacking forces.



This sledge-mounted AA gun was credited with the destruction of six German planes.

On the first day the Luftwaffe tried their utmost to stop our advancing tanks, making 152 separate flights. Susky's unit downed five planes, repulsing the rest. Moving along with the land units, at dawn of the second day, the AA defense provided cover for the main force, whose units were already in new positions. In six days of fighting, Susky's unit shot down 19 enemy aircraft.

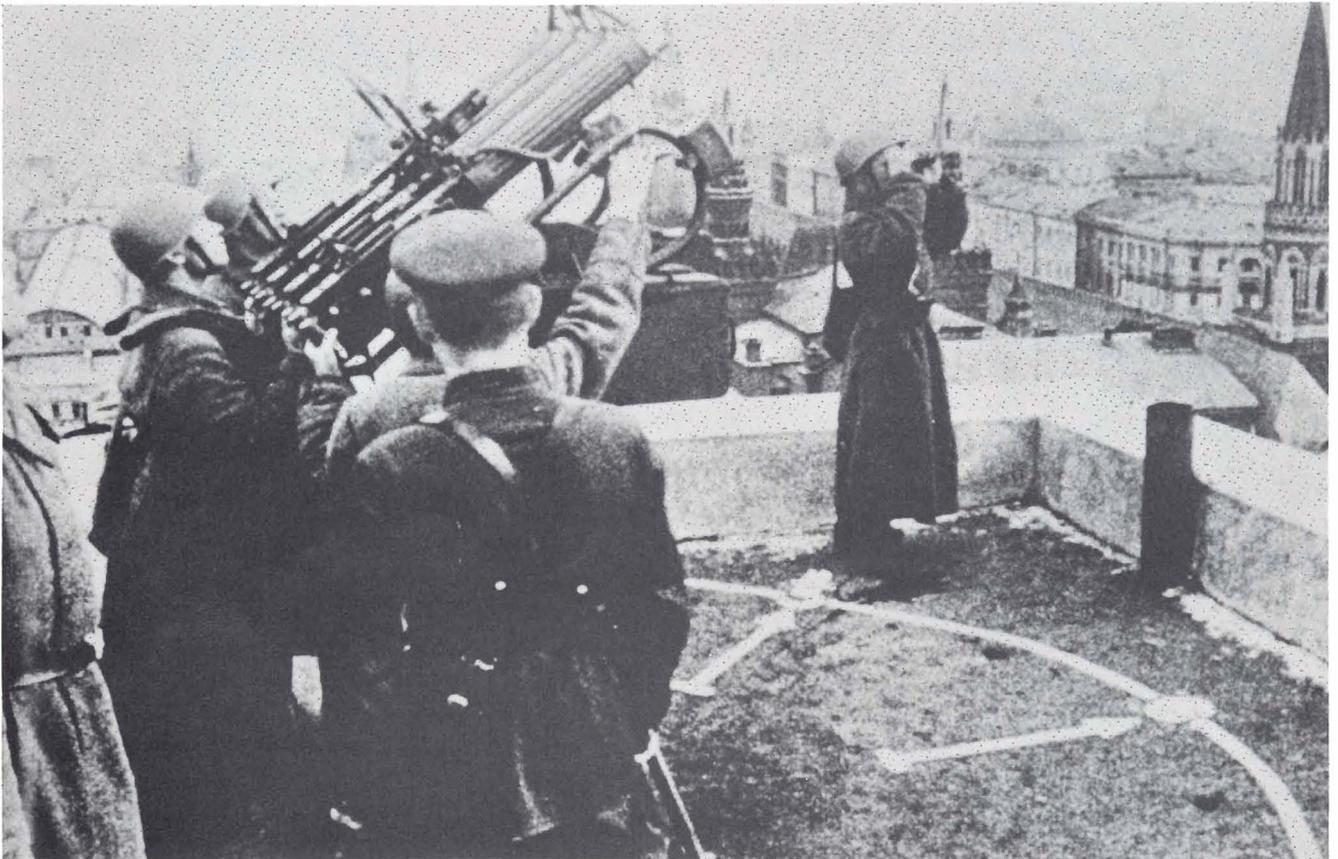
Such examples warrant the conclusion that in offensive battle the task of AA protection is to occupy forward positions before the start of the offensive, carefully camouflage at the beginning of action and move along with attacking units as the battle progresses. This task can be accomplished, provided the plan permits great initiative on the part of the AA commander in changing the plan of his battle formation. This plan must be so elastic as to let us introduce changes in AAA maneuver if unforeseen developments occur.

Realization of the plan of battle also demands the maintenance of well organized communications with subordinates, as well as with supported ground troops. The plan must provide that, in case

communications are interrupted, a subordinate may make decisions in accordance with the specific situation confronting him.

Success depends on carrying out battle plans and ably synchronizing AA machine gun fire with fire of small and medium caliber guns. Anti-aircraft units taking part in offensive operations in one sector of the Russo-German front brought down 248 enemy planes during August. According to available information, 800 enemy planes were operating against Soviet troops on the front. Consequently, in a month of fighting on a single front, the Germans lost 31 percent of their aircraft to Soviet ground defenses alone. This obliged them to raise the aircraft above the effective range of our anti-aircraft defense.

In defensive operations AA defense vary their tactics depending on the action of enemy aircraft. The task of the AA defense consists primarily in divining enemy intentions and determining the direction of his main blow. Before an offensive, the Luftwaffe usually conducts numerous reconnaissance flights. By observing the direction taken by



Within sight of the Kremlin, a quadruple-mount gun is ready for action. Note the novel method of orienting the gun with the firing sectors.

their scouting planes, it is often possible to determine the proposed routes of operations of their ground troops.

At this stage AA defenses must not reveal their real positions. On the contrary, they must try to confuse the enemy and prevent him from discovering their real strength. For this purpose again "nomad" batteries are used. Such batteries frequently change firing positions, directing fire at the enemy reconnaissance planes when they least expect it. This misleads the enemy reconnaissance service and frequently results in its failure. Thus in two days' action, one "nomad" battery downed three air scouts.

On one sector of the front, German forces succeeded in breaching a Soviet position. Under pressure of preponderant enemy forces, Soviet troops were compelled to retreat to a new defense line. The commander of the AA defense unit, Major Zabrodin, acting in accordance with the prepared plan, issued the necessary orders.

Subdivisions changed to positions calculated to cover troops during their withdrawal in columns. This represents the most dangerous moment for retreating troops and the most convenient time for operations of enemy aircraft. Air attacks on troop

columns on the march may cause particularly heavy losses, but Major Zabrodin's units occupied their firing positions in good time and prevented the enemy from bombing our troop(s). The battle formation was organized in such a manner as to enable all means of AA defense: immediately troops began to move, to take up positions in the march column, and, in case the enemy attacked, to fire during brief halts.

Along the route of march there was a river crossing. At nightfall the AA unit commander transferred all his forces forward to protect that crossing. When the main body reached the crossing, all AA defense means were ready to repel the raiders, which soon appeared. AA gunners prevented enemy planes from destroying the pontoon bridges and from inflicting heavy losses on the Soviet troops.

Red Army AA defense units are constantly perfecting their training in probing the effectiveness of their fire and producing crack gunners. For example, one unit downed 26 enemy aircraft in one month's fighting. The Red Army has scores of such units, all resolutely determined to defend their native land from air raids.



Quadruple-mounted machine guns light the night sky.

Capstone Manual

The U.S. Army Training and Doctrine Command has approved Field Manual 44-100, *U.S. Army Air Defense Operations*, for publication. It should reach the field in the first quarter FY 89.

The publication of FM 44-100 is regarded as a milestone achievement not surpassed in importance by the selection and acquisition of the new family of forward area air defense weapon systems. For the first time, Air Defense Artillery has an approved operational concept — blessed by other members of the combined arms team — that meshes with AirLand Battle doctrine.

FM 44-100 is the capstone doctrinal manual for the Air Defense Battlefield Operating System. It presents the vertical dimension of the battlefield as it applies to AirLand Battle doctrine. This manual explains the doctrinal basis for integrating the Air Defense Battlefield Operating System into the planning and conducting by echelon of campaigns, major operations, battles and engagements. It presents a stable body of operational and tactical principles for the Air Defense Battlefield Operating System, and provides the long-term foundation for the development of tactics, techniques and procedures.

FM 44-100 is a combined arms capstone manual. Other combat arms branches will incorporate FM 44-100 into their capstone manuals. It provides operational guidance for commanders and trainers at all echelons and is the nucleus for service school curricula development.

Field manuals contain the doctrinal foundation for the development of tactics, techniques and procedures that determine how the Army fights.

Doctrine contains the fundamental principles by which the military forces or elements thereof guide their actions in support of national objectives. It is authoritative but requires judgment in application (JCS Pub. 1).

Tactics supplements, but is different from, doctrine. Tactics is the employment of units in combat. It is also the order, arrangement and maneuver of units in relation to one another and to the enemy to maximize their full combat potential.

Tactics must be supplemented by techniques and procedures, by further guidance from higher headquarters or by the initiative of the leader charged to accomplish an assigned task. Techniques and procedures improve a force's efficiency by ensuring the uniformity of action or by ensuring that actions of various individuals and elements complement those of other individuals or elements.

Techniques are the methods units use to perform any act, especially the detailed methods used by soldiers or commanders in performing assigned tasks. Techniques refers to basic methods of using equipment and personnel. The phrase "tactics and techniques" is often used to refer to the general and detailed methods used by commanders and forces in carrying out their assignments. Air Defense Artillery techniques are found in ADA field manuals.

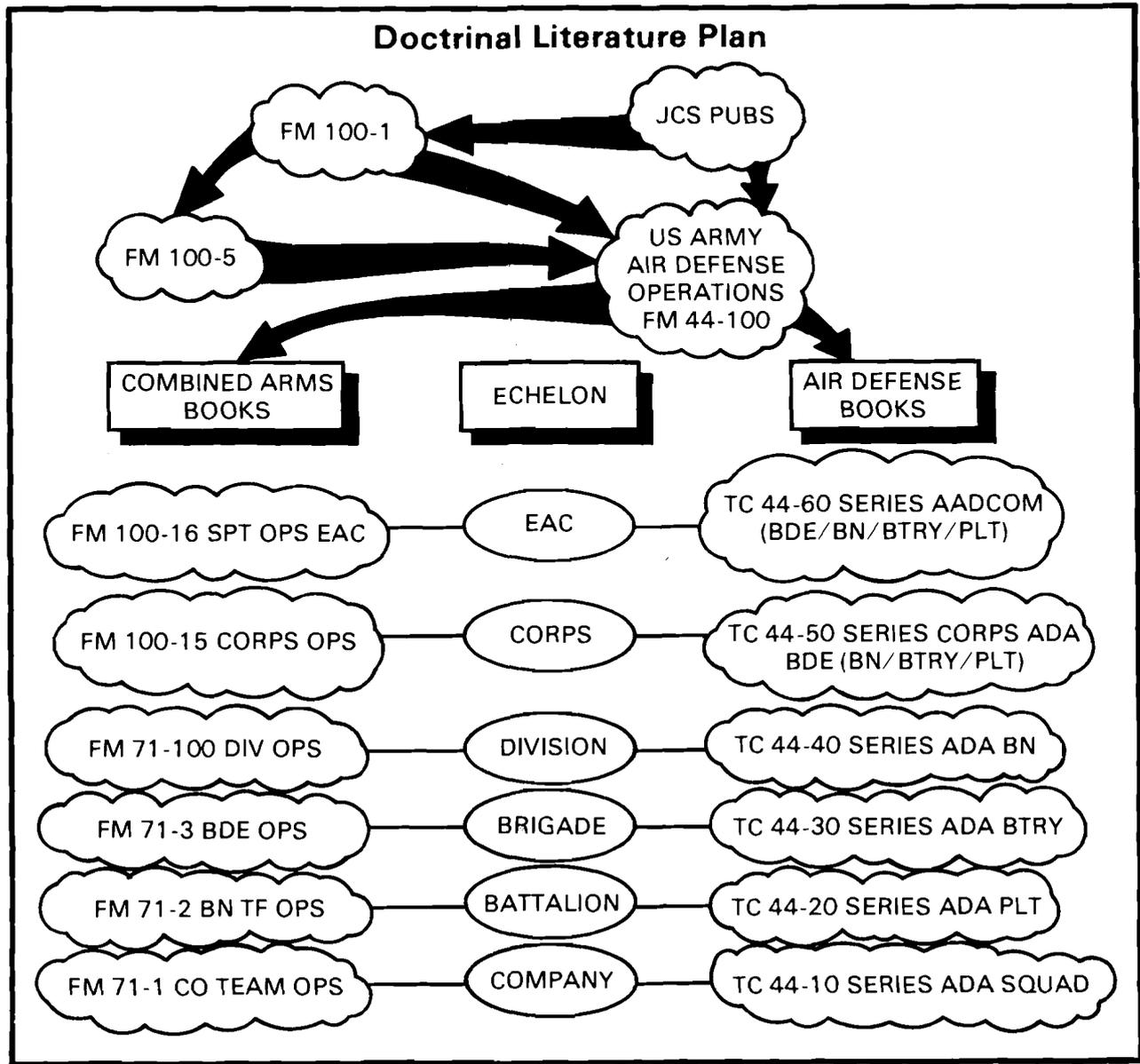
Procedures are the lowest level of doctrinal detail. A procedure is a particular course or mode of action that describes how to perform a certain task. ADA procedures are primarily found in ADA operations and training field manuals and in training circulars.

FM 44-100 complements the material in FM 44-1. The material

applicable to high- to medium-altitude and short-range air defense and to specific weapons systems in FM 44-1 will remain in effect until all of the training circulars in the 44-10 through 44-60 series are published.

FM 44-100 is compatible with and will serve as the user document for NATO Tactical Air Doc-

trine (Allied Tactical Publication 33A), Doctrine and Procedures for Airspace Control in the Combat Zone (Allied Tactical Publication 40) and Counter Air Operations (Allied Tactical Publication 42). However, this manual is more theoretical and general than the Allied Tactical Publications to meet U.S. needs in other theaters.



The targets are inbound, still more than 100 miles out, flying at less than 1,000 feet above ground level. The radar transmitters of the Air Defense Artillery (ADA) brigade are electronically silent, yet the targets have been displayed on the screens of the tactical control officers responsible for this sector for quite some time. The targets have been identified and classified and weapons systems have been dedicated, but the targets still don't know that they are targets. They are about to find out in a most unpleasant manner.

The above scenario illustrates the importance of sensors to the forward area air defense (FAAD) system, particularly sensors that provide a deep look, over-the-horizon view in a high clutter environment. Survivability is important, and mobility is the key to the survivability of the sensor system. The U.S. Army has a variety of survivable sensor systems, but the Air Force can provide the deeper look with an E-3 airborne warning and control system (AWACS).

Although not generally dedicated to support the ADA mission, the AWACS can integrate with FAAD and serve as the early warning component of the system. As FAAD continues to evolve, the interaction between the various sensors and the command, control and intelligence function will also be refined.

The importance of AWACS to FAAD is destined to increase as a result of development. Soviet emphasis on high speed fighter-bombers and agile assault helicopters dictates the need for early detection of low-altitude targets at longer ranges by U.S. forces. Extended engagement ranges for U.S. missile systems also necessitates earlier detection of targets. AWACS can fill this role in the future.

AWACS is currently employed with existing Army ADA systems. AWACS information data linked via tactical digital link-A (TADIL-A) to the AN/TSQ-73 or via the joint tactical information distribution system (JTIDS) is used by ADA units during exercises. This is especially true of the longer range missile systems.

During a recent AWACS sponsored exercise, Coronet Sentry 87-1, the 2nd Battalion, 52nd Air Defense Artillery (formerly the 3rd Battalion, 68th Air Defense Artillery), deployed from Fort Bragg, N.C., with Hawk and Roland batteries as well as Redeye teams. The Roland batteries were from the New Mexico National Guard, OPCON to 2-52nd for the exercise.

This exercise involved many tactical air force assets, including air-to-air and air-to-ground systems, aerial refuelers and airborne early warning and command and control platforms. Data transfer from the AWACS was via JTIDS. Different AWACS crews operated with the ADA units each day, providing training for many AWACS personnel.

This training was important because of the potential that exists for a really disastrous interface during combat. The problem is one of education and, generally speaking, the AWACS crew member is the least informed.

The average ADA soldier knows that AWACS is an airborne radar platform designed to detect, track and tell the location of friendly and hostile aircraft. The average AWACS crew member has probably never heard of FAAD, but he could tell you that the mission of an ADA unit is to shoot down enemy aircraft. But, that would probably be the extent of his knowledge.

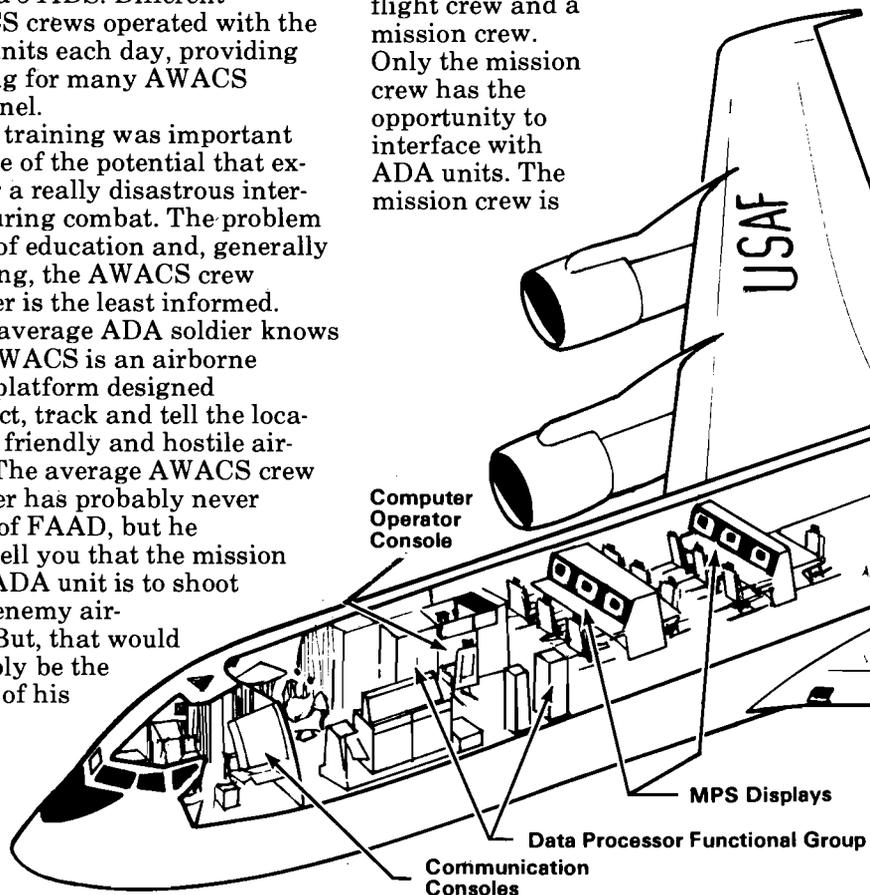
AWACS and FAAD

Sensors in the sky

edge about ADA. System composition, deployment, capabilities, limitations and tactics employed by ADA units remain mysteries to most E-3 crew members. Many people in the AWACS community believe that the Army will "shoot 'em all down and let God sort 'em out."

This lack of information is not an Air Force exclusive. There are two sides to the equation. Let's take a look at the composition of the E-3 crew to show how the mission gets accomplished.

The crew is divided into a flight crew and a mission crew. Only the mission crew has the opportunity to interface with ADA units. The mission crew is



further split into specialized areas. Overall command of the mission is in the hands of the mission crew commander (MCC), usually a major or lieutenant colonel. Some contingencies will demand the presence of an airborne command element or a battle command element on board the E-3, headed by a colonel or a general officer. Regardless, the MCC commands the mission crew functions. He is responsible for the general aspects of both the surveillance and weapons sections. He has a basic working knowledge of both sections.

Most of the MCCs currently in AWACS have a stronger background in weapons than in surveillance. That is because, in the Air Force scheme of things, all controller related jobs are done by people that are controllers first. An air surveillance officer (ASO) is first a weapons director (WD), at least at the basic level.

In the E-3 these two positions are in two different sections. The senior director (SD) is responsible for the weapons section. He is usually a captain, and the three WDs that comprise the rest of the weapons team are lieutenants or captains. The SD manages the efforts of the team while the WDs control U.S. Air Force aircraft in a variety of missions. The ASO operates the radar, manages the data links and supervises the surveillance section. He can be a lieutenant or captain and his air surveillance technicians (ASTs) are enlisted. There are several other enlisted technicians to keep the complex electronic package operating, as well as a radio operator who sets up both voice and data link operations. The diversity of this crew is both an advantage and a disadvantage.

The rapid deployability inherent in this airborne platform

makes it available to operate in a variety of scenarios and locales. The diverse missions of AWACS may have a crew in Iceland one month, sitting alert for Soviet bombers transiting the GIUK gap. The next month they may fly training sorties in the U.S. tracking or controlling fighters, bombers or tankers. Or, they may sit alert in the U.S., supporting NORAD in a CONUS air defense role. The crew may spend the next month in Saudi Arabia, flying 14-hour missions in close proximity to the activity in the Persian Gulf.

The surveillance crew member may be called upon to track bombers, fighters, smugglers, helicopters or boats. The E-3 crew members can expect to interface with other Air Force units, airborne and ground. They will work with U.S. Navy and Army units from Europe to Asia, in three ocean areas and with all of the United States thrown in for good measure. He may work with Japanese, Saudi, Korean, Omani, Philippine, Egyptian, Thai and Australian forces as well as with all the countries of NATO. The transition from theater to theater and mission to mission can occur in a matter of days and sometimes hours.

This diversity is critical to the worldwide mission of AWACS. Unfortunately it imposes a subsequent weakness. The AWACS crew member cannot know the specifics of all systems, of all nations and their forces — at least not to the degree of detail required to be expert in any of them. Specialization helps: the SD and WDs are trained in aircraft performance characteristics, capabilities and limitations, as well as specific tactics used by other countries' forces. The ASO is trained to recognize and defeat electronic countermeasures (ECM). All crew members receive general training in interoperability with U.S. Navy and Army procedures.

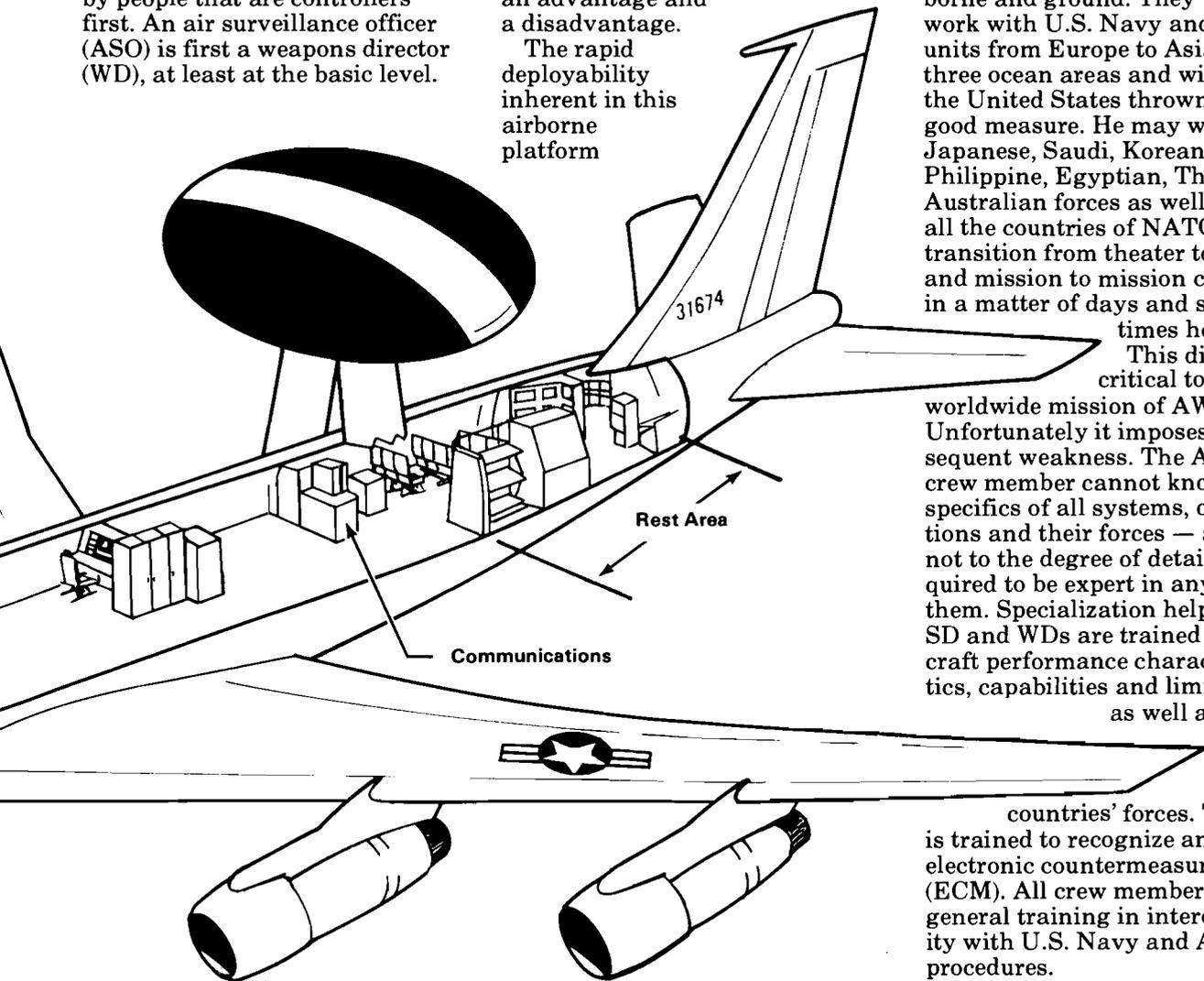


ILLUSTRATION BY MARK YERRINGTON

However, quite often the division of information flow and labor within the E-3 does not correlate with that of the outside agency or system working with it. For example, the surveillance section is responsible for identification of air tracks inbound to the area of responsibility, but during return to force (RTF) procedures, the WDs are the individuals in radio contact with the pilots. If the ground agency does not know this it may slow the correct identification of incoming tracks and they could make the wrong decision regarding an aircraft in RTF compliance. Although these problems are usually solved, each one can add a little more frustration and time to an operation.

Where can the AWACS-FAAD interface be improved? Let's start by looking at the FAAD mission. This particular AWACS crew member is certainly no expert in the area, but I'll quote someone who is. In the November-December issue of *Air Defense Artillery*, the Chief of Air Defense Artillery, Maj. Gen. Donald R. Infante, stated the mission of FAAD.

The air defense mission is to —

- ensure that our combined arms brethren retain the freedom to maneuver that is crucial to implementing our AirLand Battle doctrine,
- ensure sustainment of the AirLand battle by protecting key logistical complexes,
- protect vital C²I centers that allow us to "see" the battle and employ reserves correctly and
- kill enemy aircraft the first time.

Although the mission is fairly clear cut, the tasks are obviously not simple. The primary contribution to the FAAD mission by AWACS will originate in the surveillance section. This is because the ASO and ASTs are responsible for the detection, tracking and telling (by link in this case) of air tracks.

As long as the E-3 maintains a standard air defense picture for the purpose of air battle management the presentation to the ADA units is coincidental. However, the ASTs are not responsible during air battle management for maintaining track symbology on friendly aircraft. The WDs are only responsible for maintaining good track symbology on the friendlies they are controlling. Since only symbology is transmitted through the link, the positioning of it on the E-3 sensor data is critical.

The ASO is the overseer for both friendly and hostile track symbology. The ASO is also responsible for the data transmitted through the link. He is the one who will be coordinating on the radio with the ADA unit. This makes the ASO the logical choice to receive training on the specific capabilities and requirements of U.S. ADA systems.

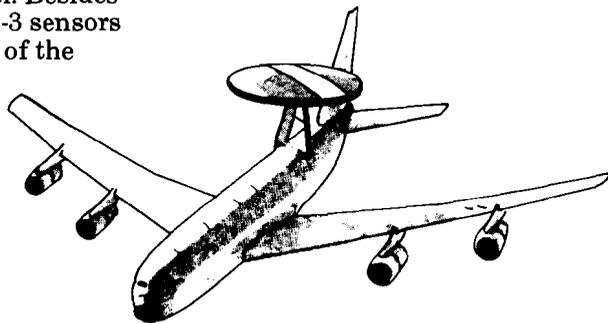
As FAAD evolves it will be imperative that the link manager in the AWACS be aware of the technique and prioritization of target engagement by those who will be "first to fire." To accomplish this ASOs must receive training from the Army on specific systems capabilities and tactics. This could be similar to the training that ASOs currently receive from the Navy regarding AWACS in the outer air battle plan for carrier battle group operations.

The problem then again arises of too much information being diluted into a single operator position. To accommodate the increased training requirements for ASOs, the Air Force could expand the crew composition of the AWACS to include two senior air surveillance personnel. Besides the operation of the E-3 sensors and the management of the

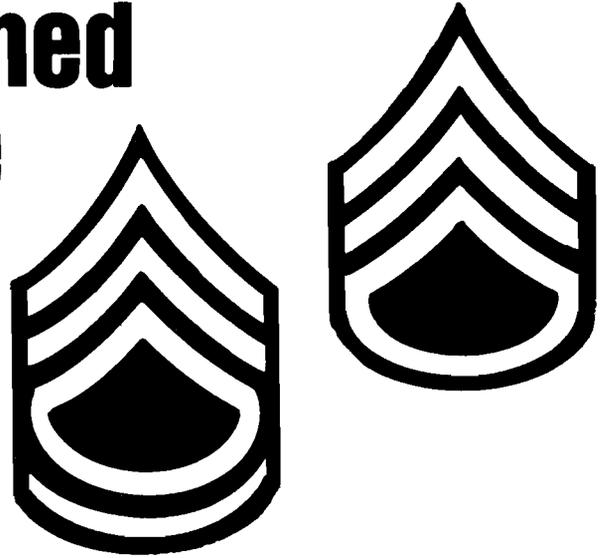
links, the two senior air surveillance personnel could be specialized: one for Army operations and the other for Navy operations. This division is probably necessary to achieve the level of expertise needed to match the professionalism of their Army and Navy counterparts.

As FAAD evolves there is a need for a concomitant evolution of the interface between AWACS and FAAD. We cannot afford to wait and learn from our mistakes in this era of modern high-speed combat, especially in the face of the Soviet preponderance of conventional force. A working dialogue between the U.S. Army Training and Doctrine Command and the AWACS community could identify those areas that need the most emphasis as they develop. That way we won't be training to win the last war, but we will be training to be ready for the next one.

1st Lt. Kirk E. Warburton is an air surveillance officer with the 965th Airborne Warning and Control Squadron, Tinker Air Force Base, Okla.



Advanced Non-commissioned Officers Course



by SFC Dock E. Sloan

The U.S. Army Air Defense Artillery School Non-commissioned Officer Academy's Advanced NCO Course (ANCOC) provides a unique experience for ADA NCOs in the grades of E-6 and E-7. This professional development course prepares selected NCOs for positions of greater responsibility within Air Defense Artillery.

The following are the objectives of ANCOC:

- Prepare selected enlisted personnel in grades E-6 and E-7 to perform duties appropriate to grade E-7 within their military occupational specialty and career management field.
- Provide training in appropriate leadership and supervisory skills.
- Increase skill, confidence, a sense of pride and esprit de corps.
- Reinforce soldiers' ability to develop, administer and evaluate performance-oriented training.
- Develop a willingness to assume responsibility and the confidence to apply leadership and technical knowledge.

For many soldiers, living in an academic environment requires a considerable change in habits. They soon discover that keeping occupied is no problem. The course is both academically and physically demanding.

The course of instruction consists of 251 hours of academic subjects taught by the cadre of the NCO Academy.

Leadership and human relations classes provide knowledge of the history, duties, responsibilities, theory and styles of military leadership. Students examine human motivation and behavior, personal and performance counseling and contemporary leadership problems as individuals and groups.

Communications classes provide students with the knowledge to develop effective listening habits and to understand and employ proper speech, briefing

techniques and skills in effective writing habits. The students must also prepare and conduct an oral presentation.

Training management classes provide knowledge of the Army training system and the concept and objectives of the NCO education system. The students learn the policies and procedures for establishing an NCO development program, plus the principles of individual and collective training.

Resource management classes provide knowledge of the concepts, procedures and techniques involved in the management of individuals, money and material in the military establishment.

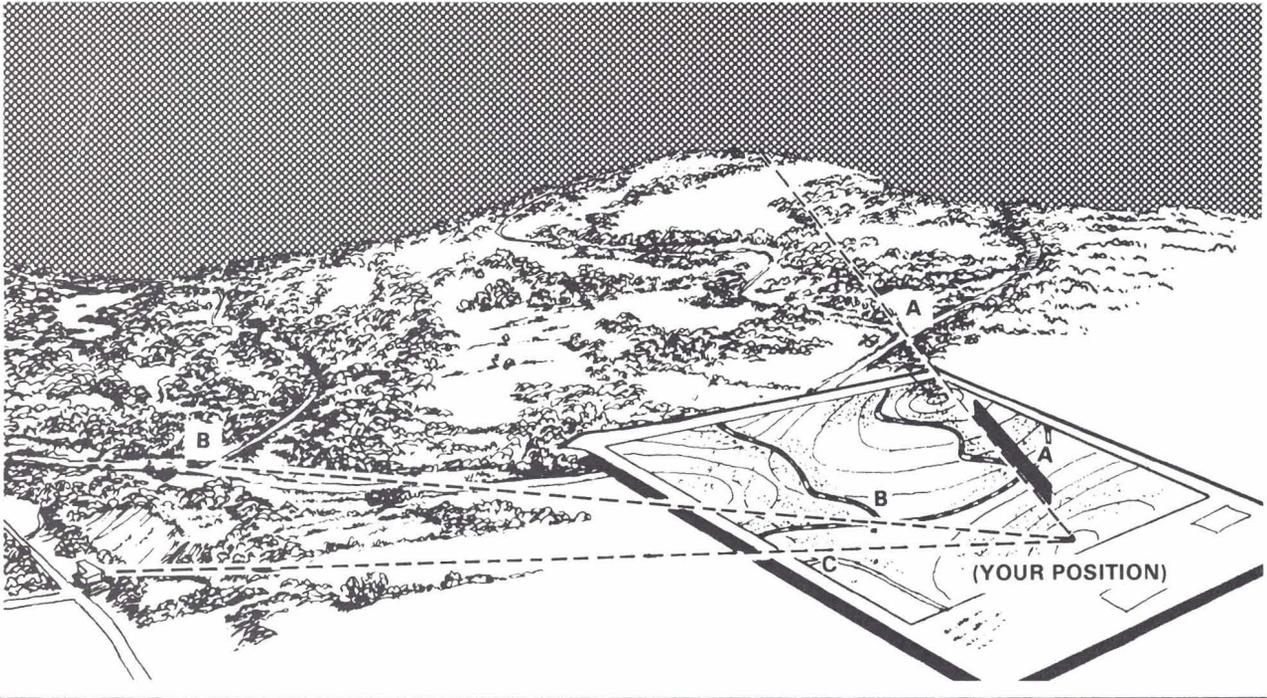
Professional skills classes provide knowledge in supervising land navigation training of a section or platoon in a field environment.

Military studies classes provide knowledge on the principal threats opposing U.S. forces, explain the AirLand Battle doctrine and provide knowledge on tactical communications, terrorism, military symbols, constructing minefield and wire obstacles, platoon operations and platoon defense of urban terrain.

ADA maintenance classes provide knowledge in the operation and supervision of organizational maintenance management, procedures and functions within army units.

ADA operations and tactics classes provide the student with the fundamentals of Air Defense Artillery in the AirLand battle, ADA communications, air threat, planning and the tactics and techniques of employment of the ADA family of weapons.

The second day of the course is reserved for diagnostic testing. The soldiers are tested on common tasks and map reading and are given a Tab E diagnostic test. If a soldier is weak in common tasks or map reading he is given remedial study assignments to improve these skills. The Tab E test identifies a



Resection with straightedge.

soldier's reading comprehension and English vocabulary levels. Too often we have soldiers with fifth to eighth grade reading levels. These soldiers have a more difficult time comprehending their study assignments. Soldiers selected for ANCOC should go to their Education Center and request a Tab D test. If they test below a tenth grade reading level, they can take BSEP or ASEP courses prior to attending ANCOC.

Another area of concern is soldiers reporting in poor physical condition. The NCO support channel can solve this problem. Ninety days prior to the course start date soldiers should take a physical fitness test given by their first sergeant or first line supervisor. This gives soldiers ample time to ensure they are in good physical condition.

The primary responsibility of the instructors at the ANCOC is to teach soldiers the skills necessary to be successful and professional NCOs. I believe we do this extremely well. When ANCOC graduates return to their units we recommend they be placed in leadership positions to further refine the skills they have acquired. This helps ensure that ADA NCOs lead by example.

SFC Dock E. Sloan is the senior instructor of the ADA ANCOC, U.S. Army NCO Academy, Fort Bliss, Texas.



Green Flag '88

by Capt. Steve Peters and Capt. Mike Erdley

1st Battalion (Patriot), 43rd Air Defense Artillery, blazed a trail 1,000 miles north to Nevada to be the first ADA battalion to test the joint engagement zone (JEZ) concept in the Air Force's annual Green Flag exercise. The 1-43rd ADA rose from being a Patriot battalion without equipment two years ago to being Maj. Gen. Donald R. Infante's choice to participate in this crucial test to modernize U.S. Army air defense engagement doctrine.

The 1-43rd ADA Battalion commander, Lt. Col. Jeffery E. Furbank, explained the purpose of the exercise to his soldiers before departing Fort Bliss. "Historically, Air Defense waited for the Air Force to evacuate airspace before engaging the enemy. Because of Patriot's increased capability to discriminate friend from foe and engage multiple targets at once, 1-43rd is going to Nevada to test a new concept of engaging hostile targets at both very high and very low altitudes in a sophisticated ECM environment with friendly aircraft in the same airspace." This, in a nutshell, is the JEZ concept which refines the 32nd Army Air Defense Command (AADCOM) forward air defense operations (FADO) concept.

A similar concept was tested in Exercise Central Enterprise in 1986 and 1987, but the test environment fell short in realism. Pilots followed a scripted scenario because of peacetime restrictions while air defenders worked in a dynamic environment of wartime planning and assessing damages. Jamming was limited due to training restrictions in Europe.

Green Flag '88-3 encompassed the dynamic wartime planning environment and allowed friendly and enemy pilots to react realistically in an unscripted scenario. Another major difference was the incorporation of both air and ground-based jamming systems.

Deployment of 1-43rd ADA began with the loading of 43 rail cars at Fort Bliss. Unit personnel loaded and tied down 45 oversized radars, launchers, engagement control stations and antenna mast groups in 10 hours. Railroad personnel commented that it was one of the best load outs they had ever seen at Fort Bliss.

The second phase of deployment was to convoy 70 vehicles, including four 10-ton tankers, to the exercise area. It took three-and-a-half days for the convoy to make the 1,000-mile trip. The convoy was divided into six serials with the battalion maintenance vehicles last. Careful vehicle preparation resulted in few breakdowns: when a vehicle experienced a problem it was repaired on the spot and rejoined its serial later the same day.

While the convoy was in progress, the remainder of the battalion personnel deployed by bus to Caliente, Nev., to meet the equipment shipped by rail. An advance party unloaded the equipment from the rail cars. After a final vehicle check, the equipment was convoyed 90 miles from Caliente to the battalion's field location, where it joined the rest of the unit equipment which was road marched by convoy from Fort Bliss.

Once together, the equipment was moved to its final field site for emplacement and checkout. All

equipment arrived in a fully operational state. The 1-43rd ADA was fully combat operational within 24 hours.

In addition to the 1-43rd ADA, the New Mexico National Guard's 7-200th ADA provided a Hawk assault fire unit and missile minder (AN/TSQ-73) system. During emplacement, UHF voice and data communications were established between the Hawk battalion operations center and the Patriot information and coordination central for exchange of air battle information.

Green Flag is an annual Air Force exercise to improve aircrew training. In addition to U.S. aircrews, some allied aircrews also participate in two-week periods of the six-week exercise. The exercise focuses on friendly deep strikes against an attacking force. U.S. pilots employ threat air tactics, flying aircraft with capabilities similar to those of threat aircraft. All of this is done in an intense electronic countermeasures (ECM) environment.

The exercise scenario is a U.S. corps defending in sector with friendly units to the north and south. Opposing the U.S. corps is a notional combined arms army. The Air Force structures its missions based upon the needs of the army commander. Interaction between Army and Air Force planning staffs is essential to synchronize the battle while carrying the fight deep into enemy territory.

Although friendly and hostile ground units are simulated, their movements are based upon war-gamed battle losses. Strikes by the Air Force are evaluated for effectiveness by a controlling cell at Nellis Air Force Base. This cell considers type of ordnance carried, accuracy of delivery, etc. Also included is the attrition of friendly and hostile aircraft during the mission.

The counterair fight took place right over our heads. Threat aircraft attempted to interdict friendly strikers before reaching the forward line of our own troops. To do this, they had to first defeat the friendly air-to-air fighters. With aircraft numbers up in the fifties, discrimination between friend and foe became the key task.

Previously, air defense forces did not play as part of the friendly forces. Because of 1-43rd ADA's participation in the exercise, valuable information was gained. ADA engagements were recorded both manually and through hard copy of the track amp data tab. The JEZ demonstration demanded that full system capabilities not be used at all times. Most trials did not use electronic identification friend or foe (IFF), and some trials were run without communications between Hawk and Patriot.

Through data analysis of kill reports and the track amp data tabs from Hawk and Patriot, precise target information was correlated with Air Force data sources.

The key to successful participation in Green Flag '88-3 was close Air Force and Army coordination. This included liaison with the Air Force planning staff and Army battlefield coordination element (BCE) deployed to Nellis Air Force Base.

Air Force and Army cooperation began at Red Flag Headquarters, Nellis Air Force Base. Airspace coordination orders and SAM tactical orders in support of each air force mission were coordinated between 1-43rd ADA representatives, the battlefield coordination element and the Air Force planning staff. Additional information regarding precise flying routes and times came from the twice-daily pre-mission briefs. This information

was passed to the battalion tactical operations center via secure voice or facsimile machine.

Further interoperability came via the joint tactical information distribution system (JTIDS) link to the Hawk battalion AN/TSQ-73 through an adaptable surface interface terminal (ASIT) provided by the Air Force. Once at the AN/TSQ-73, this information was further disseminated to Patriot fire units. With the real-time data from the airborne warning and control system (AWACS), ADA radars could remain passive until time to engage. Despite ECM, this link to the AWACS remained operational. Additional FM voice communications with AWACS enhanced coordination of the counterair fight.

From the Army side, communications and data flowed freely between the deployed Hawk and Patriot elements. ECM, extended distances and rugged terrain did not degrade communications. Communications between Hawk and Patriot was particularly essential for the exchange of AWACS air pictures and prevention of simultaneous engagements.

Future actions to fully integrate Air Defense Artillery into Green Flag include developing the needed hardware and software to tie Air Defense Artillery into the Air Force data collection systems. This will provide a tremendous training benefit to both the Air Force and the Army. The Air Force will be able to evaluate their tactics based upon the airspace control measures in effect. The scenario will be more realistic by forcing threat and friendly aircraft to operate in a true air defense environment rather than a simulated one.

The terrain in the area consists of high ridges running generally north to south. Peaks on these ridges

Air Force and Army coordination was the key to success

reach 8,000 feet above sea level. The distance between ridges is generally 20 kilometers, making terrain masking a major factor. Site locations and coverage could not be optimized due to maneuver constraints by the Bureau of Land Management. Given these limitations, the battalion S-3 selected the best sites available. Despite the terrain, the battalion achieved overlapping coverage and continuous surveillance of the exercise area.

Terrain continued to play a large part in day-to-day operations due to the distance between units. The distance from Headquarters and Headquarters Battery to A Battery was seven miles, and it was 55 miles to C Battery. Detailed logistical planning ensured that battalion combat readiness stayed at a high level. Close monitoring of such routine operations as refueling was essential to maintain system availability with the distances involved.

Redeployment of 1-43rd ADA began, and, once again, the majority of the unit's support equipment returned by road convoy; major Patriot end items of equipment returned by rail.

A new twist was added on the return trip — air movement. Two C-5A and two KC-10 cargo aircraft sorties were available. On the first sortie, a C-5A transported a radar set and a launcher. An engagement control station and a small repair parts trailer came in a KC-10. The other KC-10 sortie brought four commercial utility cargo vehicles (CUCVs). This air movement provided a rare opportunity for the Air Force to gain experience moving Patriot equipment.

The road convoy arrived at Fort Bliss with no major problems experienced en route. The battalion convoyed 70 vehicles over 2,000 miles without an accident and without a vehicle breakdown.

Using these different means of moving soldiers and equipment to and from the exercise area stretched the battalion's command and control to the limit, but provided tremendous realistic training for all elements of the unit.

Green Flag provided some valuable lessons learned that need to be considered for future joint Army and Air Force operations. We must redefine hostile criteria for offensive versus defensive operations and the control measures to be applied to each type of operation. Hostile criteria may also differ for the NATO environment as opposed to other theaters of contingency missions. We must take another look at our NATO war plans which reflect a 1950s perspective.

Educating Army and Air Force personnel at the user level on "how we fight" tactics is mandatory.

Joint exercises such as Green Flag are an excellent opportunity to train and educate. The education process should start at the Army and Air Force Officer Basic Courses and continue through higher level Training and Doctrine Command (TRADOC) schools.

We must exercise integrated command and control to effectively operate together. Coordination input is key. Airspace coordination orders (ACO) should be simplified and make common sense, taking into account the capabilities and missions of Air Force and SAM units. As part of integrated command and control, we cannot overlook the potential of the AWACS.

AWACS proved extremely effective during the first two weeks of Green Flag. Patriot and Hawk systems both received AWACS-identified targets. This interoperability came via the JTIDS link to the

Hawk AN/TSQ-73 through an Air Force ASIT. Once Hawk received data from the ASIT, it was easily passed to Patriot over UHF data communications. The full potential of AWACS as a command and control element was barely exercised. The use of ADA officers or NCOs as permanent party SAM controllers aboard AWACS could greatly increase its effectiveness, as would the establishment of joint AWACS and Patriot doctrine.

Green Flag '88-3 demonstrated that interoperability between many separate elements of both Army air defense and the Air Force works successfully. It also showed us that the Total Army Concept works, as evidenced with Active Army and National Guard air defense units operating together.

Green Flag '88-3 proved to be invaluable to 1-43rd ADA and to Army air defense as a whole. Yet Green Flag '88-3 was just a beginning. Green Flag is the best arena in the world to test and train joint operations. Hopefully, Army air defense will continue to participate. Future Green Flag exercises may be expanded to integrate other Army branches such as Military Intelligence, Field Artillery and Aviation as key players to serve as a building block for further enhancing joint operations. The result will be increased warfighting capability for both the Army and Air Force.

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Capt. Steve Peters and **Capt. Mike Erdley** are S-3 operations and ADA coordination officers, respectively, of the 1st Battalion, 43rd Air Defense Artillery, Fort Bliss, Texas.

We cannot overlook the potential of the AWACS

Combat PT

by SGM Jimmie W. Bradshaw

The Army has always had physical conditioning or physical training programs. These programs, however, have not been universally applied or consistently available to soldiers as they move between units and commands. This year — the Army Year of Training — is a good time to establish combat-oriented physical training programs.

A good physical fitness program can improve combat readiness and combat survivability. It reduces profiles and sick call, improves training, enhances productivity and mental alertness and promotes team cohesion.

As an NCO leader, you must orient your physical training program to the combat mission and not just to passing the Army Physical Fitness Test (APFT). Get involved with your soldiers' physical training and look at it in terms of combat readiness.

Army training and evaluation programs (ARTEPs) are good examples of the need for combat readiness. During most ARTEPs, an air defense crew moves constantly for two or three days. Each time the crew engages a target, the crew must move again.

Packing up and moving an ADA battery is physically exhausting work and air defense crews are constantly on the move. Most crews are able to perform their ARTEP mission because of their positive attitude. But many of them are physically drained after the third day,

even under ideal conditions where they have full crews. Under combat conditions they are going to lose crew members, and they must continue the mission with fewer soldiers and still bat 1,000.

Enhancing combat readiness is the primary objective of the Army's Physical Fitness Program. This program develops and sustains a high level of physical fitness in soldiers as measured by the following criteria:

- Cardiorespiratory endurance.
- Muscular strength and endurance.
- Flexibility.
- Anaerobic conditioning.
- Competitive spirit, the will to win and unit cohesion.
- Self-discipline.
- Body composition as regulated by AR 600-9.
- A healthy lifestyle (including good nutrition, avoiding smoking and drug abuse, and successfully coping with the stress of military life).

The Army Physical Fitness Program applies Armywide. It includes all soldiers, all functional branches and all units and operating agencies.

Physical fitness is the foundation of combat readiness in air defense as well as in the total Army. It must be an integral part of every soldier's life. The readiness of the Army begins with the physical fitness of individual soldiers and the non-commissioned officers and officers who command them.

A good unit physical fitness program is one that is properly planned and organized, has reasonable yet challenging requirements and is both competitive and progressive. A good program starts with strong leadership.

Exercise periods must have sufficient intensity, frequency and duration to maintain adequate cardio-respiratory endurance, muscular strength and endurance and flexibility.

Make physical training an integral part of your unit's leadership climate and the lifestyles of your soldiers. Convert physical conditioning to a positive soldierly skill. Stop using conditioning as punishment or coercion. Become a role model and lead by example.

Leaders of physical fitness training have two objectives. The first is to motivate soldiers to want to be ready physically. The second is to conduct programs that develop a high degree of physical fitness. Motivated soldiers react enthusiastically to the programs. Such an approach to physical fitness helps greatly to achieve the unit program objectives.

Your unit leaders and instructors must be in good physical condition to be able to do the things they require their soldiers to do.

You must know three things to properly administer physical fitness training. First, understand soldiers, know how to lead and motivate them and understand how they learn. Second, apply the principles that govern physical fitness. Third, know how to prescribe, adjust and regulate dosage and progression necessary to achieve physical fitness.

Express a positive attitude while conducting physical training to attain the desired outcome. Some commanders and first sergeants must win their own "battle of the bulge" before they can sell or enforce really successful programs with their subordinates. The best way to evaluate the status of physical fitness in the unit is to take part in the conditioning activities and observe unit personnel.

Don't look the other way when an otherwise top-flight performer flaunts the fitness and weight standards. Their leadership is the key to success of the program.

Your unit training program must prepare your soldiers for the physical and mental rigors of combat. Running has always been regarded as one of the best aerobic activities; however, running programs alone are inadequate. Balance them with strength, muscular endurance and load-bearing exercises, or exercises related to the unit mission.

Road marches with combat loads are excellent conditioners, as are pull-ups, obstacle courses and other

traditional soldier fitness activities. Make conditioning for combat readiness the focus of all your physical fitness programs.

Do not begin your fitness program until you determine the general condition and health of your soldiers. Giving a diagnostic APFT is one way to assess a unit's fitness. Another way is to complete a road march of a certain distance within a prescribed time while the soldiers carry a load.

Divide your soldiers into groups based on their fitness levels as revealed by your assessment. Keep your soldiers in these groups during physical exercise periods and tailor your exercises to each group's fitness level.

It is unlikely that running in formation at one pace will benefit all soldiers. If the pace is slow enough to accommodate the slowest soldier in the group, it is probably too slow for the better-conditioned soldiers. To

benefit all of your soldiers, divide your unit into ability groups.

The number of groups depends on the size of the unit. A company broken into four to six ability groups, each with a leader assigned, sets the stage for effective training. Small groups are easier to work with than one large group during circuit training and sporting events.

An excellent way to determine which soldiers belong in each ability group is to make a rank-order list of the unit's most recent scores on the 2-mile run. Divide your unit into four to six groups according to the time used to complete the two miles. Groups need not be the same size. Since individuals progress at different rates, allow your soldiers to move to higher levels when they feel ready. Change soldiers having a hard time in their group to a slower group to enhance their confidence.

Educating soldiers about fitness is vital and also contributes to the attainment of the Army's total fitness concept. You must reinforce the fitness concept throughout each soldier's career. In addition to physical training, you should program instruction in subjects such as diet and nutrition, smoking cessation and stress.

Make safety a prime consideration when you develop your program. Safety precludes conditioning exercises with live munitions. However, imaginative ways exist to simulate the weight of missiles, ammunition and equipment soldiers will use in combat.

Be aware of the injuries that physical training can cause. You can develop safe physical training programs that prevent most injuries. Soldiers must know that their leaders care about their health and safety; the results are high morale and enthusiasm.



Most injuries are a result of too much exercise too often with too rapid an increase in intensity (repetitions, weight, mileage or pace). Treat most injuries with rest, ice, compression and elevation, or RICE as a simple mnemonic device.

Prevent injuries by using a well-balanced physical training program that avoids overstressing body parts, allows adequate time for recovery and includes proper warm-up and cool-down times. Use level surfaces for stretching and strengthening exercises and running.

Once your program is underway, present physical fitness awards to soldiers who demonstrate superior performance on the Army Physical Fitness Test. Make every effort to encourage individuals to attain and sustain the highest level of fitness.

Use common sense while working with both male and female soldiers to help them achieve acceptable levels of fitness. Most women must work harder to perform the same tasks as men, because men generally have more endurance and strength.

When planning a fitness program, consider the type of unit and its mission. Since there are many units and missions in the Army, providing a sample program for each is impossible. Regardless of your type of unit, establish reasonable goals to improve total unit fitness in everyday activities, not just in APFT events.

Conduct physical fitness programs that enhance the soldiers' ability to perform unit combat missions and tasks. Emphasize maintenance of the following military skills:

- Agility, to include fast movement in enclosed spaces (sprinting and lateral movement).
- Balance and controlling fear of heights.
- Vaulting, jumping and landing correctly.
- Forced marching with loads, to include cross-country movement.
- Strength development activities such as rope climbing, pull-ups and resistance exercises.
- Crawling.
- Negotiation of natural and man-made obstacles (confidence and obstacle courses).

A variety of exercises will reduce boredom and build esprit de corps, teamwork and morale. The following activities will help add variety to your program.

Indian running improves cardiorespiratory endurance and conditions and strengthens the legs. It includes both sprints and running. It consists of 40- to 50-yard sprints at 85 to 90 percent of maximum effort. Squads conduct this type of running. Each

squad leader lines up his squad behind him in a single file on a track or a smooth, flat course and establishes a 6- to 8-yard distance between squad members.

The squad leader leads the squad in a short run, during which the soldiers maintain their established spacing. After the short run the squad leader gives the command "Go" over his right shoulder. The squad continues to run and the soldier at the rear of the file sprints to the front of the file and assumes the running pace there. Each soldier, in turn, sprints on command to the head of the file. This process continues until the squad leader returns to the head of the file when his turn to sprint occurs. Then the squad repeats this process.

Begin Indian running at a distance of a half-mile with no soldier doing more than two sprints. Then increase the distance to three-fourths of a mile

with no soldier doing more than three sprints. Increase the distance and sprints per soldier gradually to a maximum of two miles and no more than seven sprints per soldier.

Cross-country running gradually conditions the leg muscles and develops cardiorespiratory endurance.

A cross-country run consists of running fixed distances on a course laid out across fields, over hills, through woods and on any other irregular ground. Use it as a physical conditioner or as a competitive event. The objective is to cover the distance in the shortest possible time.

Divide the unit into ability groups. The unconditioned group starts first; the conditioned group starts last. Stagger the groups' starting times so that all runners finish at approximately the same time.

Running in preliminary training is similar to that in ordinary road work; it begins with slow jogging alternated with walking, if necessary. Gradually increase the speed and distance of the run. As the soldiers' conditioning improves, introduce occasional sprints.

Do not require soldiers to take part in distance running until they have been through a progressive training program that requires considerable running.

Relays provide competition and conditioning. They also develop aggressiveness, team spirit and a will to win.

A relay usually lasts 15 minutes. Therefore, you may use a relay as either a single activity or as a part of a longer period. A warm-up period consisting of a quarter- to a half-mile of slow jogging and stretching before relays begin is important.



Limit your relay teams to no more than 10 soldiers. Larger teams will result in team members spending too much time waiting for their turns and too little time participating. Two to six teams are ideal for relay competition.

Road marches are an excellent aerobic activity as long as training heart rates are maintained. When used as part of the fitness program in the field, they offer several benefits. They are easy to organize. Large numbers of soldiers may participate, and you can easily adjust road marches to accommodate various fitness levels. Road marches train leaders in planning, preparation and supervision.

The road march, classified as either administrative or tactical, is one of the best ways to improve and maintain fitness in the field. In many situations the modern Army may have to move various distances on foot. Each soldier must be able not only to move quickly but also to carry a rucksack of equipment and supplies.

The four types of road marches you may use are day marches, night marches, forced marches and shuttle marches.

Day marches, characterized by dispersed formations and ease of control and reconnaissance, are the most beneficial to physical fitness. They also fit easily into the daily training plan.

Night marches are generally harder to control than day marches. They move more slowly and have tighter formations. They require more detailed planning and supervision.

Night marches do have some advantages. They protect soldiers from the heat of the day, challenge NCOs and officers from a control standpoint and provide secrecy and surprise in tactical situations.

Forced marches require more than the normal effort in speed and exertion. Although forced marches are excellent conditioners, they may decrease soldiers' efficiency in other training activities. When scheduling these marches to assess soldiers' capabilities, allow time for recovery before scheduling other training.

Shuttle marches alternate riding and marching, usually because of a shortage of vehicles.

Grass drills decrease reaction time, develop muscular endurance, increase strength and improve cardio-respiratory endurance. Grass drills consist of movements that feature rapid changes in body position. These are vigorous drills that exercise all major muscle groups. Soldiers respond to commands as fast as possible and perform all movements at top speed. Although the soldiers do not count cadence, they continue doing multiple repetitions of each exercise

until they receive the next command from the squad leader.

A warm-up activity should precede grass drills, and cool-down activities should follow them. Execute only "go" and "stop" with the soldiers during the drills so you can spend your time supervising the drill. Give the commands peculiar to grass drills in rapid succession without the usual preparatory commands. To prevent confusion, give commands sharply to distinguish them from comments or words of encouragement.

As soon as the soldiers are familiar with the drill, they do all exercises as vigorously and rapidly as they can. Anything less than top-speed performance is ineffective.

Soldiers can do grass drills in short periods. For example, you may use grass drills when only a few minutes are available for exercise, or you may combine them with another activity.

Grass drills are an excellent occasional substitute for running when you have limited exercise time.

At the beginning of an exercise program, a good workout consists of 10 to 15 minutes of exercise. Gradually increase the time devoted to the drills. As the soldiers' physical condition improves, gradually lengthen the exercise periods to 20 minutes.

Obstacle courses are valuable to physical fitness training. Obstacles develop and test basic skills. Success in combat may depend on soldiers' ability to perform these skills.

There are two types of obstacle courses: the conditioning obstacle course and the confidence obstacle course.

The conditioning obstacle course has low obstacles that soldiers must negotiate quickly. Since these obstacles test various basic skills, running the course is a test of soldiers' physical condition. After soldiers receive instruction and practice the skills, they run the course against time.

The confidence obstacle course has higher, more difficult obstacles than those of the conditioning course. The confidence course gives soldiers confidence in their mental and physical abilities and cultivates their spirit of daring. Encourage your soldiers but do not force them to negotiate this course; it is not run against time.

Before soldiers run an obstacle course, teach them the proper way to negotiate each obstacle. Explain and demonstrate the technique in detail; emphasize ways to avoid injury. Give your soldiers a chance to practice each obstacle until they are able to negotiate it.

Because of the height of some of the obstacles, falls could result in serious injury and even permanent



total disability or death. Make sure your soldiers are in proper physical condition and closely supervised.

Circuit training is a broad term usually associated with exercise or training routines. If you understand the principles of circuit training, you may apply them to a wide variety of training situations.

A circuit is a group of stations or areas where soldiers perform specific tasks or exercises. The objective of the circuit determines the task or exercise selected for each station as well as the arrangement of the stations.

Design circuits to promote individual physical fitness in all areas, including strength, flexibility, endurance and speed. In addition, design your circuits to concentrate on specific sports skills and soldiers' common tasks (or combine these and other areas as well). A little imagination can make circuit training an excellent addition to your unit's total

physical training program. It can provide fun and can challenge soldiers' physical and mental abilities. You can use almost any area and accommodate any number of participants for various lengths of time.

When designing the circuit, first determine the objectives. For example, increasing muscular strength with some added endurance work may be your primary objective. On the other hand, improving agility or speed may be your top priority.

Normally a circuit has eight to 12 stations. After deciding how many stations to have in the circuit, you must decide how to arrange them. In a circuit designed for strength training, for instance, do not use the same muscle groups twice in a row. Give each muscle group time to recover before the next exercise.

Arrange the stations to work a muscle group in the lower body, then in the upper body, then perhaps in the abdomen or the lower back. If some exercises are harder than others, alternate the hard exercises with easier ones. The selection of exercises depends on the objectives of the circuit.

You may conduct circuits outdoors or indoors. If you include running or jogging a certain distance between stations, soldiers in a gym may run five laps or 30 seconds between stations. Outdoors they may run laps or run between spread-out stations if space is available. However, spreading the stations too far apart may cause problems in control or supervision.

The Army Sports Program should supplement physical fitness programs. You can use many sports to promote unit esprit, develop a competitive spirit, increase motivation for fitness development, improve physical fitness and add variety to the unit programs. Obviously, sports such as bowling or golf may be good, relaxing activities that may relieve

stress, yet they do little for soldier physical fitness. On the other hand, vigorous sports such as racket games, soccer, swimming, biking, cross-country skiing and running actually enhance fitness.

Orienteering develops or improves basic soldiering skills and teamwork while enhancing the physical fitness of each participant. There is no physical contact among individuals.

Limit the number of participants only by space or points on the course. Orienteering involves soldiers in a variety of activities, including environmental awareness, physical fitness, map reading skills, compass proficiency, mental acuity and competition. Each soldier moves from a starting point using a map, compass and pencil to measure distance and plot azimuths. Base completion of the course on accuracy in plotting the designated points and time spent on the course.

Even though your unit's fitness is a concern, center your program around individual conditioning. The differences among people are primary considerations when developing your program. No single training program will help all of your soldiers.

Special programs are appropriate for soldiers who have difficulty meeting unit or Army standards. Such programs will not be punitive in nature; you must design them to build up soldiers, not tear them down. Additional conditioning is not a substitute for smart, tailored conditioning. Design special programs to meet individual needs, to overcome specific weaknesses and to allow extra time for individual training.

Tailor special physical fitness programs according to FM 21-20. Keep these programs separate and distinct from weight control programs conducted according to AR 600-9, except for exercise programs prescribed to assist soldiers with weight control problems.

Encourage a positive approach to special training and support this positive approach — counsel soldiers and explain that these special programs will serve their best interests. Coordinate closely with medical personnel to develop programs that fit the capabilities of soldiers with medical limitations. Master fitness trainers are excellent resources for assisting you in developing your special fitness program.

At least four groups of soldiers may require special physical training programs: APFT failures, overweight and over-fat soldiers, soldiers with profiles and soldiers over 40 years old who have not been medically screened.

An overweight soldier may pass the APFT, yet be



over-fat from a health and appearance standpoint. A thin soldier may be unable to perform physically. One special program for both soldiers may not be appropriate.

The day-to-day unit program conducted for most soldiers may not be appropriate for the special groups. Tailor the special programs to each soldier's needs. A trained, knowledgeable person should conduct the training. Although special programs need to be separate from those for the rest of the unit, they should occur at the same time.

Ensure that, while trying to improve performance, you do not overload the soldiers to a point where the training becomes counterproductive. Use ability groups for running and concentrate on exercises designed for push-up and sit-up improvement.

Keep several points in mind for your overweight and over-fat program. Exercise is a key to weight loss; however, reducing the number of calories consumed is of equal importance. A combination of both actions is best.

The type of exercise affects weight loss. Running and walking burn approximately 100 calories per mile; a pound of fat contains 3,500 calories. As strength increases, lean muscle mass also increases. Muscle weighs more per unit of volume than fat. Therefore, soldiers can gain weight while losing fat, particularly those involved in a strength training program. Unit master fitness trainers can develop programs which will result in desired fat and weight loss without the danger of losing training time due to injury. Don't place overweight soldiers who meet APFT standards in the same program as those who fail the APFT.

Soldiers with profiles should do as much of the regular fitness program as they can, along with substitute activities provided by the master fitness trainer. FM 21-20 explains some aerobic, strength and flexibility exercises that you may use. Recondition damaged parts of the body through medical treatment aimed at restoring physical fitness. Such treatment uses progressive physical activities under medical supervision.

Soldiers' activity levels decrease while they are on profile; therefore, they should receive guidance on altering their diet to avoid problems with body composition. This guidance becomes more important as soldiers grow older.

Soldiers who are 40 and older are the Army's senior leaders. On the battlefield they must lead other soldiers under conditions of severe stress. To meet this challenge and to set a proper example, these leaders must maintain and demonstrate a high level

of physical fitness. Since their normal duties are stressful but non-physical, they must take part in a program of regular physical activity.

These soldiers must ensure that they receive their over-40 physical screening in a timely manner, as close to the 40th birthday as possible and as promptly as medical facilities permit.

After medical screening and clearance, give soldiers who are 40 and over and who have not been on a regular exercise program three months to get in proper condition before testing. Have those soldiers who have been on a regular exercise program continue their program during the over-40 administrative procedures, including participation in unit or individual programs. However, they will not be subject to the APFT until cleared.

If clearance is not forthcoming, exercise programs will conform to health care personnel

direction. Once a soldier over 40 is medically cleared, he or she will participate fully in unit or individual programs and testing.

An assessment is particularly important to the development of programs for those over 40 who have been medically cleared. A program based on the principles of fitness and the training concepts results in safe, long-term conditioning of all soldiers.

Physical fitness testing gives soldiers an incentive to stay in good, general physical condition and allows commanders a means of assessing the general fitness levels of their units.

Physical fitness testing will not form the foundation of unit or individual fitness programs. It is simply one element of a total program. Fitness testing ensures the maintenance of a base level of physical fitness essential for every soldier in the Army despite MOS or duty assignment.

In a combat mission, your soldiers not only have to stay up and pull guard at night but they also have to go out all day and all night to accomplish the mission. Air defense requires a great deal of physical endurance. That endurance isn't going to come from just push-ups and sit-ups. Your soldiers need training that mimics the mission they will perform.

To achieve individual personal commitment, your program must include physical conditioning; however, it must also promote a lifestyle that includes good health habits and positive motivation. Your soldiers must understand that fitness is good for them personally as well as good for the Army.

SGM Jimmie W. Bradshaw is the command sergeant major of the 1st Battalion, 1st Air Defense Artillery, Spangdahlem, West Germany. He graduated from the Sergeants Major Course at Fort Bliss, Texas, in July.



Training to Perfection

by Sgt. Terry D. Kenney

The backbone of today's Army is no doubt the non-commissioned officer, better known as the NCO. NCOs must know and do many things to accomplish their mission. Here at the NCO Academy we fully train and equip NCOs with the knowledge they need to train subordinates. At the NCO Academy we lead and teach "by example."

The Primary Leadership Development Course is a demanding and challenging single-entry level NCO leadership course. The PLDC sets the standards expected of all prospective and newly appointed sergeants. These standards cut across the spectrum of training subjects and the leadership duties, responsibilities and authority of NCOs. The non-specific curriculum consists of six major blocks of instruction: leadership, communications, resource management, training management, professional skills and military studies. Soldiers have the opportunity to demonstrate their leadership abilities both in garrison and in a field environment.

The five-week Basic Non-commissioned Officers Course supports 13 ADA military occupational specialties (MOSs) and consists of two phases: common core and equipment. The 26 different subjects taught in the common core portion of the BNCOC are those vital to the everyday mission of the NCO and are the same for all branch BNCOCs in the Army.

When students arrive at BNCOC they undergo a series of diagnostic

tests to detect any weaknesses they might have and to set up any special training they may require during the course.

Students must become knowledgeable in all common core subjects and pass a common core examination to advance to the individual MOS equipment phase of the course. The BNCOC equipment phase covers the following ADA MOSs: 16D, 16E, 16J, 16P, 16R, 16S, 16T, 24C, 24G, 24M, 24N, 24T and 25L.

All students arriving at BNCOC should already be in a leadership position and should, therefore, be knowledgeable in their particular MOS. The equipment phase evaluates NCOs in leading, training and directing subordinates to operate, maintain and deploy the weapon system and associated equipment required for each MOS.

The evaluation begins with performance-oriented diagnostic testing. For Chaparral crew members, MOS 16P, diagnostic testing consists of 10 tasks.

Chaparral crew members then cover a set of performance-oriented evaluation procedures using TM 9-1425-2586-10. All students must receive a "go" on all performance measures. The students are re-evaluated during an end-of-course comprehensive test that includes deploying and supervising a Chaparral squad during a field training exercise (FTX).

In the 16R department the senior instructor trains short-range gunnery squad leaders to lead, train and direct subordinates to

maintain, operate and employ Vulcan weapons and equipment.

Most soldiers attending the BNCOC as a Vulcan crew member, MOS 16R, find this phase of training difficult and challenging.

The 16R diagnostic test reveals how effectively soldiers can complete a series of checks on the M-163A2 Vulcan. A large number of failures occur in this area because the instructors are quite demanding. This series of tests puts emphasis on using the system's operator's manual.

After diagnostic testing, the real show begins. Soldiers are put through 10 performance-oriented tests. We place them in a leadership capacity and test them to see how well they direct and maintain their squads. Some of the tests include preventive maintenance on both the M-741 tracked chassis and M-168 20mm cannon, preventive maintenance on all of the auxiliary equipment (i.e., 1.5-kilowatt generator and AN/GRA-39 radio remote set) and numerous other pieces of equipment.

Daily armament checks, the heart of the M-163A2 Vulcan, comprise the hardest test the soldiers must pass. These checks let squad leaders know whether or not their systems are combat-ready. Daily armament checks include boresighting and radar frequency change.

All good Vulcaneers must read and understand a map with a high degree of proficiency. The BNCOC covers these skills with the next test phase: troop leading procedures. In this performance examination the squad leader must receive and pass out an operation order, accurately move his weapon system from one area to another and be fully ready for action in 20 minutes. This requires reconnaissance, selection and occupation of positions (RSOP) in the area they are to defend; positioning observation posts and command posts; setting weapon systems for correct primary target lines (PTLs); and ensuring that the manual short-range air defense (SHORAD) control system plotting is correct for early warning.

The equipment phase ends with a 72-hour FTX, during which squad leaders show the instructors what they know. They deal with problems they will encounter in a combat environment; for example, nuclear, biological and chemical attacks, air strikes and ground attacks.

The role of a 16R Vulcan crew member is a vital one now and on future battlefields. The training that 16Rs receive at the NCO Academy BNCOC prepares them to face all of these challenges. The 16R motto is "Death From Below."

The 16S equipment track consists of two different

types of man-portable air defense (MANPAD) weapon systems: Redeye and Stinger. The Redeye weapon system is the only one taught in BNCOC at the Fort Bliss NCO Academy. The 16S track consists of 132 hours of training and focuses on the technical and supervisory portions of the MOS.

While in the MOS-related portion of BNCOC the students must be sharp. Only those students who give 110 percent graduate from this portion of the course. 16S instructors are demanding of their students because being a MANPAD section sergeant is a demanding job.

Section sergeants must communicate and coordinate with the unit commanders they support. Section sergeants are responsible for training their soldiers to become professional air defenders. The moving target simulator (MTS) provides this capability.

At the MTS, students train as section sergeants to supervise engagement sequences using the Redeye M-49 tracking head trainer.

16S students receive training on preparing and issuing a MANPAD operation order, planning a MANPAD defense, team operations, supervising team and section security, RSOP and deploying and supervising a MANPAD section. Students take part in a 48-hour FTX to practice the skills and techniques of the material presented throughout the course.

The key to accomplishing any mission is teamwork. If soldiers work well with others they greatly improve their chances of survival on the next battlefield. The 16S motto is "Stay Alert, Stay Alive, Stay Redeye."

"FAAR By Best" is the motto for the 16J MOS. This MOS deals with no missiles, just radars; however, it is an important link in the operation of air defense missile systems. The forward area alerting radar (FAAR) supports the Vulcan, Chaparral and Stinger weapon systems. Training as a FAAR section chief consists of supervising, directing, maintaining, operating and deploying the system's equipment proficiently to obtain maximum readiness. The BNCOC students' challenge begins during the diagnostic testing. The FAAR diagnostic tests disclose the strong and weak points in soldiers' abilities to perform their missions.

Performance-oriented evaluations follow the diagnostic testing. All students must receive a "go" on all performance measures. A few of these performance tasks are: conduct a FAAR system RSOP, check emplacement and orientation of the FAAR system, check FAAR in a march order configuration and conduct troop-leading procedures for an operation.

... find this phase of training difficult and challenging

At the end of the 16J students' stay at BNCOC, they take an end-of-course comprehensive test in a field environment to determine their retention of the information.

At the BNCOC 16D NCOs learn how to improve their leadership styles, promote teamwork and acquire new or better ways to foster the team development of their subordinates.

Proper supervision is a must. These NCOs learn how to better supervise their subordinates and how to properly supervise the preparation for all 16D tasks.

16D NCOs have daily inspections and must meet high standards and strictly follow rules and regulations. The 16D motto is "If It Flies It Dies."

Like the other tracks taught at the BNCOC, the Hawk fire control crew member's track is three weeks long. During these three weeks the training shifts from common military subjects to MOS tasks for the 16E Hawk fire control crew member.

The track phase consists of 10 tasks that the U.S. Army Air Defense Artillery School identifies as the most critical for skill level 3 fire control crew members. The 16E instructors agree that preparation of equipment for travel and emplacement is perhaps the most critical because of the non-linear nature of the modern battlefield.

A Hawk unit must move and emplace at a moment's notice. BNCOC 16E students spend three days on supervision of march order and emplacement of the fire control equipment — a day on each major end item.

Then the students study the M-2 aiming circle used to orient a Hawk battery. We ensure soldiers know how to use the M-2 to determine the azimuth of a reference point and the radar's masking angle. The reference point orients the base radar for the alignment of the entire Hawk battery or assault fire platoon (AFP). The masking angle determines the range at which the radars can detect a target at any given azimuth.

Once soldiers have demonstrated competence at these tasks, they learn and are tested on supervision of the high-powered illuminator radar (HIPIR) orientation and alignment. This task evaluates soldiers' abilities to supervise the orientation and alignment of the HIPIR and of the rest of the Hawk battery or AFP, including the launcher section. Prior to this, soldiers have been moving or preparing the equipment for operation; now they move into the operational portion.

Supervising fire control section daily electrical checks is their next task. During this task we

evaluate soldiers' supervisory skills of daily checks of the battery's or platoon's fire control equipment.

Next we evaluate the soldiers on their supervision of integrated systems checks. These checks ensure that the platoon command post, HIPIR, continuous-wave acquisition radar and identification, friend or foe will integrate as a system with the automatic data processor (computer). All of these tasks are necessary to enable the Hawk battery or platoon to successfully employ in the air battle.

Other subjects taught to round out soldiers' training include the following: conduct an RSOP, supervise preventive maintenance, supervise drawing the World Geographic Reference System (GEOREF) on an overlay from a map and transfer GEOREF overlay to the tactical control console reflective plotter.

When the soldiers complete this course they have the knowledge that it takes to deploy a Hawk battery or platoon on the modern battlefield and to fight, win and return. The 16E motto, like the 16D's, is "If It Flies It Dies."

Operationally, the Patriot has four major functions: communications, command and control, radar surveillance and missile guidance. These functions combine to provide a coordinated, secure and integrated battalion-level air defense system.

The mobile Patriot system can defend an area in support of Army field forces against multiple hostile aircraft in an electronic countermeasures environment. The system searches assigned area air space for enemy threats. The Patriot acquires and evaluates data and communicates the data to other defense echelons. It also launches aerial intercept guided missiles to destroy hostile aircraft.

A few of the performance tests students must perform are: supervise launching station emplacement, direct guided missile reload on the launching station and determine location by graphic resection.

Because the Patriot is a relatively new weapon system, our instructors feel their students perform to the utmost of their abilities. The 16T motto is "Eagle In A Bomb."

The remaining MOSs, which consist of 24C, 24G, 24M, 24N, 24T and 25L, go through the common core portion of their BNCOC here at the academy, but receive the MOS-related portion with the 6th ADA Brigade at Fort Bliss, Texas.

Graduates know how to fight, win and return

Sgt. Terry D. Kenney graduated from BNCOC in May. He is a test control officer for ADA BNCOC, Fort Bliss, Texas.

Managing Change

To increase the acceptance of change, ADA leaders must create a strategy to implement change



by Maj. Victor L. Ferguson

Dynamic force modernization, personnel turnovers and technological advances such as the forward area air defense system make change the one constant factor in Air Defense Artillery. As air defense leaders, you must have a strategy to implement these changes or risk the effectiveness of your unit.

Many ADA officers and NCOs have discovered that orders and directives from higher headquarters do not necessarily ensure a smooth transition. What can you do to increase the probability that change will take place as envisioned? First, you must manage change instead of reacting to the fallout that naturally occurs in the change process.

You must understand how individuals and groups adopt change. And you must develop a strategy to plan and direct changes in your unit.

Planned change is a deliberate process which is intended to increase the likelihood of acceptance. Change, whether planned or directed, will occur.

Before you can develop a strategy for implementing a change, whether it be a new piece of equipment, a new step in a process or a change in procedure, you must first understand the change process.

Change and the Individual

Individuals follow a six-step process as they adjust to changes:

- Awareness .
- Interest .

- Evaluation .
- Trial .
- Adoption .
- Integration .

During the awareness step, a person is initially exposed to the innovation or change. The individual merely becomes cognizant that the concept or change exists.

Next comes the interest step; the individual seeks additional information such as characteristics, technical data, functions, costs and attributes. First impressions are critical because they motivate the individual to move on to the evaluation step.

Evaluation is a mental trial in which the individual will conceptualize the innovation in his own environment. When the mental trial shows possible benefit, the individual conducts an actual trial use. Satisfactory trial results motivate the indi-

vidual to adopt or repetitively use the innovation. On the other hand, if the individual experiences frustration or failure, the adoption process is terminated and the innovation rejected. Rejection can occur at any step of the change process.

Finally, the adoption process cannot be considered complete until the use of the innovation becomes routine. The integration step occurs when the innovation changes from the new to the norm or standard. Hand-held calculators and personal computers are technological changes which have caused people to go through the change process. People replaced the slide rule with a calculator, and the typewriter with a personal computer.

Change and the Group

Air Defense Artillery officers and NCOs are challenged to lead their platoons, batteries or staff sections through the change process as they confront new equipment, new missions, new procedures or a new commander. Some studies have identified five different types of reactions to change in a group. The five categories, based on the propensity of the group members to adopt change, are the innovators, the early adopters, the early majority, the late majority and the laggards.

Examining these categories offers insight into how a group adopts change. Innovators are the first to try an innovation. There are usually only a small number of innovators in a group. Generally speaking, innovators are better educated and are willing to take risks. Innovators are the first to commit to an innovation and are willing to advocate a new

Opinion leaders must give their stamp of approval

idea before it is popular with the group.

After innovators come early adopters. Early adopters are younger than average, upwardly mobile and are active in affairs outside the group. Early adopters are frequently referred to as the trend setters. They are the ones wearing the latest fashions or trying the latest fads.

The early majority, about one-third of the group, are slightly above average in age, education and experience and their opinions are generally respected. Another one-third of a group, the late majority, are older than average and less educated.

Laggards are the final subgroup to adopt an innovation. Laggards are usually most concerned with maintaining the group's norms and values. Laggards often oppose an innovation simply because it violates group norms or standards.

Membership in each category is not static. An individual may move from category to category based on the specific change. As an example, think back to the introduction of the battle dress uniform (BDU). Who were the first to wear the BDUs? With some thought and analysis, you can identify the innovators, early adopters, early majority, late majority and laggards in your platoon, staff or section.

Aware that group members have different propensities to

ward change, now look at how the group adopts change.

The diffusion of an innovation within a group occurs much like the spread of, say, the flu bug. In the beginning the innovators have the bug and begin spreading the change by word of mouth and through personal contact. An innovation will not spread until the group's opinion leaders give their stamp of approval. The opinion leaders watch and listen to the innovators to see how the innovation works and listen to the laggards to determine risk and cost. When the opinion leaders give their stamp of approval, a chain reaction of individual acceptance begins and generates momentum until a critical mass is reached and a majority adopts the change.

Deductively, staff officers or platoon sergeants should be able to identify the group's opinion leaders, innovators and laggards. A change strategy should target these key group members.

Fundamental Concepts

The preceding explanation of the group change process is an oversimplification, but it does provide the big picture. Let's begin developing a change strategy by examining the following fundamental change concepts which provide the foundation for our change strategy:

- Understand the change .
- Reduce the difference between the old and the new .
- People make change happen .
- Leaders must support the change .
- Communication is the key to a successful change strategy.

First, understanding the change is critical both to the planning and implementation processes. The change must be simple, focused and directed to specific problems or circumstances. Also, you must establish a clear definition of the change and what it will do. The less complex a change appears to the implementor, the higher the probability of successful change.

Implementing change is easiest when you are able to reduce the difference between the old way and the new. A cardinal sin is to imply that the current status quo is no good. This will alienate group members who fathered and supported the current status quo, plus alienate the laggards who are devoted to maintaining the status quo.

You cannot make change happen by yourself. A key to successful change is your ability to build teams and foster cooperation. Involving the people affected by a change in the planning and decision process will develop teamwork, cooperation and a commitment that will be invaluable.

One of the best ways to develop teamwork and cooperation is to share ownership of the project. As Gen. George S. Patton stated, "Officers who give the credit for success to others will achieve outstanding success."

Teamwork breaks down when personal interest overrides the group's interest. Avoid any situation that appears to be a personal attack on an individual's power, position or status. Personal attacks create a win-lose situation that could lead to an emotional war between people without regard to the actual change.

Don't underestimate the value of teamwork. You must create a positive atmosphere for change, and trust your subordinates. Organizations with successful change records tend to use long-range thinking, provide explicit objectives, are able to adjust long-range training plans and reward innovators.

The final fundamental concept is effective communication. Communication is the fuel in the change process. When communication is faulty, the entire process breaks down. A communications plan should address all concerned individuals, explain the benefits and rewards, tell how an individual's job will be easier and more productive, and explain that trying a change without 100-percent success is acceptable. The communications plan should have a feedback loop to help you understand the perceptions and feelings of the people in your unit implementing the change.

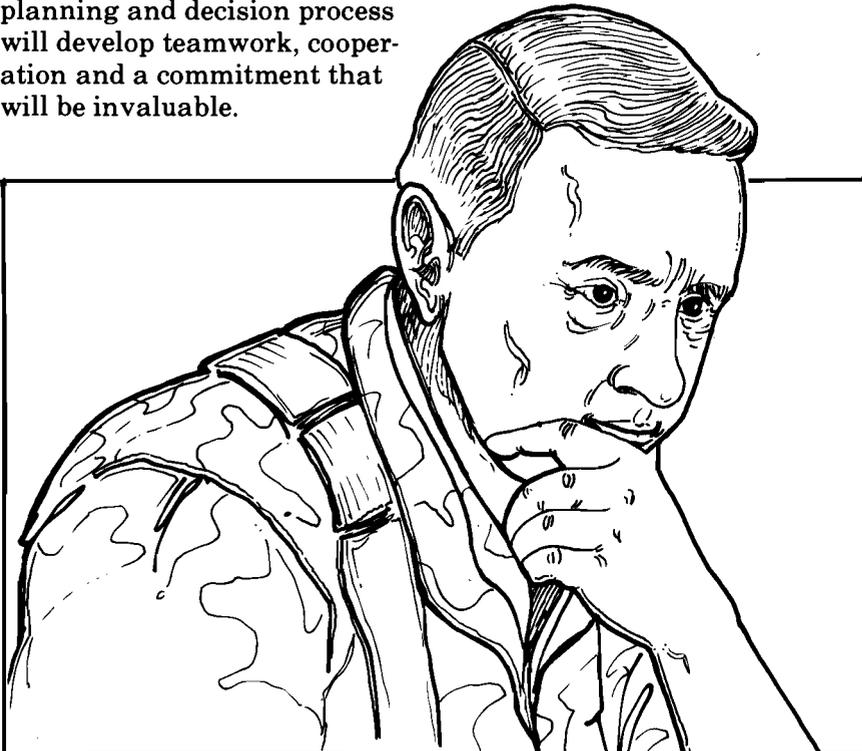
Developing a Strategy

Armed with an understanding of the change process, you are ready to develop a change strategy. The strategy should follow these steps:

- Diagnose present conditions and the need for change .
- Set goals and design the desired state .
- Analyze the impact of change on the current organization .
- Develop plans to implement .
- Gain support of the decision maker .
- Implement plan .
- Formalize the change .
- Evaluate the process .

First, diagnose the present conditions. Gather concrete data about how things are, how well the system operates and what change is needed. Ask for input at various levels within the organization, thereby increasing the expectation that something will happen.

Identify the evaluation criteria needed to measure goal accomplishment and identify key members of the group (opinion leaders, innovators, laggards).



Next, set goals and design the desired state. At this point, an ideal is turned into a working system. Key individuals from all sections who will be affected should help design the new system. A change team can be formed to share in the analysis, planning, decision making and ownership of the plan. Take care that the new system provides a cost-effective improvement and that the change will not appear as a radical departure from the past. Remember, a change should be simple and direct and should benefit the individual as well as the organization.

Then, analyze the impact of the change on the current organization. Any change in one part of the organization will impact on other parts. Group members will be concerned about realignment of power, personnel and territory. Does the new change give the impression of creating winners and losers? If so, you may be fighting an emotional power struggle. Other important questions are who is likely to resist the change and why; what is the degree of mutual trust and cooperation within the organization; and, finally, do you have the resources available to make the change?

You are now ready to develop a change plan. Key elements of the change strategy are the goals, agenda, coordination, communications plan, training plan and evaluation plan. The goals and agenda should offer a time line or milestones for the planned execution. Plot important events and activities designed to take the organization from its current situation to the desired state. Coordination will iron out responsibilities and establish interaction between key players.

Do not assume people understand your message

The communications plan is the heart of the change process. The communications plan must be able to convey your message to a wide variety of people who may be neutral or, perhaps, hostile toward your change. It is best to use several methods and media. Repeat, repeat, repeat. Do not take it for granted that people understand your message just because it is important to you. Repeat the message several ways and by several media.

The following are key hurdles the communications must address:

- What is the innovation?
- What problem or need does it fulfill?
- How does it work?
- What benefit does it provide at what cost?
- How will things be better as a result of the change?
- What incentives and rewards will be used?

Reassure people that the new change will not threaten job security and personal relations.

Communications should contain different messages for group members as they proceed through the change process. For example, during the awareness step, use commercial-type messages designed to expose the innovation. The message should be short, simple, direct and colorful. Fact sheets, information papers, memorandums for record, phone calls, briefings and staff coordination sheets can be used to carry the message.

Then, during the interest step, provide additional facts and information in the form of articles, fact sheets, testimonials or after action reports from units and people who have used the innovation. During the evaluation and trial, show how the change will work in the implementor's work setting. Leaders actually using the change sends a message more forceful than mere words. During the adoption and integration stages, show how the change has improved individual and group performance.

Closely related to the communications plan is the training plan. Training plans are used to educate people not only about the change, but also how to use the change. Training should first be targeted at the opinion leaders so that they can learn, practice and gain confidence with the change. Training should take place in a safe environment where the opinion leaders do not have to worry about looking dumb or failing in front of their peers or subordinates. Once the opinion leaders have mastered the new skills, they will be ready to advocate the change to the rest of the group. The training program should then turn its attention to the remainder of the group.

The next element of the implementation plan is the evaluation and control plan. This plan should establish how to measure and adjust progress. The opportunity to learn from the experience is invaluable to the organization's ability to manage itself through change. The evaluation plan should allow you to examine the plan against the actual progress. Bottlenecks, choke points or shortcomings must be identified and adjusted.

With a complete set of plans, you are now ready to gain support of the commanders and decision makers. The most critical factor is not that the commander approves your plan, but that the commander actively supports the change.

Leaders must commit their resources and themselves in deed as well as word. Commitment by the leader brings people together to overcome problems and resistance. Leaders' actions speak louder than words and the leaders' messages will spread quickly throughout the organization. Once leaders are committed to a change, it becomes only a matter of time before the change will occur.

Implement the Plan

Armed with an approved plan, the biggest remaining step is to implement the plan.

Leader commitment and the communications plan are the keys to implementation. To make the change happen, make the commander and opinion leaders visible by having them announce the change and brief the objectives to the organization. Leaders must support and encourage the opinion leaders' use and advocacy of the change. Ensure that all the resources are in place and that a reward system encourages efforts to change.

After the majority of the group has adopted the change, the next step is to formalize it. Proclaim that the change has been institutionalized as the standard way to do business. Reward and recognize everyone who played an important role in the change process.

Finally, conduct a post-change evaluation to determine the degree of successful change and capture lessons learned.

The purpose of this evaluation is not just to determine the effectiveness of the change itself, but to evaluate the management process, the teamwork and the relationships developed during the change process. File an after-action report that documents the problems and recommends solutions.

Air Defense Artillery leaders will be called upon to generate and implement change. Whether it's a change in maintenance procedure, the elimination of a current weapon system or the introduction of new tactics, gaining acceptance of innovations is, in large part, a matter of effective communication. If you get the right message across to the right people in the right way, acceptance will follow.

Maj. Victor L. Ferguson is a recent graduate of the Air Command and Staff College, Maxwell Air Force Base, Ala., and has been assigned to Europe.

Resistance to Change

Developing strategies and plans is simple compared to the actual implementation and execution of the plans. Resistance to change is a very contagious disease which can pop up at any time to stall or stop the change process. Resistance may be open or it may be concealed. Fortunately, as with most diseases, a cure is possible with attention.

Generically, people resist change because they feel the need for continuity and control of their environment. People resist change because they feel they have lost control; they desire to avoid uncertainty; they perceive a loss of face, power or status; they are concerned about appearing incompetent; they believe that the change is simply more work without an adjustment in compensation; or they may feel resentment toward the person advocating the change.

Further, people will resist change

because of threatened self-interest. Threatened self-interest means that the personal cost of a change is greater than the benefits. Therefore, the individual will resist the change. The reasons for resistance may vary, but the effect is consistent — slowing or stopping the change process.

- Provide advance notice. Inform people that a change is coming so that they have the opportunity to get accustomed to the idea, understand the reasons for the change and diffuse any perceptions that the leaders are not in control.

- Do not personalize the change. Indicate the change is for the good of the unit, not because the current status quo is unsatisfactory.

- Offer security. Reassure subordinates that the change will not adversely affect job security, advancement potential or work relations.

- Listen to the resisters. Listen with an open mind and be prepared to respond honestly and openly to their concerns. If you impose a change by virtue of your superior rank or position, you probably will get the change initially. However, the individual or group will return to the old way before the change has been institutionalized.

- Create an expectation of change. This can be done by getting the leaders to personally show their support for the change, making required resources available and by establishing a functional reward system.

Resistance to change is a force that will always inhibit change. Leaders must understand why people resist change, then monitor resistance and be able to take steps to counter resistance.

THE SIXTH SENSE OF SAFETY



IN TRAINING AND LIVING

Thee and a Tree

Our soldiers are losing the Battle of the Boulevard — to trees

by Lt. Col. Bill Kunzman

Newly promoted SSgt. Moore was proud of his new, bright red Trans Am. He took several soldiers from his unit on a demonstration ride, and stopped at a local nightspot for a beer. Upon resuming their countryside trip, the three passengers asked Moore to wear his seat belt, but he refused. Later, one soldier stated that Moore was too involved with his stereo system to pay attention to their request.

The soldiers were traveling north on County Road 101 when Moore lost control of the car. It left the roadway, traveled on the shoulder for 130 feet and reentered the roadway for 40 feet. Then it left the roadway again and traveled 50 feet before it smashed into a large elm tree. The Trans Am was traveling at about 55 mph when it struck the tree.

One-tenth of a second after the collision, the Trans Am's front bumper and chrome plating of the bumper and grillwork collapsed. Slivers of fiberglass penetrated the tree to the depth of one and a half inches or more. Bark flew from the tree.

Spec. Brown was driving north on the interstate after leaving the

post hospital where his wife had just delivered a handsome seven-pound baby boy. Brown was ecstatic about being a new father, but extremely tired after the all-night ordeal of his wife's labor. He fell asleep at the wheel, swerved left and ran off the road, hitting an oak tree in the median.

Two-tenths of a second after his 1985 Chevrolet Blazer struck the tree, the hood crumbled as it rose and smashed into the windshield. Spinning rear wheels left the ground. The front fenders hit the tree, forcing the rear parts of the fenders out over the front doors. The heavy chassis of the four-wheel-drive vehicle began to brake the tremendous forward momentum of the 5,000-pound truck.

Brown's body continued to move forward at the vehicle's original speed (his body weight was, therefore, approximately 3,200 pounds or 20 times the normal force of gravity). His legs snapped at the knee joints like matchsticks.

PFC Johnson was driving his Ford Escort from Wurzburg to Kitzingen on the Bundesstrasse at an estimated 100 mph. He and his roommate, Spec. Mitchell, had spent the afternoon at a *weinfest* and were hurrying back to their unit. As he rounded a curve, Johnson lost control of the vehicle, veered off the side of the

road and struck a large pine tree.

Three-tenths of a second after the collision, Johnson's body remained on the seat, torso upright, broken knees pressing against the dashboard. Mitchell's face was near the windshield, his chest about to strike the dashboard.

Four-tenths of a second into Moore's accident, 24 inches of the red Trans Am's front end were demolished, but the rear end was still traveling at an estimated speed of 35 mph. Moore's body continued forward at 55 mph. The rear end of the car, like a bucking horse, rose high enough to scrape bark from low branches. The belted-in passengers were screaming with terror.

Moore's hands bent the plastic and steel frame of the steering wheel under his terrible death grip while the horrifying, grinding noise of the accident began to resound down the highway.

Brown woke for an instant *five-tenths* of a second after impact. With hands nearly frozen in terror, he bent the steering column into an almost vertical position. The force of gravity crushed his chest against the steering wheel, rupturing arteries. Although Brown was wearing his seat belt, his body organs continued to move forward at great speed. With enormous force,



blood gushed into his lungs.

Six-tenths of a second into his accident, Johnson's feet were ripped from his shoes. The brake pedal sheared off at the floorboard from the force of impact. The Ford Escort chassis bent in the middle, shearing body bolts. At the same time, Mitchell's head smashed into the windshield, his chest crushed against the dashboard and his arms broke as they smashed into the roof and door. The rear of the car began its downward fall, its spinning wheels digging into the ground.

The Trans Am, the Blazer and the Ford Escort were mangled masses of steel and plastic, forced out of shape in seven-tenths of a second. Hinges were torn and doors were sprung open.

In one last convulsion the seats rammed forward, pinning the drivers against the cruel steel of the steering shafts. Blood leapt from the mouths of Moore, Brown and Mitchell; shock froze their hearts. Three extremely fine soldiers died in only seven-tenths of a second! And all three trees remained standing with only superficial damage.

Moore had been drinking and refused to wear his seat belt. Brown was tired, but was wearing his seat belt. Mitchell was not wearing his seatbelt and was riding in a vehicle at a very high speed with a drunk driver (Johnson's blood alcohol content was .123). Johnson was wearing his seat belt and lived to tell about the accident.

Year after year more soldiers are killed in privately owned vehicle (POV) accidents than in all other accidents in all other Army

activities. The three we have learned about are some of the 250 soldiers who die in POV accidents each year.

Like these three actual accidents, most Army POV accidents, deaths and injuries involve failure to use seat belts, speeding and drinking and driving. All three of these soldiers were driving at excessive speeds when their vehicles struck trees.

Army accident records show that in most fatal auto accidents, the driver is speeding. This includes not only exceeding the posted legal speed limit but also driving too fast for road and weather conditions. The posted speed limit isn't necessarily the safe driving speed. Road and weather conditions, time of day and the amount and type of traffic all have an effect on safe speed. Slower speeds give drivers more time to react, and the lower the speed the lower the crash forces in case a crash occurs.

Drinking and driving is the number one cause of fatal POV accidents. These accidents usually involve soldiers aged 17 to 25. Like Moore and Johnson, many young people killed in POV accidents are new at both driving and drinking — certainly a deadly combination.

Alcohol slows reaction time and affects judgment. Drinking drivers tend to become reckless. They lose their ability to recognize hazards. They become a

threat to themselves, their passengers and others. Johnson killed his passenger, Mitchell, through his poor use of judgment and recklessness.

At least half of the soldiers killed in auto accidents last year would have lived if they had used their seat belts. More people die from being thrown around inside a vehicle or being thrown out of it than from the actual crash. In fact, the chances of dying are 30 times greater if a person is thrown out of the vehicle.

Accident records show that soldiers wearing safety belts are 70 percent less likely to be killed or seriously hurt than unbelted drivers, and shoulder harnesses increase the chance of escaping injury to 90 percent.

Driving is a responsibility, not a privilege. Responsible soldiers don't drink and drive. Responsible soldiers use good judgment and drive sensibly and defensively. Responsible soldiers wear seat belts at all times and require all passengers to do the same.

Don't be one of the soldiers who kills a fellow soldier, another driver or yourself through irresponsible driving habits. Avoid that tree!

Lt. Col. Bill Kunzman is the ADA safety manager at the U.S. Army Safety Center, Fort Rucker, Ala.

ADA Career News

Officer

ADA Assignments, U.S. TAPA

I am extremely privileged to serve as chief of assignments for the Air Defense Branch here at the U.S. Total Army Personnel Agency. I eagerly look forward to the challenges of this assignment and pledge to you — the officers of Air Defense Artillery — that we at TAPA will do our best to serve you.

As our name implies, making assignments is our primary task. Our challenge is to put the right officer with the right skills in the right job at the right time. To accomplish this difficult task, we need your help.

We need to know what you want to do. A current preference statement in your file helps us when it is time to find your next assignment. You can pass your preferences to us over the phone or personally visit the Air Defense Branch at TAPA. Your career goals and desires are important — we really do consider them when making your assignments.

We are concerned with your professional development. We work closely with the other offices here at TAPA to make sure you attend military schooling at the most appropriate time. If you want to attend advanced civil schooling, call us. We will provide you with guidance and recommendations to help you enhance your chances of selection.

We spend a lot of time and effort making sure that your records are in tiptop shape before promotion boards, school boards or command boards look at them. You can help yourself on this issue. Make sure that you have a current photo and physical in your file. When your MILPO indicates that they have an ORB for you to review, take your time and look at it closely. Remember, your file represents you at the board.

If you want to know if certain information (for example, a recent OER or a non-resident school diploma) is in your file, just give us a call. We will check on it and let you know.

If you have submitted a personnel action to TAPA and you want to know its status, call us. We will run it down for you. Most actions, except assignments, are handled by someone outside of the ADA Assignments Branch, but we can and will keep track of your action's progress if we know about it.

We look forward to hearing from each of you in the future. We will continue to make visits to the field and will bring your files with us for your review.

You can reach your assignments officer or me by calling AV 221-0025/0026 or by writing to 200 Stovall Street, DAPC-OPE-A, Alexandria, VA 22332-0412.

Lt. Col. James F. Barber

From the Lieutenant Colonels Desk

Prior to being assigned to TAPA, I was unsure of just what "nominative" assignments were, how they were made, how people were selected and, in some cases, why all the rush. Well, there is no great mystery and no magic formula.

Nominative assignments are specific positions for which officers are nominated by their respective branches. If selected, the officer is notified, a request for orders (RFO) is prepared and the assignment process continues in the normal fashion.

Two well-known nominative assignments are ROTC and recruiting duty. We need high-caliber officers with good records to fill these key jobs. The officers selected form the nucleus of the Army's efforts to maintain the keen qualifications and standards of our new officers and enlisted soldiers. Generally, ROTC and recruiting positions are known

well in advance and we can fill them with reasonable notice.

Other equally exciting and challenging assignments fall into the nominative category, such as serving as Protocol Officer for the Chief of Staff of the Army, Speech Writer or Military Assistant to the Secretary of the Army and working on the Armed Forces Inaugural Committee.

These positions usually require very specific qualifications and, in some cases, short-notice reassignments. They are high-level, high-visibility jobs.

If you receive a notification of selection for nomination from your assignments officer, keep in mind that you have only been nominated. The other combat arms branches also nominate an officer for the position, so you will compete with five other nominees. Normally a slate of three nominees is submitted to the tasking agency. Only then is an officer selected.

I have a good reason for writing this article now. The Air Defense Branch will receive a number of nominative requirements this year. ROTC and recruiting boards will be held and, with the advent of a new political administration, an added number of positions will open. If you are interested in any of these types of assignments, give us a call or drop us a line at your earliest opportunity.

Maj.(P) Mike Penhallegon

Submit your Officer Preference Statement about 18 months before your DTAO/DEROS. You will know it has reached TAPA when it is reflected in Section X, Remarks, on your Officer Record Brief.

Send your preference statements to Air Defense Branch, U.S. TAPA, DAPC-OPE-A, 200 Stovall Street, Alexandria, VA 22332-0412.

Maj. Jeffrey Pinasco

From the Captains Desk

A great deal of misunderstanding exists about the role of promotion ORBs. Here are some guidelines on how and when to use them.

About four months prior to your board (O-4, CGSC, etc.), your MILPO/RPC will contact you to review your ORB. If they don't call, go see them.

If your ORB has errors or missing data, correct it with pen and ink changes. The MILPO will review the authority and documentation for the changes and put a MILPO stamp on the ORB for validation.

Sign the ORB. It then becomes a binding legal document that you have certified as true and correct. Watch the height and weight!

The MILPO will then mail your promotion ORB directly to the promotion board.

Obviously, if you have a perfect ORB, you can save yourself the above steps. But, if you have problems with it, the promotion ORB is a proven and accepted way to ensure the board gets good data.

Here's an added note: Special Operations Command (SOCOM) is a new high-priority assignment for people who love to fall out of airplanes. Several SOCOM battalions are forming at Fort Bragg and will be looking for highly motivated jump-qualified officers (male and female) to be psychological operations (PSYOPS) or civil affairs staff officers.

The positions are coded for functional areas 39B (PSYOPS) and 39C (Civil Affairs), but anyone can volunteer. If accepted you will likely be redesignated to 39, or be designated early if you don't have a functional area.

Call me for more information or contact Capt. Gary Harter (AV 221-3125) who is the TAPA point of contact for 39s.

Capt. Mike Locke

From the Majors Desk

A new computerized Officer Preference Statement, DA Form 483, is now available at all MILPO/RPCs. Be prudent when filling out an Officer Preference Statement. If you ask for an area where there are no positions authorized for your career management fields and grade, you are wasting a vote. Remember, there are no air defense units in the Caribbean!

Use the second page of the Officer Preference Statement for career development input or to explain your personal desires. This is your chance to communicate with your assignments officer about family, job or career development considerations. Make sure to include your current address and work and home phone numbers. Give both the AUTOVON and civilian prefixes for work.

From the Lieutenants Desk

Recent captains boards have shown a marked decrease in the overall selection rate — down to 72 percent on the March 1988 board. Five years ago almost everyone made captain, but today the board has become a true “quality cut.” Knowing this, here are some ways to improve your chances for selection.

Send a sharp photo in as soon as you make first lieutenant. Almost 20 percent of the ORBs that went before the last board (Armywide) were missing photos. Have the best NCO in your unit help you with your photo. Successful NCOs know a lot of secrets on how to take a picture. Plan on taking it two or three times to get it right.

Make sure your ORB is perfect! Several ORBs that go before every board are missing college degrees, schools and awards. It is your MILPO's job to fix this — stay on them! If it's already too late, see the “From the Captains Desk” article on promotion ORBs.

Make sure you know how you stand with your rater and senior rater. Don't hesitate to ask how they would rate you today. Too many lieutenants wait until after they receive a bad report to realize that they were not “tuned in” to what their bosses wanted. A good way to find out is to give your boss a blank OER and ask him to rate you halfway through a rating period. You may be surprised by what you learn from this “unofficial” OER.

Work hard, listen to your NCOs and care!

Capt. Mike Locke

Enlisted

MOS 16H Reclassification

The MOS 16H reclassification program is on track. Phasing out of the MOS will start Oct. 1, 1988, with subsequent phases through FY 91.

The Air Defense Branch, U.S. TAPA, forwarded letters of notification to affected soldiers on May 4, 1988. These letters provided a detailed explanation of the elimination process and afforded each soldier the opportunity to submit a DA Form 4187 requesting MOS preferences for reclassification. The notification letters also contained MOSSs, by skill level, available within the Air Defense field and MOSSs available Armywide for reclassification.

Affected soldiers must remember that the MOS listings provided are tentative and subject to change depending upon strength posture and available training within the requested MOS. Therefore, the chain of command must endorse each soldier's request.

If you are an MOS 16H soldier, get help from your local retention NCO to prepare a reclassification worksheet using TSAM (The Skill Alignment Module) to more logically select MOS preferences.

U.S. TAPA's goal is to provide reclassification training during soldiers' next normal PCS; however, TAPA will consider temporary duty and return training on a case-by-case basis. Soldiers should meet the suspense date specified in the letter. Although TAPA will not respond immediately to affected soldiers, the soldiers must determine and indicate preferences to enable the Air Defense Branch to accurately project training, promotions and readiness requirements.

For more information on this reclassification effort, call SFC Shelton at AV 221-8052/8053.

MOS 24U Reclassification

U.S. TAPA has received extremely good responses to the MOS 24U reclassification program. We forwarded letters of notification to all soldiers affected by this program on Dec. 9, 1987. These letters provided a detailed explanation of the MOS elimination process and afforded each soldier the opportunity to submit a DA Form 4187 requesting MOS preferences for reclassification. These letters also contained MOSSs, by skill level, available within the Air Defense field and MOSSs available Armywide for reclassification.

The chain of command must endorse each soldier's request. To save time and preclude unnecessary paperwork, all soldiers should seek help from their local retention NCOs to prepare a reclassification worksheet using TSAM to more logically select an MOS for reclassification.

U.S. TAPA's goal is to provide reclassification training in conjunction with soldiers' next PCS; however, TAPA will consider temporary duty and return training on a case-by-case basis.

Commanders must not misconstrue this program as a fast track initiative, because MOS 24U is not scheduled for deletion from the Army inventory until FY 90.

Although TAPA will not respond immediately to MOS 24U soldiers' reclassification requests, the soldiers must determine and indicate preferences to enable the Air Defense Branch to accurately project training, promotions and readiness requirements within the career management field and to provide TAPA the maximum time possible to coordinate with other branches to satisfy the soldiers' desires.

For more information about this reclassification program, contact SFC Shelton at AV 221-8052/8053.

Drill Sergeant Duty

So you want to be a drill sergeant! Before you take the first step toward being the guiding light in a new soldier's future, you'll have to consider several important factors.

Unless you are currently stationed at Fort Bliss, Texas, or are presently serving overseas, the current permanent change of station (PCS) policy dictates that you must have 48 months time on station before you are eligible for a CONUS to CONUS move. Although recruiting duty has a 24-month time on station exception to policy, no exceptions exist for drill sergeant applicants. Therefore, your chances of being selected are significantly lessened.

As of October 1987, authorizations for Air Defense drill sergeants total 49. This resulted from a 50-percent reduction in career management field 16 and 23 positions. Because of these reductions, drill sergeant positions are presently overfilled by 230 percent and are not expected to drop through normal attrition until mid-1989 at the earliest. To further reduce the current operating strength and to enable acceptance of new applicants, the Air Defense Branch is not approving any forwarded requests for a third year on drill sergeant status.

In a nutshell (though not guaranteed), an application from a soldier overseas or on Fort Bliss stands a better chance of acceptance than those from soldiers elsewhere in CONUS. We are not telling you not to apply, but we want you to consider this information when applying for drill sergeant duty.

OCADA is currently revising the SGAs for all MOSs within CMF 16 and for MOSs 25L, 24C, 24G and 24R within CMF 23. We are not revising MOSs 24T, 24M and 24N at this time.

Revised SGAs for MOSs 16T, 16D, 16E and 25L should appear in the October 1988 update of AR 611-201. Future updates of AR 611-201 will publish other ADA MOS SGA revisions.

When requesting personnel MTOE changes, commanders should use the SGA tables in AR 611-201 as a guideline to determine the appropriate grade mixes and quantities. This will help keep the ADA force structure grade distribution challenging and rewarding.

If we've made a mistake in determining the overall standards of grades for our enlisted soldiers, send us a DA Form 2028, Recommended Changes to Publications and Blank Forms, and point out our errors. If we can't ensure a normal career pattern for our soldiers, we will not be able to keep them in Air Defense Artillery.

For more information on SGAs, contact OCADA (Mr. Kimmich or SFC Bales) at AV 978-6217.

Standards of Grade Authorization

Ever look in AR 611-201, Enlisted Career Management Fields and Military Occupational Specialties, and see an SGA table for an MOS? Ever wonder what it means? Standards of grade authorization (SGA) is a term to understand and reckon with.

SGAs give provisions for determining standard grades that are authorized for TOE and TDA positions for an MOS. These SGAs reflect authorized and proper grade patterns within specified sections of TOEs, MTOEs and TDAs.

The Office, Chief of Air Defense Artillery (OCADA), has the primary responsibility for establishing, updating and revising SGAs for all ADA MOSs. Once we develop the SGA, we apply it against the Total Army Authorization Document System (TAADS) and compare it to Army averages. We then make grade structure changes to the TOEs, MTOEs and TDAs to ensure each soldier has a chance for a normal career within his career management field; that is, promotion opportunity to E-9.

NCO Promotions

The ADA NCO promotion results for August are shown below.

MOS	Grade	Number
16D	to E-5	4
	to E-6	12
16E	to E-5	10
	to E-6	4
16H	to E-5	8
	to E-6	3
16J	to E-5	3
	to E-6	5
16R	to E-5	2
	to E-6	8
	to E-7	14
16Z	to E-9	2
24G	to E-6	5
24N	to E-5	6
24R	to E-8	3
25L	to E-5	9

Scanning



FAREWELL — Maj. Gen. Donald R. Infante and Brig. Gen. Donald M. Lionetti salute during the playing of the national anthem by Fort Bliss' 62nd Army Band.

Assistant Commandant Reassigned

Brig. Gen. Donald M. Lionetti left his post as deputy commander of Fort Bliss and assistant commandant of the U.S. Army Air Defense Artillery School in July. His new assignment is Director of Plans, J-5, U.S. Space Command, Peterson Air Force Base, Colorado Springs, Colo.

Lionetti, who became assistant commandant in May 1986, has been replaced by Brig. Gen. Jay M. Garner, whose last assignment was Director of Force Requirements, Force Development Directorate, Office of the Chief of Staff for Operations and Plans.

In an interview conducted the week of his departure, the former assistant commandant told the *Fort Bliss Monitor* that Air Defense Artillery should strive to maintain the momentum provided by the forward area air defense system, the successful fielding of Patriot, revised doctrine and the ongoing reorganization of the Air Defense Artillery School.

"Let's remember that [Maj. Gen. Donald R. Infante, chief of Air Defense Artillery] assumed command three years ago, when I would say the branch was at a low ebb, given the recent termination of the Sergeant York Air Defense Gun System," Lionetti said. "We were questioning ourselves and questioning our future. There was a great deal of wailing and gnashing of teeth. The CG came in and turned that around, restored self esteem not only to the branch, but to Fort Bliss. I came shortly thereafter and believed that the role I would and should play would be

to support the momentum that he started and try to help that along . . . and we have."

AN/TSQ-73 Upgrade

NATO users of the command and control system for Hawk and Patriot, the AN/TSQ-73 missile minder, have received a major upgrade to their capabilities with the recent fielding of software version 33.1. Battlefield Automation Management Directorate and EER Systems Inc., the contact for version updates, provided the detailed training to NATO personnel. Training was conducted at the French and Italian Air Defense Schools, located at Draguignan, France and Sabaudia, Italy respectively and at various tactical sites in both nations.

Version 33.1, which was fielded to U.S. forces in October 1987, included numerous operational enhancements, volume processing for weapons control, automatic identification friend or foe/selective identification feature (IFF/SIF) code validation, interface with intelligence services, automated track correlation to avoid dual designation of targets and the initial interface required to operate with Hawk Phase III units currently being prepared for fielding.

The next step in AN/TSQ-73 evolution is Version 34. Enhancements in this version include multiple tactical Army digital information link B (TADIL-B) links to other services, fully automatic weapons assignment in both the brigade and battalion with increased operator control over weapon system parameters, enhanced interfaces with the intelligence community and full interoperability with Hawk Phase III.

Version 34 is scheduled to undergo user tests in early 1989, with U.S. and NATO fielding soon thereafter.

FAAD Proposal Studied

The Army is evaluating non-line-of-sight (NLOS) proposals submitted by two industry teams, Boeing-Hughes and Raytheon-Martin Marietta. A contract expected to be awarded this fall will designate the prime contractor to produce four prototype forward area air defense fire units based on the Army's fiber-optic guided missile technology.

Editorial Offices Relocated

The *Air Defense Artillery* editorial offices have moved from the U.S. Army Air Defense Artillery School's Directorate of Training and Doctrine to the Office, Chief of Air Defense Artillery. Our new address is Editor, *Air Defense Artillery*, ATSA-AC-FP, U.S. Army Air Defense Artillery School, Fort Bliss, TX 79916-7004.

Training Tips

Avenger Training

Training on the Avenger or Pedestal-Mounted Stinger (PMS), the forward area air defense (FAAD) system for line-of-sight rear (LOS-R), is expected to start at the U.S. Army Air Defense Artillery School at Fort Bliss, Texas, in FY 89. Stinger man-portable air defense (MANPAD) crew members will man the Avenger.

The course will provide instruction in PMS skills required for march order and emplacement, target engagement, operator checks and services, operation and maintenance of vehicles, battle drill functions, weapons handling, transportation and preparation for use.

The eight week course is open to Active Army soldiers in grades E-4 or below who have successfully completed USAADASCH's MANPAD System Crew Member Course.

MILES/AGES-AD at the NTC

The use of multiple integrated laser engagement system (MILES) air defense equipment permits realistic combat training without the hazards of using live ammunition.

The National Training Center (NTC) provides intense, simulated combat environment training. NTC training offers an opportunity to gather valuable lessons learned about the status of training and the performance of Army equipment. These lessons learned can be used by other units to enhance and improve their training programs.

An NTC rotational ADA unit failed to install the MILES on their Vulcan correctly. During their attempts to engage the threat helicopter, they could not receive a recorded kill, although the helicopter was within kill radius.

To be able to receive recorded kills, the MILES must be installed properly, boresighted and checked out. During the rotation, one Vulcan platoon had three guns with the MILES taped on the gun instead of mounted on the radar. The squad leaders became angry when they failed to receive a successful kill on the threat helicopter.

Battery trainers should schedule MILES equipment classes before going to the NTC. This would enhance soldier skills in the proper installation, maintenance and use of complex equipment.

Always ship MILES equipment with the vehicle. A critical maintenance feature of a fighting vehicle is its MILES system capability.

If a unit is experiencing training problems or me-

chanical or electrical check-out problems, they should contact their local Training Aid Support Center (TASC) or their Director of Plans and Training (DPT) and request training assistance.

Most major installations have contract training specialties to handle unit training requirements. However, if units are not supported by a major installation they can write for support to: Commander, U.S. Army Training Support Center, ATTN: ATIC-TS (Lt. Col. Black), Fort Eustis, VA 23604-5000, or call AV 927-4713/3631. A FORSCOM point of contact for training assistance is George Venti, AV 588-3392/2194/4480.

Combat Service Support at the NTC

At the National Training Center most air defense platoons or sections receive all support, except system peculiar maintenance, from someone other than their parent unit. Each supporting unit has its own technique for feeding, fueling, arming and maintaining their units; some are effective and some are not.

One point is evident — when the support system is not working it hurts morale and training. Troops do not get fed, platoons go into training without fuel or ammunition, and vehicles don't get repaired. Instead of planning, preparing and executing air defense missions, platoon leaders spend the first few days developing and establishing their support system, something that should have been established prior to development.

Two techniques have been extremely successful at the NTC. The first involves the task force preparing a separate logistical package (LOGPAC) for air defenders. The platoon sergeant picks it up and pushes it forward to his soldiers.

The second technique involves drawing support from the parent battery. The battery trains, usually located in the brigade rear area or the brigade support area, prepare the LOGPAC and push it forward to a central point. The platoon sergeant then picks it up and pushes it forward to his soldiers.

Drawing support from an individual company team simply does not work. It ties air defense units to a specific company regardless of the mission. The air defense plan must be based on the factors of METT-T and not on the location of the company team providing logistical support.

Regardless of the techniques, there will be problems and shortcomings in any combat service support (CSS) system. Commanders must get involved in isolating and fixing these problems before they become disruptive.

We simply cannot fight the next war without a functional CSS system — we need one that is functional the day we deploy, not five days later.

(ADA Lessons Learned 2-88)

