AIR DEFENSE ARTILLERY

PB 44-87-2 (TEST) September — October 1987

Professional Bulletin of United States Army Air Defense Artillery Branch

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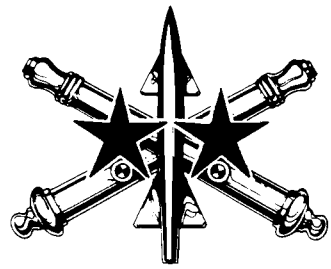
Intercept Point



New drum beat for ADA

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

For any organization to succeed, there must be a drum beat — a sense of direction. Therefore, in this "Intercept Point," the topic is "ADA Branch Objectives."

Those who attended our superb ADA Commanders' Conference in June are familiar with these objectives. Before discussing each in detail, let's look at them as an entity:

- Instill a sense of branch pride
- Institutionalize a strong doctrinal foundation
- Improve ADA integration into, and acceptance by, the combined arms team
- Revitalize the ADA School
- Field the forward area air defense (FAAD) system
- Build on Patriot's success
- Explore ADA's anti-tactical ballistic missile (ATBM) mission potential

A little more on each of the above objectives.

Instill a Sense of Branch Pride. Pride is the soul of any organization. Branch pride begins within each air defender. There is no branch with a mission more vital or one more absolutely essential to our Army in preserving the peace. Given that, your home, Fort Bliss, has some responsibilities and you, a professional air defender, have some responsibilities:

- *"First to Fire."* Bumper stickers with the branch motto are for sale at the ADA Museum Gift Shop, Fort Bliss, Texas. I have two in my office, one on each door. What do you have in your platoon "hooch," dayroom, etc., that drives home each day the reality reflected by our "First to Fire" motto? If nothing else, make a vow to do something to help enhance the branch image. Pays to advertise!
- *The "ADA March."* Cassette tapes of the official branch song, along with musical scores and words, are being mailed to each ADA battalion, brigade and 32nd Army Air Defense Command headquarters. Here at Fort Bliss, we play the "ADA March" at the conclusion of each ceremony such as an ADA change of command or retirement. Have you heard the "ADA March" or, better yet, learned the words? Kudos are in order for Lt. Col. Douglass Hemphill, whose creativeness produced the words, and to CW04 Robert O. Wahlund whose musical genius produced the score. (Read "The ADA March" on Page 23 to learn how ADA got its new battle hymn.)
- *ADA Association Membership.* About 25 percent of all ADA E-6s and above belong. Shame on us. Should be closer to 100 percent. See your unit first sergeant or battalion sergeant major for an ADA Association membership application, it's that easy. The ADA Association has mailed membership applications to all of our ADA units around the world. The "bennies" more than make up for the price of admission. Of all the correspondence received in my two years as branch chief, none has thrilled me more than a small piece of paperwork filled out by Bravo Battery, 3rd Battalion, 59th Air Defense Artillery (now Bravo Battery, 4th Battalion, 1st Air Defense Artillery). The paperwork was a check made out to the ADA Association to cover membership for 100 percent of the battery's soldiers. Any of you "hard-chargers" out there ready to take up the challenge and match their participation?

A **Strong Doctrinal Foundation.** A draft of the new FM 44-100, Air Defense Operations, was given out at the Commanders' Conference. The draft, when finalized, will replace FM 44-1, Air Defense Artillery Employment, as our new ADA bible. Those of you who thirst for doctrine should see an ADA Commanders' Conference attendee or write the Director, Directorate of Combined Arms and Tactics, U.S. Army Air Defense

Artillery School, Fort Bliss, TX 79916, for a personal copy of the draft.

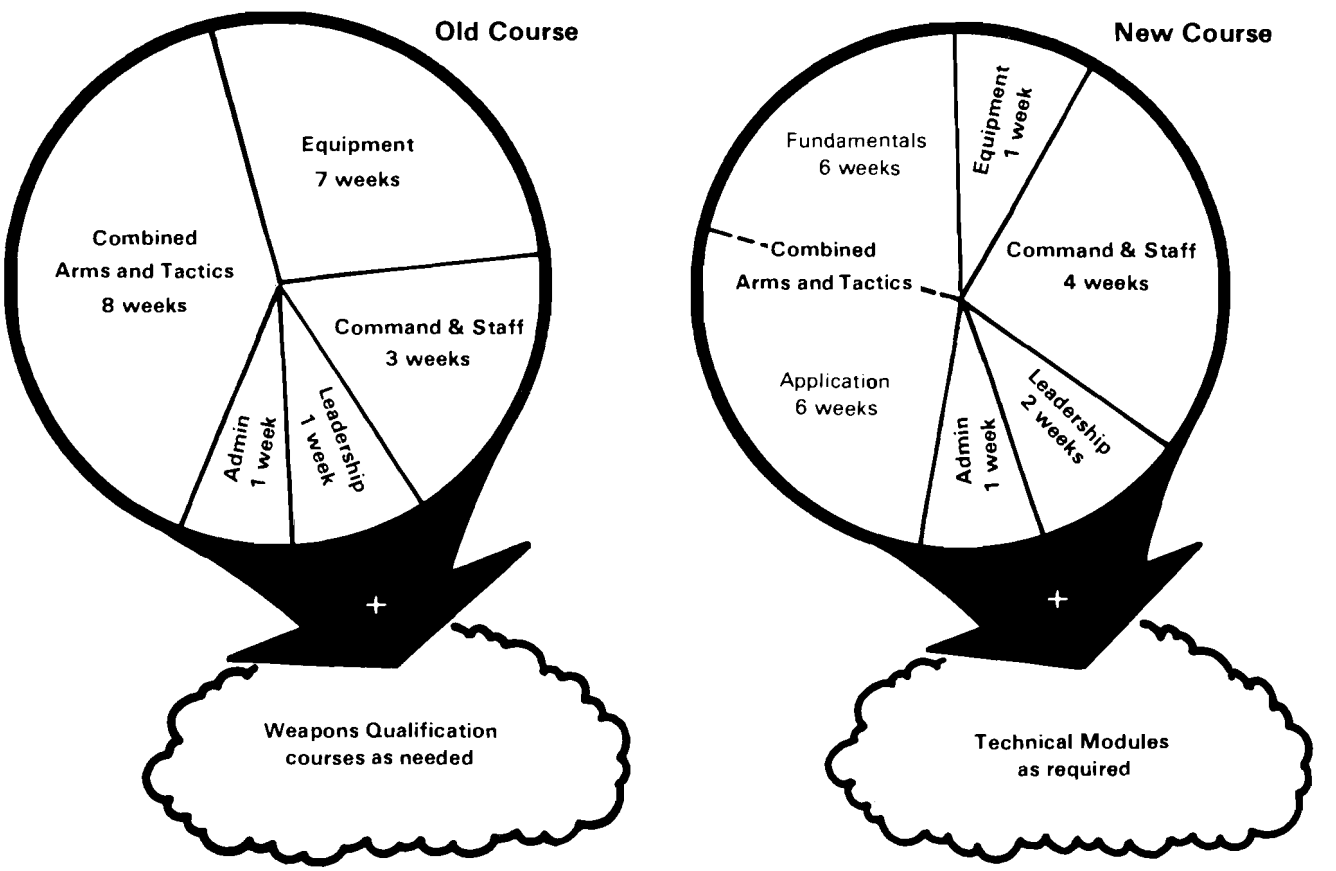
Combined Arms Integration and Acceptance. No matter what your branch, educating other branches about your branch's capabilities and acting as a salesman for your branch is a continuing way of life. Accept it as a reality. Learn to talk about our ADA's AirLand Battle role in the combined arms "language." Join the fray. Our Army, in fact our American way of life, is an advocacy system. Become an ADA apostle. Don't be bashful about our contribution. My assessment of how we're doing with the other combined arms (in alphabetical order):

- Armor: Gangbusters! The Armor community understands a Hind is a flying tank. Also, they realize there is not enough air defense to go around.
- Aviation: Gangbusters! Integrated as a full-fledged member. New FAAD C²I software routines being written as you read. Indeed an asset that, where "chopped" to the air defense commander, gives us a new flexibility to weight the defense.
- Field Artillery: Making headway. Positive attitude. Redlegs realize the importance of air defense and some momentum is building.
- Infantry: Long way to go. Our infantry brethren have their own fires to douse, and the diversity of their mission, from low-intensity conflict to World War III, gives them a unique challenge. The fact remains that freedom to maneuver is essential to success, no matter what the level of conflict. Threat aircraft traveling at 250 meters per second don't take too long to change the level of intensity.

ADA School Revitalization. A reality. Hinman Hall at Fort Bliss bubbles with activity. The move to small group instruction in the officer advanced course, 40 percent of officer basic course, and advanced noncommissioned officer course is paying big dividends. Not that we're satisfied, but it's a giant step forward in learning excellence. We are doing a much better job of training our students to meet field realities. And hear this — we're going to get even better.

For your information, see the charts below which show the shifts in what we teach in the officer advanced course. Notice the 50-percent time increase for combined arms and tactics. Also notice that technical proficiency is further emphasized by tailored technical modules designed for captains who need system smarts. These same principles apply to other courses.

ADA Officer Advanced Course



FAAD Fielding. Eighteen months of progress! Our most recent success: a dynamite briefing in July for the Honorable Caspar Weinberger, the Secretary of Defense. Again, the FAAD Program Executive Office and Fort Bliss teamwork paid off. Mr. Weinberger reaffirmed his strong personal commitment to doing all possible to fill the gap in forward area air defense left by the departure of the Sergeant York Gun by fielding the FAAD line-of-sight forward (heavy) component. The "shoot-off" involving four line-of-sight forward contenders began in July. My next "Intercept Point" will focus on the competition. Some other highlights:

- A C^2I software contract was signed Sept. 29, 1986, and work is underway.

- The pedestal-mounted Stinger "shoot-off" to determine whether Boeing's Avenger or LTV's Crossbow will become the FAAD system's line-of-sight rear component is complete. The winner was to have been announced in late August, too late to make this edition of the *ADA Bulletin*. The November-December issue will feature an entire section on the winner. No matter which one wins, the pedestal-mounted Stinger, featuring improved fire control and sensors and eight Stinger missiles mounted on a high-mobility, multi-purpose vehicle, will be pure dynamite!

- The line-of-sight forward competition and the four contenders are described on Page 10. The winner is to be announced in late November — a tight schedule. Look for more news about the shoot-off next issue and for a full-scale feature section on the eventual winner in the bulletin's January-February issue.

- The FAAD ground radar "sense-off" for the forward area alerting radar should start early next year.

- The fiber-optic guided missile, or FOG-M, is featured on Page 14. The sole candidate to become FAAD's non-line-of-sight component admits air defense to an exciting new dimension. It shoots over hills. The request for proposals to industry is due out shortly.

Credit for the lion's share of FAAD progress belongs to Brig. Gen. Bill Fiorentino, his FAAD Program Executive Office and the respective program manager. Those of you who hunger for excitement should consider the wonderful world of project management. Brig. Gen. Fiorentino is looking for a "few good men."

Build on Patriot Success. Patriot fielding is unquestionably the Army's largest success story. Five battalions in Europe. Two more in training at Fort Bliss. Readiness rates for 32nd Army Air Defense Command far exceed expectations. Two deployments in major exercises from Germany to England with superb results. And an anti-tactical ballistic missile (ATBM) mission for Patriot may be just around the corner. Look for an article introducing Patriot's ATBM potential in the next issue of ADA Bulletin.

In summary, exciting times for professional air defenders. Tough challenges and high stakes. But, you must help by doing your part. Your Army, your branch, is counting on you.

First to Fire!

The Open Door

Changes: A Part of NCO Business

by CSM George W. Lay Port
U.S. Army Air Defense Artillery School

At the twilight of my career in the U.S. Army, I'm saddened by the thought of how my life will change. The people that I meet will be different from the soldiers that I have proudly served with for the last 26 years, six months and 22 days.

I will no longer travel to the far corners of the earth, nor will I any longer be an active part of the closeness, the belonging and the caring group that I have served with.

I have been witness to many changes, some good and some not so good. I have had an active part in bringing about change. I have saved and I have destroyed, but I have never enjoyed causing harm to heart, body or mind.

I know that I am leaving what I love in the hands of dedicated professionals. I feel that there are many NCOs who need to be given a chance to implement new innovations, new ideas and new

ways of doing what we did in our own way when we drove the train.

I think that today's non-commissioned officers corps has talent and the ability to erase any vestige of stigma that has unwittingly plagued us since the Vietnam era. They possess the talent and fortitude to keep this forward momentum.

To watch ADA soldiers grow into skilled professionals is a joy

On March 19, 1961, I enlisted in the Army and took basic training at Fort Benning, Ga. I was fortunate to train under some super NCOs. I still remember one who stood out, SFC Rodenberry. He is vivid in my mind because he was so dynamic. Whatever he did, he did with precision. He showed courage and decisiveness and I suppose he became my first NCO role model.

One of the most enjoyable tasks I performed during my Army career was to take young soldiers and work with them — mentoring, teaching, drilling — preparing them to represent our unit in competition for soldier or NCO of the month, quarter or year. To watch soldiers grow and develop into skilled professionals is a joy that I will miss more than anything else when I leave the Army.

The future of the Army, however, will no longer depend solely on the occasional exceptional role model from which NCOs had to learn their responsibilities and professionalism throughout their career. Today, the Army is offering an organized and comprehensive NCO education program that will guarantee soldiers are exposed to exceptional NCO performance.

The method of growing and developing air defense artillery soldiers into skilled professionals has changed at Fort Bliss, Texas. The non-commissioned officer education system (NCOES) has created a tougher program of courses that are more physically and mentally demanding. From the primary leadership development course (PLDC) through the advanced non-commissioned officers course (ANCOC) at the NCO Academy, courses are now leadership intensive and performance oriented. They will no longer be referred to as "gentlemen's courses."

There are misconceptions and misgivings about putting or exposing our senior NCOs to an NCO Academy environment. The mind set is that they are being treated like new soldiers, not seasoned NCOs. Our intent is to take a good NCO and make him or her a better leader, NCO and soldier, not to demean either his or her rank or position. We hope to accomplish this by assigning each member to at least two leadership positions while he or she is going through the course. For instance, for the ANCOC class, the class leader serves as the battery commander. Because of certain requirements that are placed on the class leader, not required of other students, this responsibility does not rotate among the students.

The other students however, assume squad leader, platoon sergeant or first sergeant positions. These leadership positions are rotated each week to ensure that all students serve in at least two leadership positions during their time in the course.

Each ANCOC class is organized into four platoons, and each platoon has two instructors/group advisors assigned to the group during in-processing. The instructors remain with a group throughout the course. The instructors serve as mentors, teachers, evaluators and counselors.

The method of instruction, where feasible, is in the small group format, and the instructors will act as the subject matter experts facilitating the small group.

Each day starts with physical training, in ranks or billets inspections, or dismounted drills. The instructors demonstrate the proper method of conducting physical training, inspections and dismounted drills for the first few days. This helps ensure that everyone knows the standards and procedures when they assume the role of evaluator. This method involves every member of the class in the teaching and learning process. Each student is required to evaluate the other members of his or her group on attitude, learning, initiative, self-discipline and teamwork and then to rank order them according to their merit in the group. The end result is a more knowledgeable, people-oriented, team-playing NCO and leader.

As the backbone of the Army, we, the NCOs, must take charge of our destiny by taking charge of our present. □

4/61st ADA Vulcans 'Nice to Have Around'

Warfare changed radically when flying machines added a new dimension to the battlefield. Ground troops must now contend with swift, agile attacks from the air. Air Defense Artillery defends ground forces and command assets from air attack.

The 4th Battalion, 61st Air Defense Artillery, Fort Carson, Colo., recently sent its A Battery to support a brigade from air attack during exercises at the National Training Center (NTC), Fort Irwin, Calif.

Vulcan platoons and Stinger teams were attached to various brigade units for both live-fire and force-on-force phases of the exercise. Some units quickly discovered that the slower moving Vulcans were nice to have around.

"One unit was moaning about how they didn't want ADA with them because we slow them down too much," said Spec. Bret Carvell. "They got into a firefight during the force-on-force, and when they started getting waxed by OPFOR [opposing forces] Hinds [helicopter gunships] they were crying for ADA support."

The newest Vulcan platoon member said the NTC exercise was a good experience. Pvt. 2 Samuel Thomas said he is much more confident in his skills as a Vulcan crew member after working as a gunner during the force-on-force phase. "I got to fire at a Hind," he said. "In AIT, we only fired at radio-controlled planes. We never fired with MILES [multiple integrated laser engagement system]."

MILES exercises at NTC are a bit less realistic for Stinger teams due to the weapon's actual range, but no less valuable, said a Stinger team chief, Spec. Edward Mahler. "NTC is mainly a logistical exercise for us," he said. "We work on tactics, communications, selection of positions and maneuvering."

Two-man Stinger teams are attached to infantry or armor companies and work directly with the unit leaders during mission planning he said. The team leader, who is frequently a specialist, must know his job well. According to Mahler, the team chief is the ADA representative to the supported company and must be able to advise the unit's leaders on the Stinger team's capabilities.

Vulcan team chiefs are also frequently tasked with the same responsibility and, as such, must display the same level of expertise.

The recent NTC exercises went smoothly for the entire battery, reflected in the unit's 99-percent operational rate for the entire exercise, said SSgt. Juan Gonzales. He said the unit fired 12,800 rounds of 20mm ammunition without a single cannon malfunction.

That equipment reliability extended beyond the cannons, however. Sgt. Keith Jackson said his unit went through the entire exercise without a single mechanical, electrical or weapon breakdown. "That has never been done before," he said. "We got a lot of compliments from the NTC observer/controllers and from the brigade and task force commander." Jackson credits team member pride and the resulting attention to maintenance for the remarkable equipment reliability.

Although he was speaking of the Stinger platoon in particular, SSgt. Gary Matte's comment on the exercise reflects on the efficiency of the entire battery: "Every day something flew, we shot something down."

by Ken Clauson

Pvt. 2 Samuel Thomas (left) and Pvt. Willard Harrell inspect a Vulcan, keeping up the exceptional operational rate for the unit during a recent training exercise. (Photo by Ken Clauson).

ADA NCOs Run Show in Skill Refresher

After marching eight miles carrying packs weighing as much as 80 pounds, NCOs from the 5th Battalion, 52nd Air Defense Artillery, Fort Stewart, Ga., spent two days in the field going over all the skills that NCOs might have become a little rusty on since becoming supervisors.

The NCO field training exercise was organized and executed by NCOs. There were no officers involved with any of the planning, said 1st Sgt. Wafals Walas Jr., acting sergeant major for 5/52nd ADA.

The battalion brought its soldiers out to the field to create a better training atmosphere. This kind of training is usually done in the garrison area, Walas explained.

"The field environment is better because it makes it a combat simulation. In garrison, everyone has a laid-back attitude. Out here, everyone has a good attitude," said Spec. Scott Naganuma.

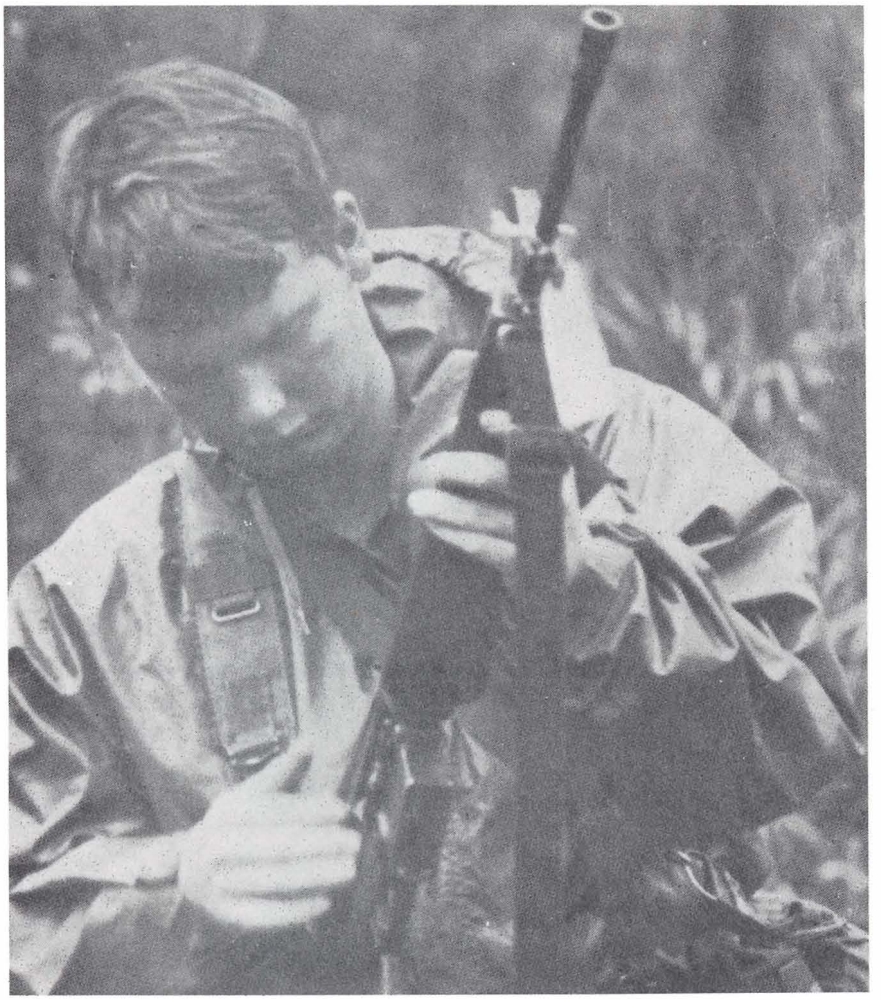
"It's good training," said Spec. Jimmy Lenard. "It's like a refresher course; it keeps you in touch with your job."

In addition to the road march, the soldiers practiced their common task skills, brushing up on things like building fighting positions, breaking down machine guns and implanting land mines."

"It's pretty good training all around," Naganuma said. "The road march should be included as common task training."

The soldiers were checked to see how well they provided security, built fighting positions and how they took care of their people, Walas explained.

by Pvt. David Baker



Cpl. Michael Suggs, C Battery, 5/52nd ADA, performs a functions check on his M-16 rifle during NCO training. (Photo by Pvt. David R. Baker)

Air Defenders Important in Hawk System Testing

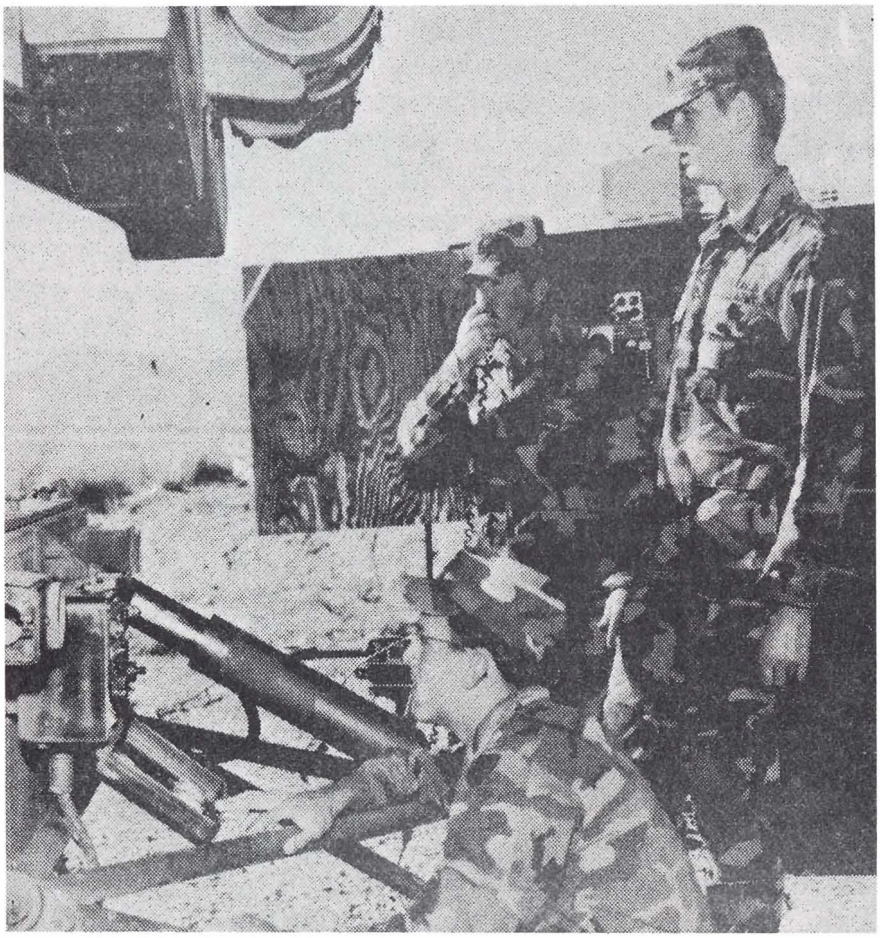
The use of soldiers in weapon system tests and evaluations is most important in the areas of equipment reliability, safety performance and human-factors engineering.

Soldiers of the Hawk firing battery at LC-32, White Sands Missile Range, N.M., had a successful year in the Hawk Test Project. These air defenders successfully maintained and operated their Hawk equipment to support the testing of the Phase III Hawk missile system.

They supported other tests as well: the Joint Tactical Information Distribution System tests, Hawk/Patriot Interoperability tests and the Continuous Wave Acquisition Radar tests for the 11th Air Defense Artillery Brigade, Fort Bliss, Texas.

In addition to providing support to test projects, soldiers of the battery prepared, operated and maintained the Hawk equipment to fire several Hawk missiles during the year for missile lot acceptances.

The soldiers of the Hawk battery are often referred to as soldier-operator and maintainer test and evaluation (SMOTE) personnel. The concept of SMOTE has grown



SSgt. Reginald Burdette (top), Spec. Trevor Thorpe (right), and PFC Ken Langford prepare a Hawk missile launcher for firing.

at the Hawk Project from using soldiers on tests specifically requiring their use to having military involvement in every test possible.

The SMOTE personnel give the Hawk Project and the contractor technicians first-hand feedback from the point of view of the soldier-operator and maintainer.

The operators and mechanics in the unit received training in the Phase III Hawk missile system to prepare them for future testing. SFC Larry Wilson, the battery's firing platoon sergeant, trained himself on the new integral operator trainer, a computer program designed to simulate tactical scenarios. He now trains fire control operators in the Phase III Hawk missile system.

Earlier in 1987, some NCOs received formal new-equipment training from civilian contractor personnel on the Phase III Hawk to enable them to better train the SMOTE personnel.

Severe shortages of qualified school-trained personnel in certain specialties caused the battery to begin an extensive cross-training program. The goal is that every soldier in the battery will be able to perform the duties of at least two different specialties.

One example is SSgt. Reginald Burdette who was the unit's only 16D, Hawk launcher crew member. He effectively cross-trained several soldiers from other specialties to form a launcher crew. The crew successfully decanned, prepared and loaded every Hawk missile fired at White Sands in 1986.

The benefits from using SMOTE personnel are considerable. The individual soldier, however, receives the most benefit. The soldier is exposed to Hawk, both present and future systems, and is ahead of his or her peers upon leaving White Sands Missile Range in terms of experience with Hawk.

The Army units in the field benefit when former SMOTE personnel bring their expertise on new systems to the unit. Also, SMOTE personnels' military training and practical field experience offer early insight into the soldier-machine interactions and what responses to expect from Hawk units in the field. Thus, the Hawk Project and the test and evaluation benefit from the use of soldiers.

by Capt. Sergio Pena

6/56th ADA's Battle Book Cuts Out the 'Gray Areas'

Are you combat ready? Can you move, shoot and communicate? Do you know the proper NBC procedures? Are your weapons serviceable, your TA-50 complete? Do you know the convoy procedures? Can you conduct ground reconnaissance?

To be a successful soldier in the 6th Battalion, 56th Air Defense Artillery, 32nd Army Air Defense Command, you must meet the stringent challenges of the battalion's *Battle Book* guidelines. With the Chaparral/Vulcan unit's "rules of war," there are no gray areas. You either perform to *Battle Book* standards, or you go home defeated.

Soldiers of 6/56th ADA live or die with the battalion's recently updated *Battle Book*. The guidelines, conceived by the battalion's operations staff (headed by Maj. William Laramore), went into effect earlier this year.

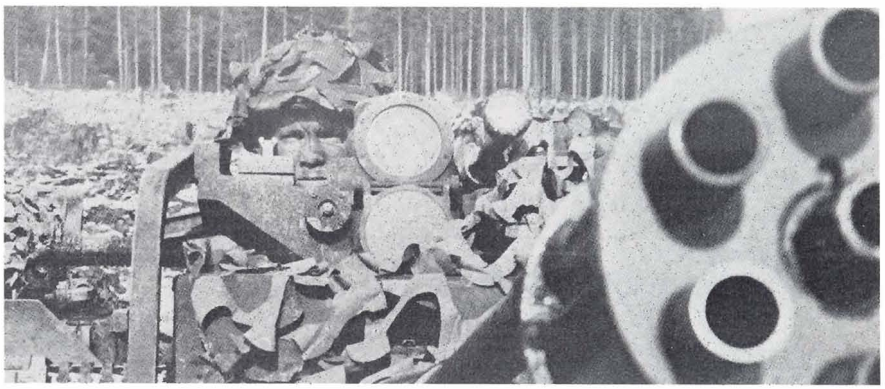
Despite the abundance of battle tasks to perform, the guidelines are simplified for the benefit of the soldiers and leaders. An example from the guidelines: "Camouflage: Standard — Three of four squads must be fully camouflaged within 45 minutes of battle stations. Soldiers must be camouflaged with camostick and natural vegetation IAW FM 44-3, and STP 21-1-SMCT, and the battalion SOP."

The new guidelines "cut the subjectiveness out of battle evaluations," according to the battalion's assistant S-3, 1st Lt. Barry Manning. "The guidelines are working well. The lower enlisted are doing well in the field. They have a willingness to learn from the guidelines, and their motivation has been outstanding. The platoons really get up for it. It gives them bragging rights."

A member of the *Battle Book* evaluation team, SSgt. Dennis Alber said that because the *Battle Book* covers so many areas, the guidelines help the soldier when "the rubber meets the road." Alber said, "We're seeing a lot of hustling, and that's the best thing we as evaluators like to see happening."

Soldiers participating in the evaluations find themselves in the field until "they get it right," and getting it right, Manning said, is when the troops are "capable of fighting and winning on the battlefield."

For soldiers of 2nd Platoon, C Battery, a recent evaluation brought praise from the battalion headquarters. Sgt. Gifford Miles said the evaluation took many hours to prepare for. His Vulcan crew of Spec. Walter Norris and Pvt. 2 Roger McFarland took on their first evaluation with "motivation and a lot of esprit de corps," Miles said.



On the ready for the enemy is Spec. Walter Norris of C Battery, 6/56th ADA, during a *Battle Book* evaluation. (Photo by SSgt. Pete Durban)

Miles, Norris and McFarland agreed that the *Battle Book* evaluation is the toughest of all evaluations because it is so intense.

The platoon's performance was no surprise to SSgt. William Fowle. "I had no doubts from the beginning. Our pretest displayed the soldiers' knowledge and abilities; it also helped some new squads get ready for it."

Fowle said the secret to passing the *Battle Book* evaluation is to be strong in all areas. "If anyone wants to pass — the basic skills, aircraft recognition, battle drills, everything — he needs to be knowledgeable of all the tasks, not just some areas."

Platoon leader 1st Lt. Chris Porras summed up the evaluation simply: "It's closer to war than anything we do. It really gets the squads tactical."

by SSgt. Pete Durban

Hawaiian 'Renegades' Take on 'hostiles'

The "Renegades" of B Battery, 1st Battalion, 62nd Air Defense Artillery, went up against "hostile" jets during two weeks of training in exercise Cope Thunder in the Philippines.

Twenty soldiers from the battery's Redeye platoon and two from the forward area alerting radar (FAAR) team conducted air defense maneuvers as part of the joint service exercise.

"This is one of the few places in the world where we are allowed to track aircraft in a live fire environment," said 1st Lt. Donald Matz, B Battery Redeye platoon leader. The soldiers are assigned to the 25th Infantry Division, Schofield Barracks, Hawaii.

The Redeye air defenders trained on the M-49 tracking head trainer which simulates the engagement procedures of the Redeye missile system. The Redeye is a shoulder-fired, short-range, anti-aircraft missile.

The FAAR air defenders trained with members of the 3rd Tactical Electronic Warfare Training Squadron from Camp O'Donnell, an Air Force radar station in the Philippines.

"We didn't bring the FAAR, but we used equipment that was similar," said SFC Napoleon McCall, FAAR platoon sergeant.

Working alongside the Renegades were Stinger teams from an Air Force unit based in Kunsan, South Korea, and a Marine Corps unit from Okinawa.

The groups exchanged missile trainers and compared the more advanced Stinger missile system with its predecessor, the Redeye.

Working with the Redeye teams, the FAAR personnel stationed themselves in the Aplha Control Center of Camp O'Donnell. They provided early attack warning and identified aircraft for the teams. They also recorded engagement reports from the teams, which helped the Air Force determine the effectiveness of their pilots' air defense countermeasures.

All Redeye units in the 1/62nd ADA are scheduled to switch to the Stinger system this year, according to SFC John Jackson, Redeye platoon sergeant.

by PFC William A. HooFatt

'Can Do' Road March Builds Confidence

"This is a perfect chance for our soldiers to build confidence in themselves and their vehicles," said Maj. Ray Kenny, executive officer of the 1st Battalion, 68th Air Defense Artillery, Fort Hood, Texas. He was talking about the 100-mile convoy conducted by the unit's Headquarters and Alpha batteries.

The test of man and machine was conducted primarily in preparation for the unit's participation in Reforger '87. Kenny explained, "This convoy exercise will teach us how to negotiate long distances with both wheel and track vehicles combined with the usual confusion of civilian traffic."

The workday started out a little earlier than usual as the soldiers woke by 4 a.m., ate breakfast and prepared the vehicles for the long haul. Vehicles were lined up, complete with personnel clad in mission-oriented protective posture (MOPP) gear, ready to roll. The batteries were broken down into four separate march orders, and soon the first contingent of Headquarters Battery was leading the way.

The units were not alone in their endeavors. They were assisted by the 545th Military Police Company. The company controlled traffic along the convoy route by placing military police at different points, ensuring that the vehicles in the convoy were not obstructed during the exercise.

Upon completing the first of two 50-mile segments, the unit was halted for a 30-minute maintenance stop. This gave the soldiers time to make any needed repairs to the vehicles and to grab a bite to eat. Because all members of the convoy were required to stay awake at all times, the break was also used to stretch tired legs and muscles.

"The first 50 miles were tiring, but I think that the second loop will be harder," said PFC Carlos Santini. "The best way to remain alert during the convoy is to talk to the other people in the vehicle."

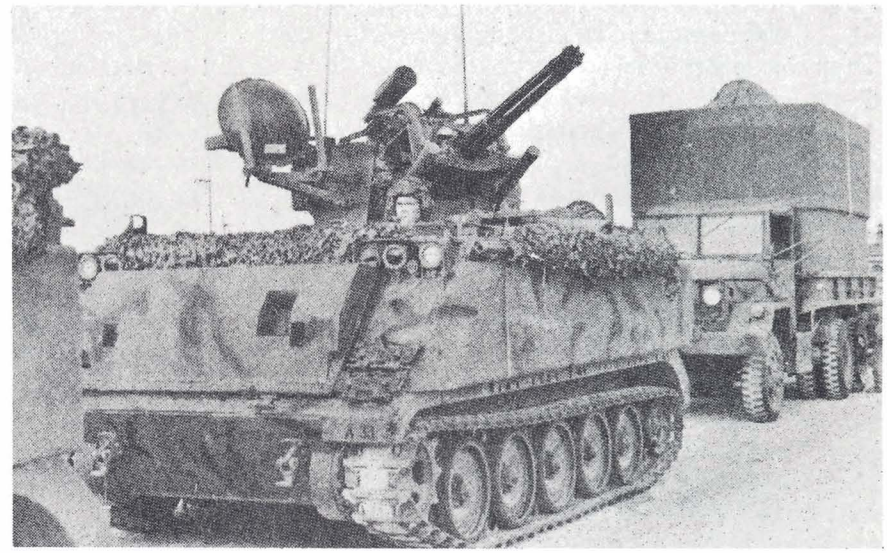
Soon the break was over, and as Headquarters Battery started on the second leg of the trip, Alpha Battery, complete with Vulcans, pulled in for a maintenance stop of their own. Thirty minutes later they were also on the road again.

Watching the operation from the air and on the ground, the commander of the 1/68th ADA, Lt. Col. Dennis Cavin, explained, "This exercise, when completed, will tell us if our drivers and vehicles can sustain long-distance travel. The soldiers are also learning good convoy procedures."

As the batteries finished the last leg of the 100-mile convoy, they were faced with another task — rapid refueling. This operation was monitored closely, and the units once again received assistance from another source. This time it was the 4th Main Support Battalion. The vehicles were timed as they were run through the refueling station. The unit averaged a speedy 72 seconds per vehicle.

Finally, the exercise ended. It was time for the tired soldiers to reflect on the day's activities. Sgt. Joaquin Davila, A Battery, said, "This has been excellent training. I'm really looking forward to Reforger."

by Edward L. Pellasce



Pvt. 2 Jason Fouquette prepares to convoy with the 1/68th ADA, Fort Hood, Texas. (Photo by Edward L. Pellasce)

Line-of-Sight Forward Competition Underway

Forward area air defense shootoff challenges Army public affairs offices as well as weapon prototypes

The forward area air defense (FAAD) system's spotlight now focuses brightly on the competition for the most lucrative of FAAD contracts — the line-of-sight forward contract.

Four line-of-sight forward prototypes began competing in July across a sun-tortured stretch of desert which Spanish conquistadores called the Jornada del Muerto, the Journey of Death. The Jornada was once the shortest route between El Paso and Sante Fe for early settlers willing to fill up their canteens, abandon the safer but longer route along the Rio Grande and strike out across the dunes. Today, the Jornada occupies the northwest corner of White Sands Missile Range, N.M.

The Jornada del Muerto Valley and the jagged peaks which surround it are no strangers to high stakes weapons testing. In the summer of 1945, when the desert blazed with yellow cactus flowers, construction crews, a military police detachment, and, later, platoons of scientists and nuclear physicists from Los Alamos came to the Jornada. Their mission was to establish Trinity Site — scene of the first atomic bomb test. Their arrival set off an economic mini-boom in nearby Carrizozo, N.M., whose residents were told a remote munitions dump was under construction amid the mesquite and cactus.

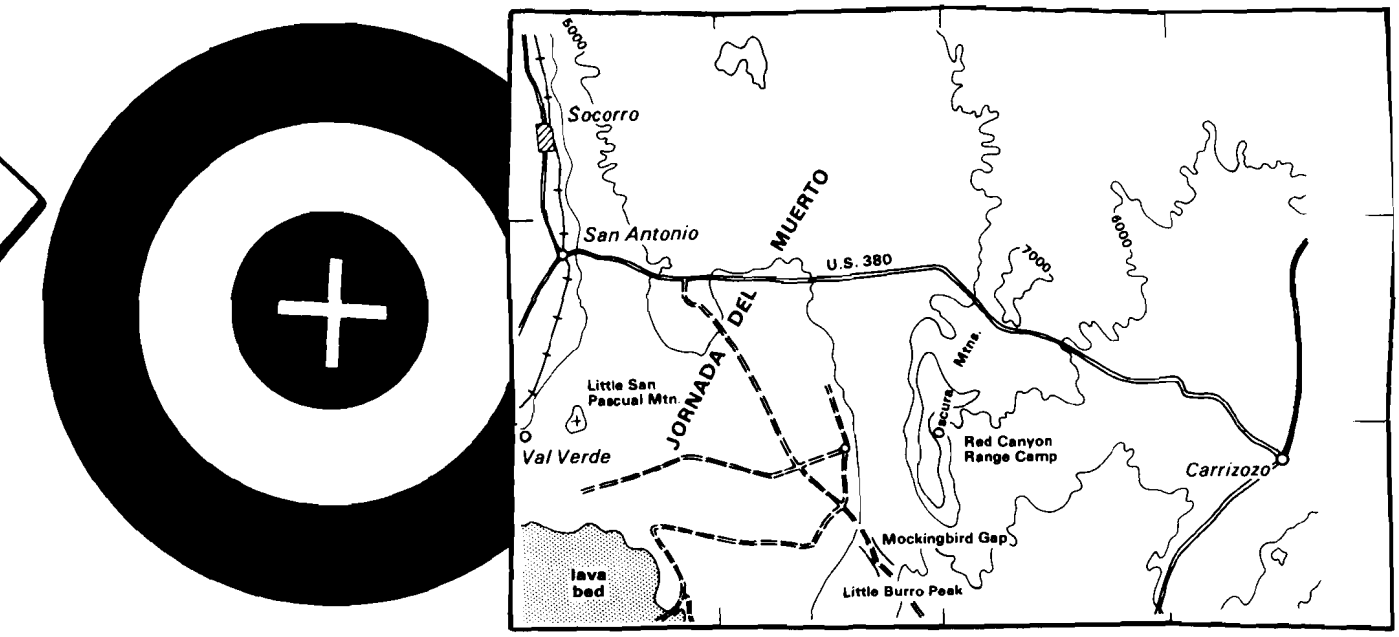
Located about 30 miles from Trinity Site at the juncture of U.S. 380 and U.S. 54, Carrizozo was close enough to Trinity Site for the town cafe and gasoline station to profit from the unprecedented traffic. The influx put tiny Carrizozo, so to speak, on the map. Trinity scientists, however, worried that Carrizozo might not be far enough away from ground zero to avoid being blown right back off. The night the first mushroom cloud blossomed above the Jornada, a medical detachment stood by on the outskirts of Carrizozo, ready to administer to survivors in case the scientists' calculations proved slightly awry and the bomb more powerful than expected.

Today, Carrizozo is witnessing a revival of the 1945 mini-boom. One of the line-of-sight forward contractors has rented a Carrizozo office building. The town's single motel makes only two of its 22 rooms available to overnight travelers; the rest are reserved for contractor and government employees. The contractor and government employee population in the Carrizozo vicinity is expected to peak at about 500 before the test ends.

Although Carrizozo is experiencing a sense of deja vu, no shroud of secrecy comparable to that which covered the Trinity blast surrounds the line-of-sight forward test. Quite the opposite is true.

The military procurement system and the weaponry it produces has recently been subjected to heavy media flak. The FAAD system, in general, and the line-of-sight forward component, in particular, figure to be no exceptions. To complicate matters, the intricacies of the five-component FAAD system don't translate easily into good 30-second television spots or fit neatly into the limited space newspaper editors allot to military news.

To make sure its side of the story gets told, the Army has launched a coordinated media campaign. The Fort Bliss Public Affairs Office spearheaded the media effort on June 30, the day before the line-of-sight forward test began, by chopper-ing teams of newsmen out to the test site below Oscura Peak, which overlooks the Jornada Val-



Line-of-Sight forward test sites border New Mexico's infamous Jornada del Muerto, the Journey of Death, and Trinity Site, scene of the first atomic bomb test.

ley. Below the mountain whose name in English means "dark," Fort Bliss Public Affairs Officer Lt. Col. James Lawson presented a slide show to shed light on the FAAD system.

The line-of-sight forward component is one of five FAAD components which includes the non-line-of-sight, line-of-sight rear, FAAD command, control and intelligence and combined arms initiative components. The Army considers no one FAAD component more important than another. The FAAD system is based on the premise that no one weapon but only complimentary weapons integrated into a coherent system can defeat the air threat in the forward area.

"Envision a carrier task force if you will," Lawson asked newsmen. "The big boat in the middle is only one element. You've also got planes, frigates, destroyers and other elements that all defend the carrier."

The Army attempts to downplay the line-of-sight forward component, insisting that it is no more important than any other component in a system that must work together if it is to work at all. The line-of-sight forward component, however, figures to draw the most media attention. The most expensive of FAAD systems, the component's multi-billion dollar price tag makes it the "big boat in the middle."

Also, the ghost of the abandoned Sergeant York Gun haunts the line-of-sight forward component. The line-of-sight forward component is often billed as the interim replacement for Sergeant York. One national news magazine dubbed it the "Son of Sergeant York." Air defense planners, who point out that the line-of-sight forward is designed to counter threat attack helicopter capabilities that didn't exist when Sergeant York was on the drawing boards, say the label is inaccurate and misleading. Concern that the Sergeant York analogy would set the tone for subsequent news coverage of the line-of-sight forward program is one of the reasons the Army's public affairs corps, effectively muzzled during the Sergeant York debate, has assumed a more aggressive stance.

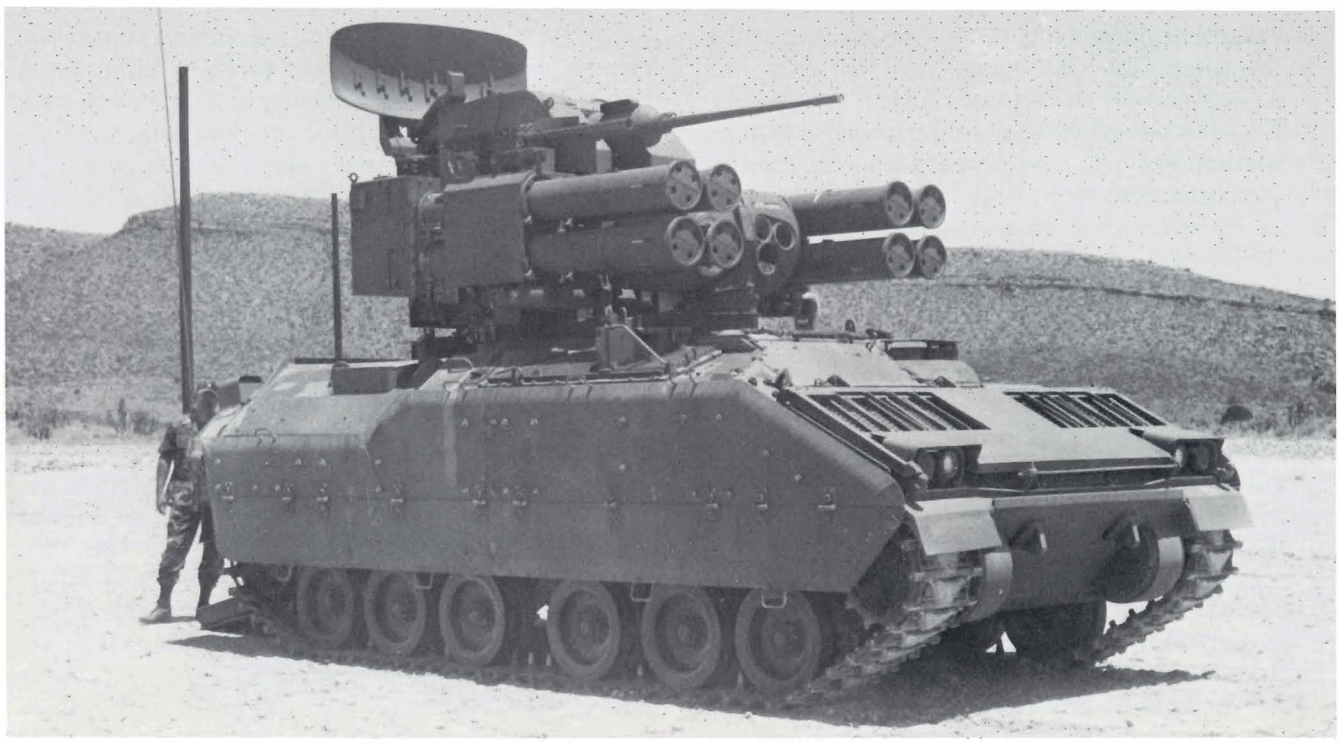
Maj. Gen. Donald R. Infante, chief of Air Defense Artillery, assured newsmen at the Oscura Peak press conference that, if none of the prototypes on display at Oscura Peak work, the Army wouldn't buy one. A few days later, Infante went on local television to champion the FAAD system and defend corporate executives he described as patriots who care about national defense and soldiers as well as profits.

To help leaders such as Infante promote the FAAD system, the Army has prepared a series of fact sheets, press packets, and slide shows, and has set up a quick access net to field FAAD questions. Conscious of the national trade deficit, the press releases carefully point out that, while the line-of-sight forward prototypes may not be as American as apple pie (the major manufacturers are European) much of the money spent will stay in the United States. The U.S.'s Martin-Marietta designed one of the systems, ADATS, under con-

tract for Oerlikon. The British, French and West German companies, manufacturers of the basic weapon systems, have all teamed up with American corporations to produce the FAAD prototypes.

However, the paucity of purely home-spun line-of-sight forward candidates highlights the fact that the U.S. is the only military power (threat or friendly) that doesn't possess a mobile anti-aircraft gun-missile system capable of surviving near the forward edge of the battlefield. The Army hopes one of the line-of-sight prototypes currently kicking up dust in the Jornada del Muerto will soon correct that deficiency.

- Martin Marietta and Oerlikon have entered the air defense/anti-tank system (ADATS), recently selected by Canada as its low-level air defense system.
- Western Alliance Air Defense, a joint venture group formed by Hughes Aircraft Company, Messerschmitt-Boelkow-Blohm (West Germany) and SNI Aerospatiale (France) has entered a variation of the Roland air defense system called the "Paladin."
- United Aerospace Defense, a consortium consisting of British Aerospace and United Technologies and FMC of the United States has entered "Advanced Rapier," a variation of the Falklands War veteran.

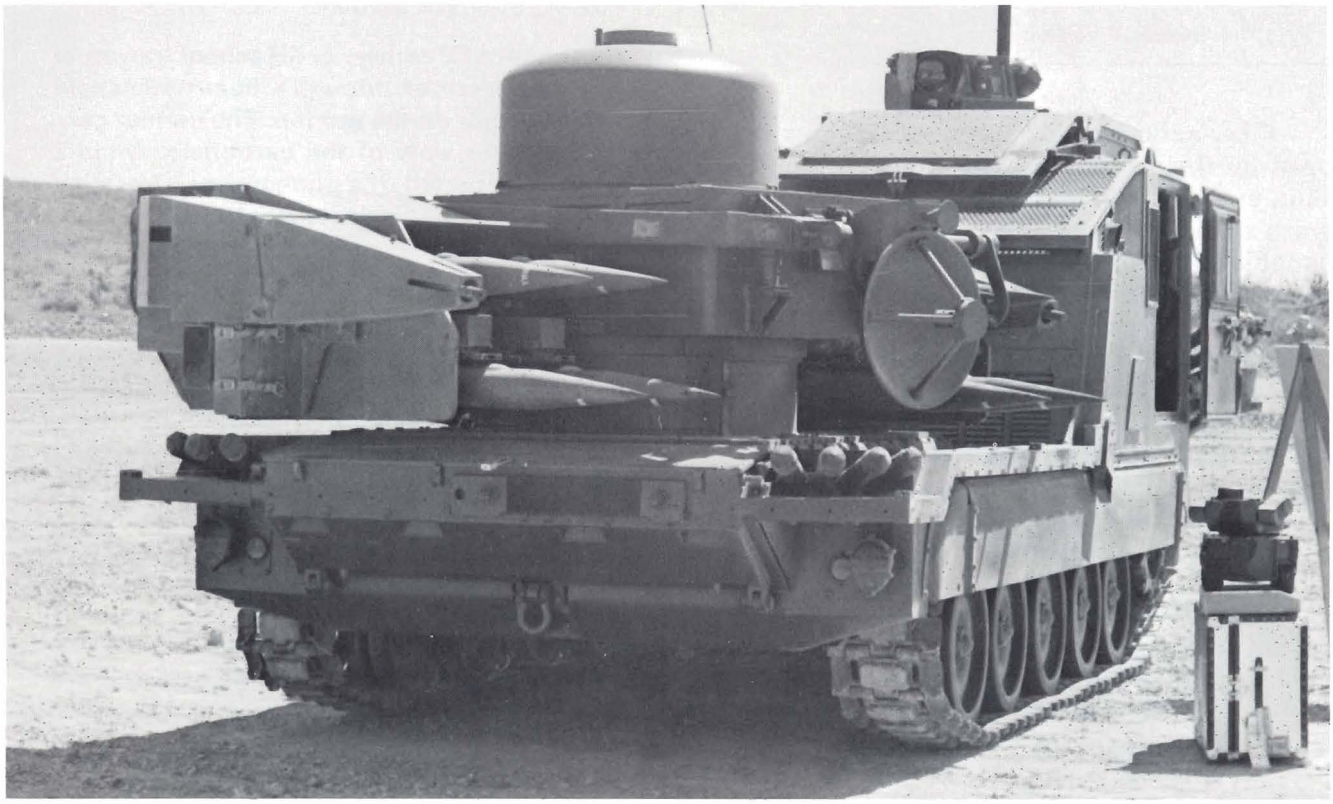


LTV's Liberty, above left, and Marietta and Oerlikon's ADATS, above, are FAAD line-of-sight forward contenders.

• Dallas-headquartered LTV has teamed with France's Thomson-CS to enter "Liberty," a growth extension of the Crotale/Shahine air defense system which has been under development since 1985.

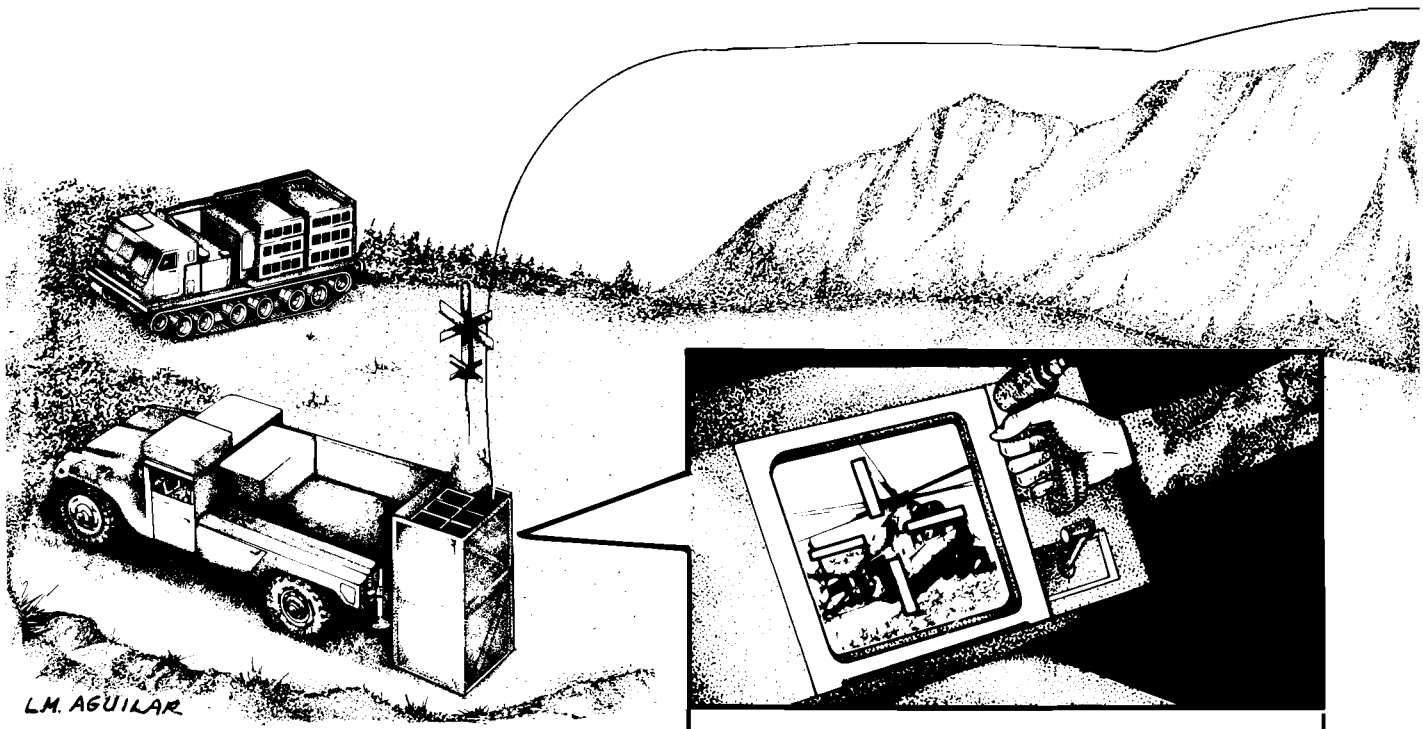
Initial media reaction to the prototypes and the Army's media effort were difficult to assess. Local media, normally favorable to any Army project which promises the local economy a shot in the arm, made heroic attempts to explain the FAAD system in stories that otherwise highlighted associated employment opportunities. Military trade journals, for the most part, were content to announce the names of the contenders. Meanwhile, the national news media seemed too absorbed in the unraveling of the Iran-Contra Affair to take notice.

The FAAD system, 18 months after its conception, remains on schedule. In keeping with the FAAD "off-the-shelf " procurement philosophy, each of the line-of-sight forward prototypes entered is either in production or ready to go into production. The Army hopes to select a winner by November 26 and eventually purchase 562 systems. The first production models are scheduled to reach field units by FY 91. □



Western Alliance Air Defense's Paladin, above right, and United Aerospace Defense Systems' Advanced Rapier, above, are derivatives of the Roland and Rapier air defense missile systems.

FOG-M: 'The Little



FOG-M Gunner's Station

An onboard TV camera or IIR sensor transmits real-time pictures through a fiber-optic cable to the gunner on the ground. The gunner gets a panoramic view of the battlefield. Once a target is detected, the gunner uses a joy stick to guide the missile to its target.

by Lt. Col. Thomas A. Vereb

Fiber-optic guided missile technology developed by the Army promises to solve a problem that, until air defense planners conceived the forward area air defense (FAAD) system, seemed incapable of solution — attack helicopters hovering at standoff ranges or behind terrain mask.

The already ominous air threat to forward deployed forces in divisions, cavalry regiments and separate brigades is rapidly growing in both numbers and capabilities. The Soviets continue to develop and deploy increasingly sophisticated rotary wing aircraft to support their combat operations. Soviet helicopters, their vulnerability limited by short or no exposure times, will be able to engage our ground forces from behind mask (hills or trees) or from beyond the range of our currently fielded air defense systems.

The Army is developing the FAAD system to counter this formidable threat to our maneuver forces. Recognizing that no one weapon could defeat the projected air threat, air defense planners concluded that the FAAD system must consist of five separate components.

Articles in past issues of *Air Defense Artillery* have introduced four of the five FAAD components: the line-of-sight forward; line-of-sight rear; command, control and intelligence (C^2I); and the combined arms initiative. The last and most unique member of the FAAD family is the non-line-of-sight system. Until now, air defenders had to see (visually or with a radar) a target before they could shoot. This new weapon will allow a gunner to engage both helicopters and ground targets that were previously invulnerable to Army air defense systems.

In December 1986, the Department of Defense directed that the Army's fiber-optic guided missile (FOG-M) would become the sole non-line-of-sight candidate.

The FOG-M program began in 1983 as an anti-tank technology demonstration at the U.S. Army Missile Command Research Development and Engineering Center (RDEC), Redstone Arsenal,

Missile that Can!'

Fiber-optic missile technology may solve forward area air defense's thorniest problem — threat attack helicopters hovering behind terrain mask

Ala. The RDEC engineers set out to prove that they could develop, in-house, a missile system using a fiber-optic data link to give a gunner, safely hidden out of sight, missile flight control and a real-time view of the battlefield.

Fiber-optic technology relies on the same tiny strands of glass that "Ma Bell" puts into her new telephone cables. The cables can carry thousands of times more data than conventional cables and are inherently immune to most countermeasures which plague today's air defense systems.

Its elegantly simple technology, low price tag (a fire unit is expected to cost only slighty more than a new Mercedes), and impressive performances in development tests have made the FOG-M something of a media darling. *U.S. News & World Report* billed FOG-M as "The Little Missile that Can," and even the scathing CBS news magazine, *60 Minutes*, praised the system in a segment otherwise devoted to chastising the weapons procurement bureaucracy.

Most of the excitement has been generated by RDEC-produced videotapes of FOG-M trial runs. One FOG-M scored a direct hit on an unmanned helicopter traveling at 70 miles per hour. Following a short session on a FOG-M simulator, a corporal who had never before seen the system took the controls during a live test and demolished a stationary helicopter on his first try.

The extensive research and development work already accomplished by RDEC will reduce the engineering development time that would normally be required to produce a non-line-of-sight prototype. The Army plans to have the first production non-line-of-sight units in the field within five years.

"FOG-M technology is certainly promising," said Col. V.J. Tedesco, the U.S. Army Training and Doctrine Command's FAAD system management officer. "The question is, will it work? We won't have the answer to that question until we've tested FOG-M in conditions that simulate actual combat. If FOG-M works the way it's worked in prototype, it's going to be a particularly nice solution to the attack helicopter problem. The Army developed the technology on its own and should save millions in research and development dollars.

"The head start in research and development also means that we will be able to field the non-line-of-sight component quickly. That's super important because the non-line-of-sight component is the only FAAD component that can deny the attack helicopter a free ride into the division area.

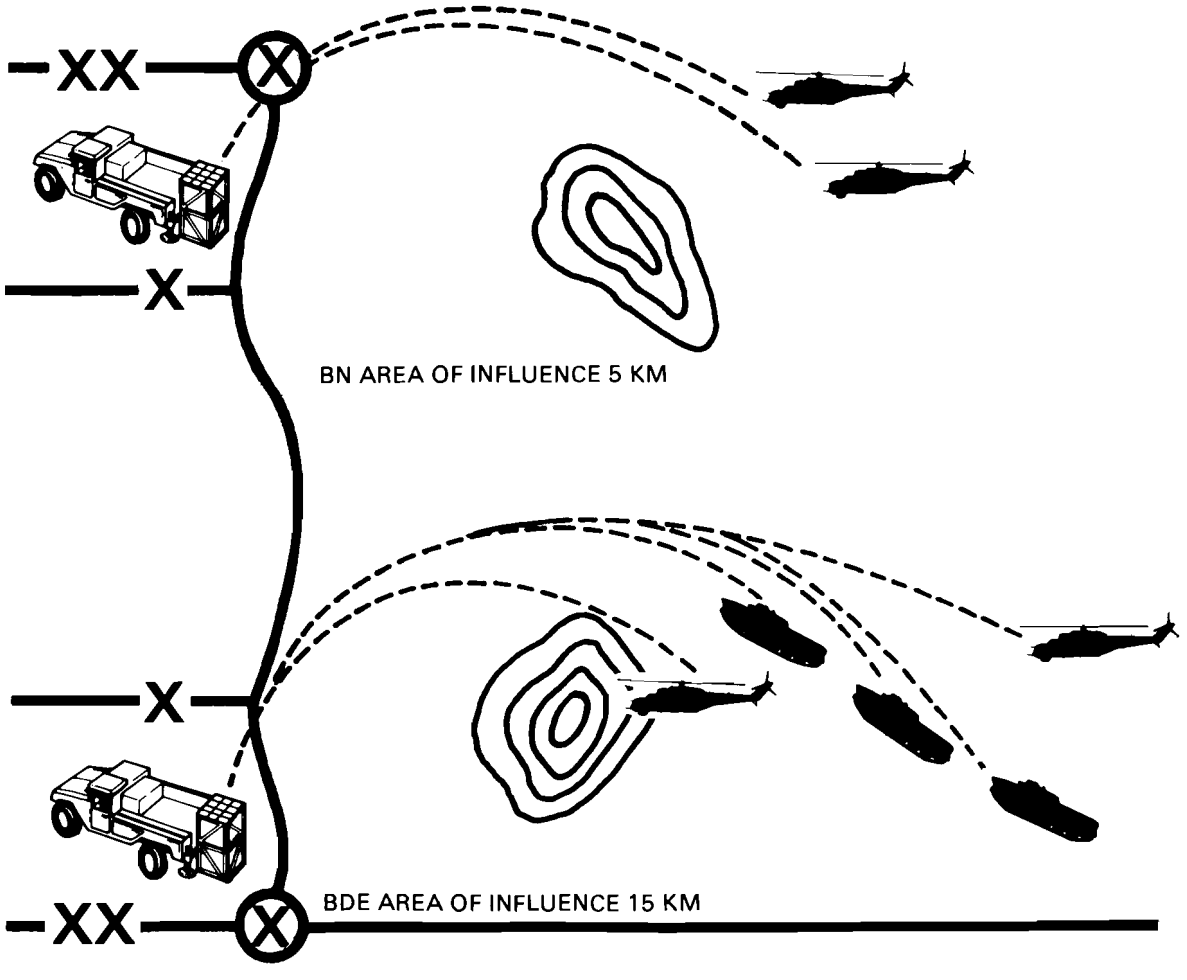
The FOG-M will be able to engage stationary or moving rotary wing and ground targets at ranges in excess of six miles from the fire unit. The missile is fired from a gunner's station emplaced in a defiladed area for crew protection. Two types of missiles will be available, one equipped with a television seeker or one equipped with an imaging infrared IIR sensor. As the missile speeds from its launch site and levels off at about 500 feet, a fiber optic cable spools from a bobbin in the missile's rear like fishing line off a spinning reel. The onboard TV camera or IIR sensor transmits real-time pictures through the fiber-optic cable to the gunner on the ground.

The gunner gets a panoramic view of the battlefield directly beneath and to the front of the missile. Once the gunner visually detects a target, he has the option of either letting a computer track the target to engagement or using a "joystick" to guide the missile to its target. The resolution of the TV and IIR seekers enable the crew member to find either ground or low-flying targets and conduct precision engagements behind hill or other obstructions. The gunner can launch up to three missiles per minute at three different targets within a given target array. The missiles may be launched to reconnoiter the commander's area of responsibility and, once the reconnaissance is complete, attack targets of opportunity.

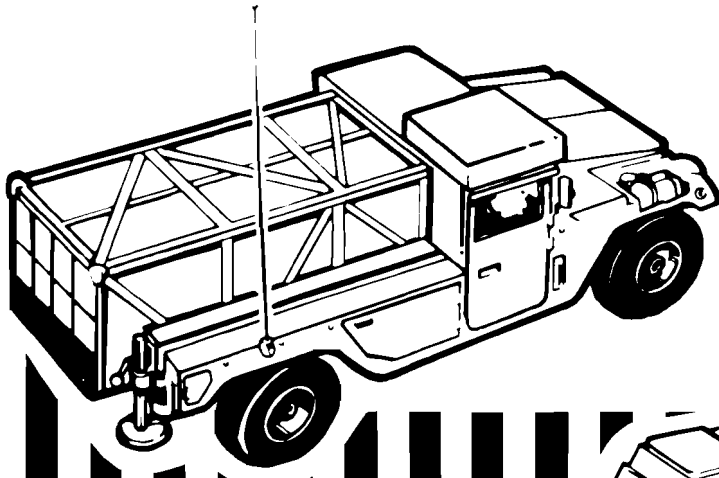
The none-line-of-sight (light) system will consist of a launcher, at least six missiles, an onboard sensor, FAAD C²I interface and a gunner's station. A non-line-of-sight (heavy) system, being developed for armored and mechanized units within heavy divisions, will consist of a launcher, about 24 missiles, an onboard sensor, C²I interface and a firing platform.

Each FAAD firing battery within a heavy division's organic FAAD battalion will have three line-of-sight forward (heavy) platoons and one non-line-of-sight platoon. The non-line-of-sight platoon will have six three-man squads or fire units. Each FAAD firing battery supporting light forces will also have a non-line-of-sight platoon, but the platoon will have only five fire units. Each non-line-of-sight weapon in light units will be manned by two crew members.

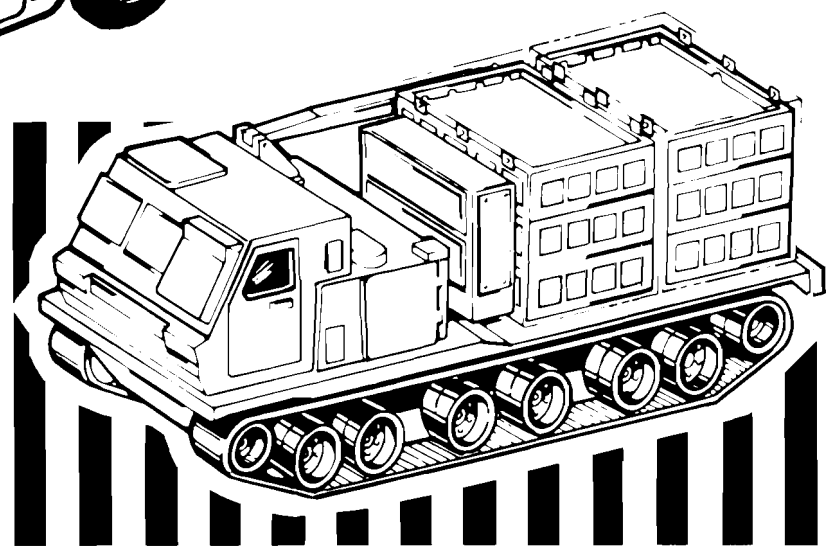
The U.S. Army Air Defense Artillery School, Fort Bliss, Texas, is developing tactics and doctrine in accordance with AirLand Battle Doctrine to



Fire units will engage as far forward as possible.



The "HUMVEE" may become the NLOS (light) platform.



The MLRS chassis may become the NLOS (heavy) platform.

ensure that non-line-of-sight is a dynamic and effective system on the lethal modern battlefield. Non-line-of-sight fire units will be typically deployed in the close operations/combat area. They will engage from concealed positions as far forward as possible behind the maneuvering combined arms team as it operates at or near the forward line of own troops.

The non-line-of-sight gunner will be alerted to enemy targets by a variety of means:

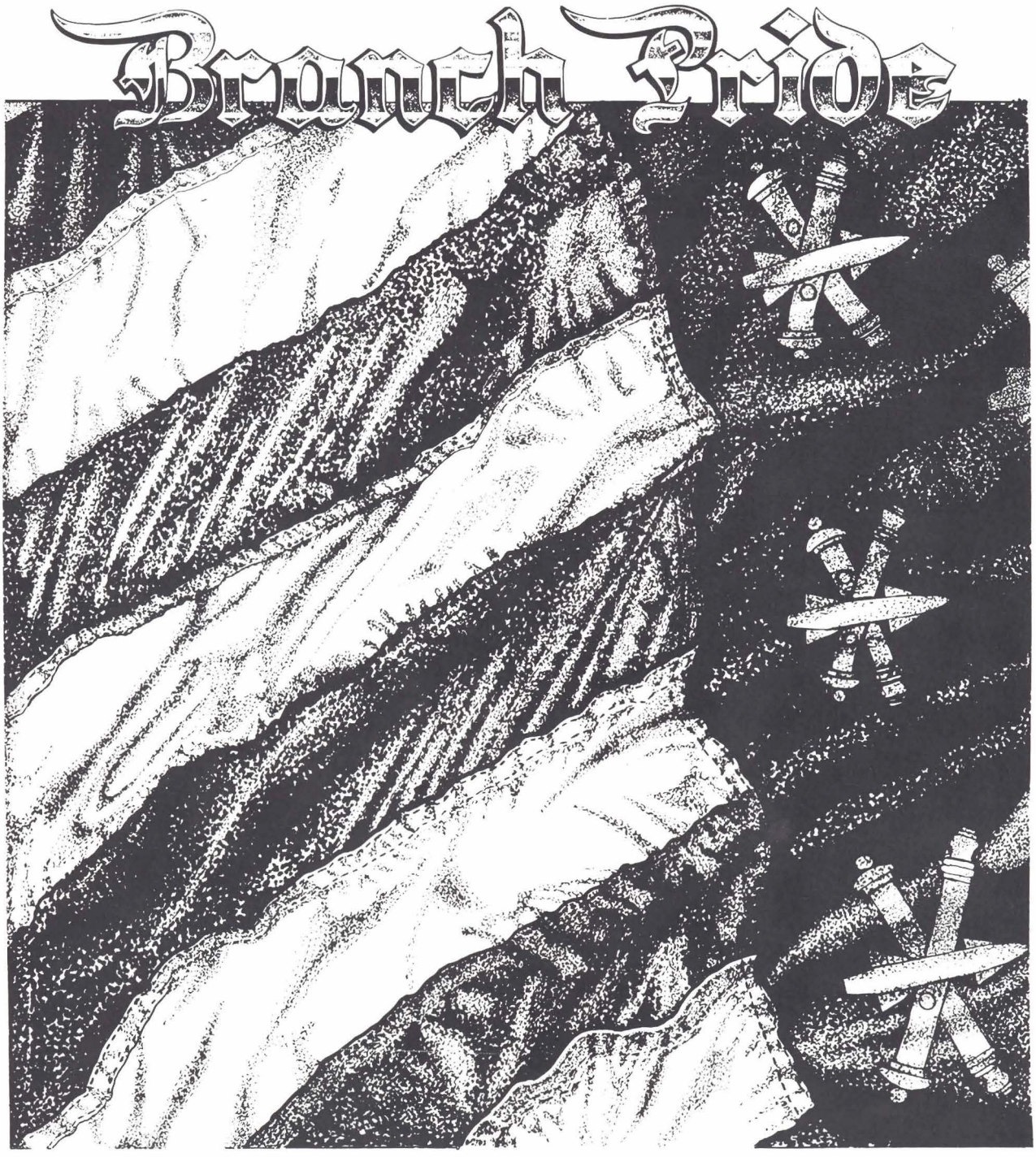
- FAAD C^2I system (including ground and aerial sensors)
- Onboard sensor
- All intelligence gathering and target acquisition assets available to the maneuver brigade commander

An important feature of non-line-of-sight is that it does not require the degree of precision in target cueing that is normally a key part of the traditional air engagement sequence. While the gunner may select a target or be assigned a target, he will sometimes simply be assigned an area that contains identified or suspected targets. In the latter instance, he launches a missile along the appropriate azimuth. As the missile swoops down range, the gunner looks for a target through the TV camera or IIR sensor in the nose of the missile. When the target is located, he locks the seeker on the target and the missile automatically flies to and impacts with the target. Until the last few seconds prior to impact, the gunner can break the lock on the selected target and pick another target.

The inherent flexibility, simplicity and low cost of this smart munition were primary reasons the Army picked FOG-M for the FAAD non-line-of-sight component. FOG-M technology has also captured the attention of other members of the combined arms team. The infantry is exploring FOG-M's potential as a tank killer while Field Artillery is considering FOG-M's capability as an extended-range indirect fire weapon.

If FOG-M performs as predicted — and there's no reason to think it won't — Air Defense Artillery will play a more decisive role on the AirLand Battlefield by ensuring our combined arms brethern the freedom to maneuver and sustain the battle. The FAAD non-line-of-sight component will allow air defenders to put the offense back in air defense and actively participate as a key member of the combined arms team. □

Lt. Col. Thomas A. Vereb is a member of the Forward Area Air Defense Task Force, U.S. Army Air Defense Artillery School, Fort Bliss, Texas.



The following three articles, "Guardians of the Flame," "ADA March," and "A Proud Heritage," describe a growing ADA phenomenon — the resurgence of branch pride.

Guardians of the Flame

The flame of branch pride has been relit and nurturing the flame is every air defender's responsibility

by Col. Joel H. Ward

Branch pride is a non-appropriated fund item. No funds are allocated for its purchase next fiscal year or the fiscal years to follow. Air Defense Artillerymen will have to pick up the tab themselves, and they will have to pay in the same coinage air defenders have always paid in: blood, sweat, toil and tears, and, at times, their lives.

Air Defense Artillery has recently emerged from a stagnant period in which the branch's ability to accomplish its mission and, indeed, its continued status as an independent branch were seriously questioned. We seemed stuck with outdated weapon systems while other combined arms branches — not to mention the threat — were modernizing at the speed of light. The branch's morale, along with its standing among the combat arms, plummeted.

Air Defense Artillery, as branch historian Dr. Jesse Stiller points out in the article which follows this one, has weathered hard times before. True to its heritage, Air Defense Artillery has survived its most recent "winter of discontent" and has emerged into a warm springtime of technological renaissance. The resounding success of Patriot, Stinger's demonstrated prowess and the imminent fielding of the forward area air defense system have significantly increased Air Defense Artillery combat power.

While the materiel damage has been undone, the damage to the pysche remains. The healing, however, has begun.

Rekindling branch pride was a keynote theme of the recent Air Defense Artillery Commanders' Conference at Fort Bliss, Texas. Maj. Gen. Donald R. Infante, chief of Air Defense Artillery, placed instilling a sense of branch pride at the top of a list of branch objectives.

"While our advances in the materiel arena the past year have been substantial," Infante wrote in the preface to the conference handbook, "something even more important has occurred. There has been a resurgence of pride in being an air defender. Pride is the soul of any organization. Pride in our branch and our role in national defense will continue to ensure progress in the materiel arena. One of the major objectives of this conference is to continue building this spirit of pride."

One obstacle we will have to overcome in rebuilding branch pride is the tendency in some circles to think of such things as pride, tradition and esprit de corps as old-fashioned and out-of-date relics of a bygone era when warfare was still tinged with pageantry and illusion. I contend that the pride of soldiers is a combat-multiplier unmatched by any weapon system, because pride predetermines how soldiers will conduct themselves in battle.

Military historians have often noted that units, for better or worse, invariably live up to reputations established in earlier wars. Our best commanders have always taken this factor into account. For example, when Gen. Douglas MacArthur chose the 1st Cavalry Division to spearhead his return to the Philippines, he cited the unit's proud history. The division's regiments had served with distinction during the Plains Indian Wars of the late 1800s, and MacArthur was certain they would serve with equal distinction on the beaches of Leyte Gulf. The 1st Cavalry lived up to his expectations. MacArthur didn't base his decision on nostalgia, but on his knowledge of the role pride and tradition plays on the battlefield. The 1st Cavalry didn't let him down.

Pride predetermined the battalion's performance

It is interesting to note that the manufacturers of war games have arrived at the same conclusion. To make their computerized battlefield recreations realistic, they are forced to assign elite units combat effectiveness factors greater than those that would be attributable merely to troop strength and firepower.

Vietnam provided no exceptions to the rule; in fact, Vietnam offers particularly persuasive evidence. In "The Rise and Fall of an American Army," author Shelby L. Stanton notes that the divisions that distinguished themselves in earlier wars distinguished themselves in the rice paddies and jungles of Vietnam. "These divisions and combat brigades had distinctive personalities which somehow reflected their essence. . . . Soldiers could sense it, and often the collective divisional and brigaded entities seemed tied to destinies which predetermined their combat performances," Stanton writes.

These units, Stanton continued, seemed relatively immune to the widespread morale and disciplinary problems that infected some units during the final bitter years of the war, and continued to fight effectively until they were withdrawn from the conflict. This was true even though soldiers who served in crack outfits came from the same common pool — in-country reception centers — that also supplied soldiers to outfits with less than glorious war records.

These soldiers were not elite soldiers, but they seemed somehow to become better soldiers the moment they sewed a legendary patch, the "Screaming Eagle" of the 101st Airborne, the "Big Red One" of the 1st Infantry Division, the oversized black and yellow shield of the 1st Cavalry Division, on their uniforms. They shared in the mystique that went with the patches, they had expectations to live up to, and, as Stanton points out, "they seemed tied to destinies that predetermined their combat performances."

Like most soldiers who have made the Army a career, I can bear personal witness to the effects of unit pride on unit performance. In 1980, the 2nd Battalion, 1st ADA (Nike Hercules), was stationed near Mainz in the Federal Republic of Germany. During my command of that battalion, the soldiers adopted the motto, "Second to None."

The motto became part of the battalion salute and it caught on like wildfire. Soon it became the standard greeting. "Second to none, Sir!," 2-1st soldiers would greet not only one another but visitors as they snapped off a crisp salute. The battalion quickly became known by its motto. Notes from brigade commanders and general officers addressed simply to "Second to None" began appearing in the battalion distribution box.

The words weren't original, but they set a standard and a goal. Before long, the soldiers who went around proclaiming they were "second to none" began to believe that they were, in fact, second to none. What's more, they began to perform as if they were second to none.

The 2nd Battalion, 1st ADA, was inactivated along with the Nike Hercules system, but during the last year of its existence, the battalion lived up to it's motto. The "Second to None" battalion became an "honor battalion," racking up the highest scores ever recorded in European annual service practice and NATO tactical evaluations. Unit pride and unit cohesiveness, embodied in the battalion motto, was the major determining factor behind the battalion's success. Pride predestined the battalion's performance. I am convinced that, had that battalion gone to war, our enemy would

have taken on a cohesive fighting force that was greater than all its parts.

The pride of soldiers can transcend pride in individual units and attach itself to a branch. We must convince ADA soldiers and help ADA soldiers convince themselves, that the "First to Fire" branch and "First to Fire" soldiers are second to none. By building ADA pride, we can predetermine how ADA units will perform.

Another obstacle we will have to overcome in rebuilding branch pride is the notion, seldom challenged even by air defenders, that Air Defense Artillery has no tradition.

Air Defense Artillery's coastal artillery precedents reach back to militias of the American Revolutionary War and this lineage is clear and unbroken. While it's true Air Defense Artillery wasn't organized as a separate branch until 1968, we are the rightful heirs of every American soldier who ever manned an anti-aircraft weapon, no matter what their branch affiliation, just as today's U.S. Air Force pilots are the rightful heirs to traditions established by Army Air Corps aviators.

John Meenagh is a former soldier who exemplifies the way loyalty tends to follow the mission rather than the organizational structure. Meenagh was drafted in 1967 and was cross-trained on "Dusters" and "Quad 50s." He spent 1968 and part of 1969 in Vietnam with a truck-mounted Quad 50 crew on convoy security and perimeter defense. Typical of automatic weapon crews in Vietnam, Meenagh's crew operated independently with little contact with their battalion, battery or even platoon chain-of-command. No one bothered to tell Meenagh or his crew the news in 1968 when Air Defense Artillery was formally separated from the Field Artillery. Meenagh came home and took his "early out" still unaware that the Air Defense Artillery branch existed.

Today, there's no doubt where Meenagh's branch loyalty lies. He recently traveled from his New Hampshire home to a reunion of Duster and Quad-50 gunners in Michigan. Learning about the reinvigorated Air Defense Artillery Association, he promptly joined. "We think of ourselves as air defense artillerymen, even those of us who served while the branch was still part of the Field Artillery," Meenagh said. "There's definitely a sense of kinship. The loyalty goes with the gun system."

The Air Defense Artilery branch was born in the midst of the Vietnam War during the Chinese Year of the Monkey, the year the war turned from a "small" war to a "big" war. Air defenders served with exceptional valor. The 1st Battalion ("Duster"), 44th Artillery, became one of the most decorated artillery units in history, and each of the Duster and Quad-50 battalions won either a Presidential or Meritorious Unit Citation. The soldiers who served in them earned more than 450 medals for valor and more than 1,000 Purple Hearts. They expended more than four million rounds of duster ammunition and more than 10 million rounds of Quad-50 ammunition.

We are not a branch with a reputation to build, but one with a reputation to build upon.

Air Defense Artillery will celebrate its 20th anniversary next summer. I am confident that by the time the anniversary date rolls around we will be well on our way toward erasing any stigma that may have attached itself to the branch during our past decade of materiel decline. I base my optimism on several factors:

- Dynamic branch leadership
- The success of Patriot
- The imminent fielding of the forward area air defense (FAAD) system
- A new appreciation of the air threat to our maneuver forces
- Improved portrayal of the air threat in combat simulation
- The rapid growth of the ADA Association

. . . not a branch with a reputation to build, but one with a reputation to build upon

These factors have already begun to rekindle branch pride. Recently, the U.S. Army Air Defense Artillery School, Fort Bliss, Texas, distributed the first of a series of bimonthly "First to Fire" newsletters to ROTC and West Point cadets. Designed as recruiting tools, the newsletters tell cadets about the challenges and rewards that await them within Air Defense Artillery.

To grace the covers of the first newsletters, we profiled young ADA officers who, just a few years out of college, are playing key roles in the fielding of the FAAD system. We asked them to explain why cadets should pick Air Defense Artillery over other combined arms branches.

"It's a young, dynamic branch with a bright future," said the ROTC graduate.

"The future of warfare is with this branch," said the West Pointer.

It's doubtful such sentiments would have been

forthcoming only a few years ago when Air Defense Artillery didn't enjoy the reputation of being a vital and dynamic combat arm. But the enthusiasm of our junior officers is a sure indication that, while the initiative to improve the branch's image comes from the top, it has considerable grass roots support. Air Defense Artillery is on the move and is rapidly picking up momentum. It is up to all air defense artillerymen to project a bold new image that's more in keeping with our increased combat power and the pivotal role we play on the air-land battlefield by giving our combat arms brethren the freedom to maneuver.

The Air Defense Artillery School is doing more to provide material such as posters and pamphlets in support of the branch. The promotional effort, however, will be wasted unless all ADA soldiers take an active part in building branch pride. What can the individual ADA soldier do to help? A lot.

The most obvious, and probably most effective, step an individual ADA soldier can take is to join the ADA Association. A strong association is one of the secret ingredients that has helped Armor, Infantry and Field Artillery build branch pride; it's something that Air Defense Artillery has not always enjoyed. Our association is growing rapidly (membership exceeds well over 2,000), and its monthly newsletters have already tapped an unexpected reservoir of ADA expertise — former or retired ADA soldiers such as John Meenagh who despite total neglect, still identify themselves with the crossed cannons and missile.

Branch pride is not only real but enduring. It provides the extra "ammunition" that can win battles. The flame of ADA pride has been relit, and it's up to every air defender to serve as a guardian of the flame. □

Col. Joel H. Ward is the director of the Directorate of Training and Doctrine, U.S. Army Air Defense Artillery School, Fort Bliss, Texas.

British Air Defenders Also Struggle for Status

Most U.S. air defenders would, no doubt, readily identify with British Maj. J.P. Green who, in 1974, wrote an article for *The Journal of the Royal Artillery* which advocated separating royal air defense gunners from royal field artillery gunners.

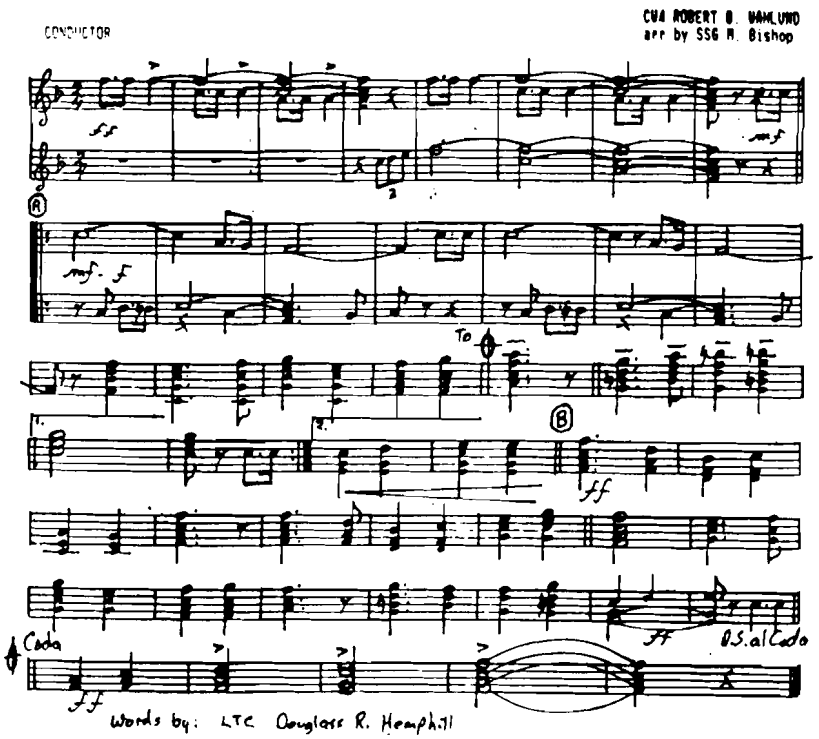
Green noted that "the traditional argument against a split is that it would condemn young officers to a complete career in air defense; this would not be popular and therefore it would become difficult to recruit young officers." He went on to contend that the Arab-Israeli October War demonstrated such thinking was out of date: "A young man entering the army today is not daunted by the sight of radars and computers, nor by the thought of spending his working life among them. Nor can we now pretend that air defense is not important; the recent Arab-Israeli war has shown that no army can operate except under an air defense umbrella."

Green argued that improved air defense fire power has earned air defense artillery a new niche on the battlefield: "Technological advances have helped the air defense gunner in that not only have they made his weapons much more deadly but they are also much smaller," Green continued. "The result is that a Blowpipe or Rapier is likely to be seen at least as far forward as close-support batteries and probably farther forward on occasions. Thus the old image of anti-aircraft gunners embedded in concrete having a comfortable war while field gunners endure the dangers and discomforts of the front line is no longer valid."

Green concluded that ". . . modern attitudes toward technology, the demonstration of the value of air defense recently given in the Middle East, and the ability of modern defense weapons to deploy forward in the combat zone have combined to remove any stigma of inferiority which might once have been attached to air defense."

Green's argument for a separation of the branches within the Royal Artillery Regiment was rejected, the general consensus being that the air defense segment was simply too small to be organized as a viable branch. *The Journal of the Royal Artillery* has revived the question this year as the subject of an essay contest. The point, however, is not whether our British cousins should follow the American model and create an independent air defense artillery branch, but that air defense has an image problem that seems endemic to any army accustomed to fighting its wars with virtual or complete air superiority.

The ADA March



Air Defense Artillery gets a battle hymn

Brigadier General James A. Shipton may be the "father" of Air Defense Artillery, but CW04 Robert O. Wahlund is its "John Philip Sousa" and Lt. Col. Douglass R. Hemphill is its "Francis Scott Key."

Wahlund, commander of the 62nd Army Band, Fort Bliss, Texas, is the composer of "ADA March," a one-minute fanfare recently proclaimed the official Air Defense Artillery song. Lt. Col. Doug Hemphill, a professor of military science at the University of Notre Dame, penned the lyrics to the new branch anthem.

"It's always bothered me that Air Defense Artillery was the only combined arms branch without a song," Wahlund said. Apparently it also bothered General Infante [Maj. Gen. Donald R. Infante, chief of Air Defense Artillery]. The word was out that the general wanted Air Defense Artillery to have a branch song. We weren't

asked to actually write a song; we were asked to select one. We went to the library and picked out a few marches, but we weren't really happy with them. That night, a melody started running through my head, and I sat down to work on it. My wife, Nancy, who also has a music degree, helped out by critiquing the piece."

"At work the next day, some of my staff stayed on until midnight," Wahlund continued. "Staff Sergeant Mike Bishop worked out the arrangement. Sergeant Chris Ruschmeier and Sergeant Ken Fidler also helped out," Wahlund said.

The branch song, however, had no words.

"I didn't write the words," Wahlund explained. "I have no talent for lyrics. An ADA officer called Fort Bliss one night from a motel room in Montana and dictated the lyrics over the telephone."

The officer was Hemphill, who's songwriting talents had been volunteered by a fellow ADA officer. Col. Vince J. Tedesco, newly elected president of the ADA Association, recommended Hemphill to Infante as the "best songwriter in Air Defense Artillery." Hemphill, who played trumpet in a college combo, earned his reputation as a lyricist by writing "substitute lyrics" for hail and farewell ceremonies. He drafted the words to the branch song at Fort Bliss and polished the lyrics during a drive to a temporary assignment at Fort Lewis, Wash., phoning in the finished version to Tedesco from a Missoula motel room.

"The lyrics are unabashedly patriotic," said Hemphill, who today is back on the Notre Dame campus. "They're a throwback to George M. Cohen and songs like 'Over There.' I supposed students of the past couple of decades would have considered them naive and overly sentimental, but students today seem more patriotic. I know they are more patriotic than we were when we were students."

Bandmaster Wahlund describes the"ADA March" as a "light, snappy march" in the Sousa tradition.

"It's not a full march, but more of a light, one-minute fanfare. It's not something you'd get bored listening to on the parade field," Wahlund said.

The 62nd Army Band put the "ADA March," with tenor SFC John Riggle singing the lyrics, on tape and presented the tape to Infante for the chief's approval. Riggle also sang during the debut of the "ADA March" at the Fort Bliss Officers Club during this spring's ADA Commanders' Conference.

The "ADA March" was first played for an official function during a May 22 Fort Bliss retirement ceremony for CSM Raymond H. Godfrin, then ADA's ranking NCO. While the tune is unlikely to make the "Top 40" charts, it will soon become familiar listening for ADA soldiers. The Office, Chief of Air Defense Artillery, U.S. Army Air Defense Artillery School, has recorded 75 copies of the master tape for distribution to ADA commands worldwide. □

" ADA March"

In the dawn's early light
Through the dark of the night
The Air Defense Artillery
Stands first for liberty.

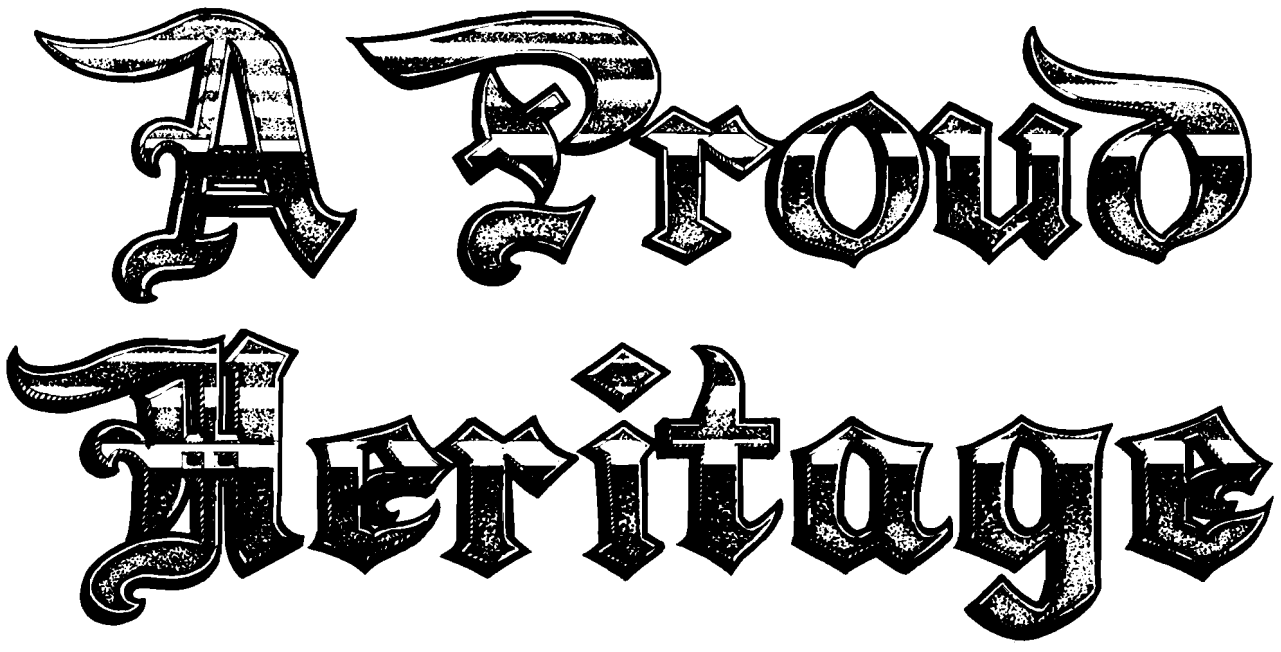
When the foe takes the air
Air Defenders are there
As part of the combined arms might
Alert and first to fight.

We're Air Defense Artillery
Proud to keep our country free
Proud to serve as shield and sword
Our mission our reward.

Trained in peace to defend
And bring war to an end
First to fire both night and day.

We're ADA

ADA Branch:



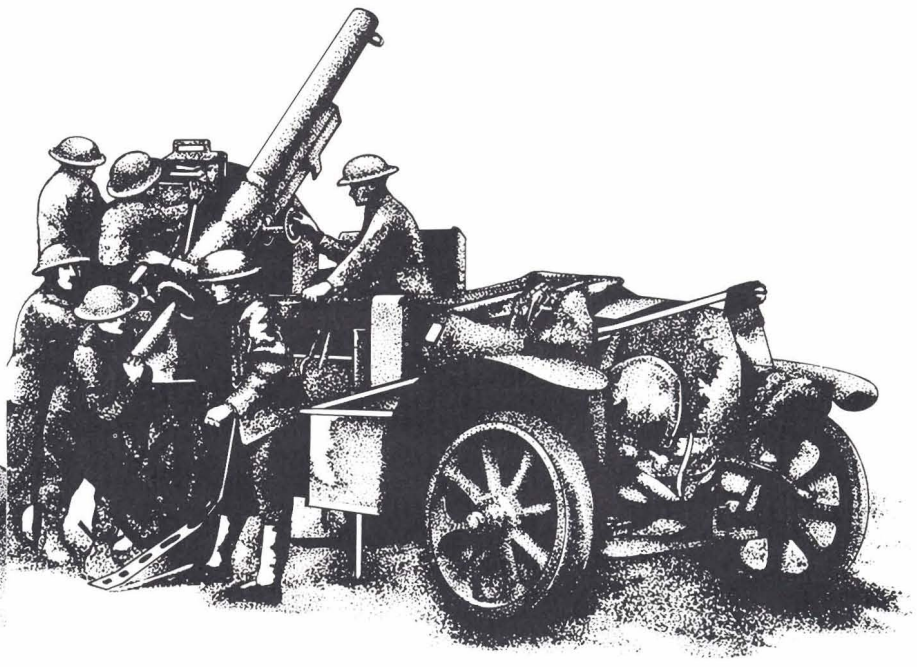
The strategies that the branch's forebearers followed to overcome the economic and political hard times between the two world wars set the foundation for the ADA of today and tomorrow

by Dr. Jesse H. Stiller

The history of the Air Defense Artillery (ADA) branch is a proud one. One period in its history, the interwar period of the 1920s and 1930s, was a period of much adversity for the branch. How the branch overcame these hard times through farsighted planning is not only cause for pride, but it is relevant to the situation in which it finds itself today.

While air defenders saw no combat during the 1920s and 1930s, they fought battles on a series of different fronts. They fought for money at a time when the Army had pitifully little. They fought for recognition at a time when the branch's very existence was in doubt. They fought to prepare for the next armed conflict that many thought would never happen, and they fought for self-respect.

Brig. Gen. James A. Shipton



U.S. soldiers man a mobile French 75mm gun during World War I.

The history of the ADA branch began when three Coast Artillery Corps (CAC) officers left for France in July 1917 with orders to assemble an anti-aircraft artillery (AAA) service. With no properly trained men, no tactics and no weapons, the AAA service, from its beginning, quickly grew and accomplished more with less.

For example, the AAA service used only one-twentieth as much ammunition as our British allies to shoot down each German plane. In addition, during World War I, American air defenders conceived and tested the principles of air defense — mass, mix, mobility, balanced and overlapping fires and defense in depth — that form the basis of today's air defense.

Brig. Gen. James A. Shipton, who is acknowledged as the ADA branch's founding father, felt that the mission of anti-aircraft defense was not to down enemy aircraft, but to protect the maneuver forces on the ground: "The purpose of anti-aviation defense is to protect our own forces and establishments from hostile attack and observation from the air by keeping enemy aeroplanes at a distance."

The Battle for Survival

In 1921, most of the World War I AAA force became part of the CAC. The chief of the CAC coined an early version of the ADA's "First to Fire" motto when he said, "In any future war of magnitude AAA will probably be the first artillery to be brought into action." Given the increasing range of bombers and the coming of the aircraft carrier, America's cities and possessions seemed more vulnerable than ever before.

This threat prompted the chief of the CAC to request a manpower increase of 6,000 officers and men over its current strength of 30,000. In addition a whole new array of weaponry would be required: it was one of the ironies of World War I that America's extraordinary record of anti-aircraft success was achieved almost entirely with weapons on loan from France.

However, the plans to enlarge and strengthen the AAA service were halted by the Army's postwar reduction and by the anti-military climate of the 1920s. There were personnel reductions in the CAC from 18,000 in 1921 to 12,000 in 1922.

There were also reductions in the support funds for travel, housing, procurement and training. Furthermore, the CAC lost its most skilled technicians to higher paying civilian careers.

During the Great Depression, soldiers faced further cuts in pay and in housing — soldiers were ordered to leave their government housing for a month. In addition, overseas assignments were extended from two to three years.

The AAA faced another threat from the newly created Air Corps. In 1918 the Army Air Service was separated from the Signal Corps, and two years later it received official recognition as a separate branch. Support for the Air Corps grew rapidly during the 1920s and 1930s, and the Air Corps reaped most of the budget that had been allocated to the Army.

Ignoring the defense mission of the AAA and their own offensive mission, the airmen wanted the AAA mission for themselves. They argued that friendly air power brought down three enemy planes for every one shot down by AA units and that funds allocated for ground-based air defense could be much better spent on themselves.

By 1933, the active strength of the Air Corps ranked second or third in the world while the ground Army ranked no higher than 17th. Also, during this period, the AAA faced the possibility of losing its separate identity to the Air Corps.

That possibility loomed large in 1939 when the Army Chief of Staff General George C. Marshall, approved the formation of an air defense command consisting of pursuit aircraft regiments and signal corps units, all under the control of an Air Corps general officer.

However, this did not come to pass: World War II intervened and proved that air power was first and foremost an offensive force and, at the same time, that airplanes were becoming a critical element in the strategic equation — they were becoming more tempting targets for the ground gunners. Furthermore, World War II showed that ground-based air defense technology — especially radars and more capable guns — were bringing airplanes well within range.

Even with this improved technology, ground-based air defense was relatively cheap compared to the cost of modern airplanes. Later wars in Korea and Vietnam, when all too many American planes were shot down by technologically inferior enemies, proved the importance of AAA in modern warfare.

Farsighted Leadership

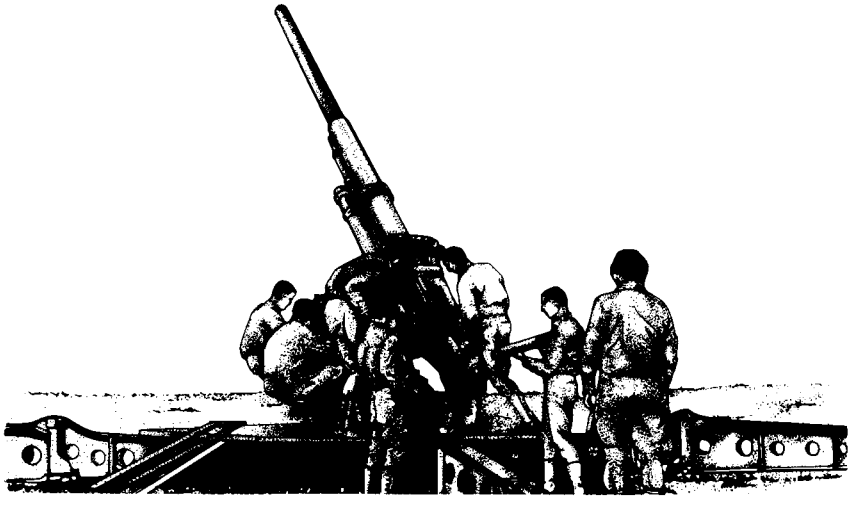
The AAA service survived its peacetime trials and formed the basis of today's ADA branch largely due to outstanding planning and direction from its leaders. The strategies they followed in setting AAA policy during the peacetime between the world wars were the following: research and development, intellectual freedom, soldier care and training.

The greatest accomplishments of this farsighted leadership would not only be seen on the World War II, Korea and Vietnam battlefields in the form of well developed tactics and munitions, but in the upkeep of the morale of its soldiers during the interwar period.

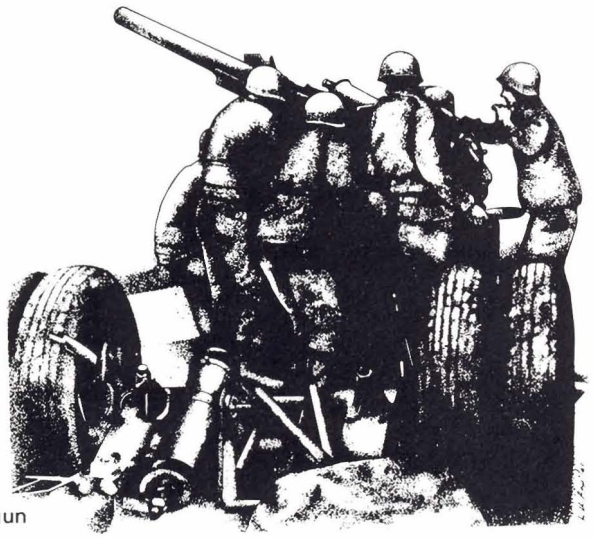
R&D

The first strategy the AAA leaders followed was to ensure that research and development continued relatively unhindered, even at the expense of production and procurement. New developments in fixed and mobile 3-inch guns were quickly adopted by the troops. Improvements were made on fuzes, mounts, tracer ammunition, searchlights and sound locators.

Some of the improvements in existing equipment and the development of prototypes were



M3 3-inch AA gun



M1 90mm AA gun

made at the Aberdeen Proving Ground, Maryland, between 1926 and 1929. One result of this work was a whole new generation of mechanical fire controllers.

Many of the advances in anti-aircraft munitions were never fielded; others were obsolete before they left the drawing board. Ironically, it was the lack of money to bring new products to production that enabled AAA designers to let their imaginations run free when developing new munitions and to thoroughly test each innovation and adopt modifications — the designers didn't have to worry about debasing what was already on hand.

When better versions of weaponry were developed, old designs were easily dropped. By World War II, the weapons and equipment used by air defenders were far superior to those they would have received if there had been money for the procurement of earlier versions.

For example, during the mid-twenties, work on the 4.7-inch gun was suspended when the better-designed 105mm gun was developed. This, in turn, was replaced by the 90mm gun in the 1930s which was adopted as standard in 1940. The 90mm gun went on to prove itself admirably on the World War II battlefield.

Intellectual Freedom

The second strategy that AAA leaders employed during the interwar period was intellectual freedom. That meant encouraging every one of the branch's best minds to focus on the problems of the day. The extraordinary intellectual excitement in the ranks that was achieved is evidenced in the year-long AAA self-analysis organized by the chief of Coast Artillery.

The analysis sought and received input from every chief of arm, every corps commander, and every foreign liaison officer in the United States. As impressive as the scope of the self-examination was its spirit: respondents were encouraged to deviate in any way they saw fit from conventional wisdom and to allow their imaginations to run free.

These intellectual excursions incurred no monetary expense yet many of the ideas discovered during the interwar period — the AAA concepts of emplacement, engagement and organization — were successfully employed by the Army in Europe and Asia after 1941. The branch's receptivity to new ideas was also a tonic for the morale of its present membership and an incentive to prospective members.

The Coast Artillery had long been the Army's elite branch — the home of its most educated and technically proficient men. The AAA had kept this tradition of excellence alive on the battlefields of France. That reputation served the branch well in the interwar years. At West Point, cadets selected their branch affiliations on the basis of academic standing, and vacancies in the Coast Artillery were always filled right after those in the engineers.

The Coast Artillery offered adventures and challenges no other branch could match. The United States maintained only three overseas garrisons in the 1920s — in Panama, Hawaii, and the Philippines — and there was Coast Artillery at each of them. This was a powerful incentive to young men of ambition and attainment.

Soldier Care

There is another common theme in the reminiscences of young air defenders of the 1920s and 1930s. All were impressed by the high level of soldier care in the branch, even in these difficult times. This began even before cadets had made their branching decision. One West Pointer, who went on to become a Fort Bliss commander, recalled that during the Coast Artillery's orientation session the branch "issued cots to us instead of putting us in pup tents on the ground as the other combat arms did."

These young men were made

to feel special — that their personal needs mattered. And when they entered on active duty, they discovered that the extra care and concern continued. The branch made every effort to supply government housing to officers and men alike, even if that housing was a far cry from today's standards. But the men appreciated it. And they appreciated the direct and sincere concern of their superiors.

When Maj. Gen. John W. Gulick, the branch chief, had his travel budget eliminated in 1932, he paid his own way rather than curtailing his inspection visits around the country. This personal style of leadership, this willingness to share the hardships experienced in the ranks, goes far in explaining why branch morale stayed so high.

Training was as rigorous in the classroom as it was in the field. In 1925, the officer advanced course at the Coast Artillery School, Fort Monroe, was increased from five and a half to nine months — no small sacrifice given the manpower shortage.

Even for those top scholars from West Point, the course was tough. The students took apart fire control systems and immersed themselves in electronics. While the major emphasis of the curriculum was on live firing, officers got more than a fair share of history, where the fine traditions of the CAC and the AAA were reinforced.

No branch of the Army was more active in field training exercises. And the results showed. Realism was the first consideration in all FTXs.

Coast Artillery School, Fort Monroe, Va.

Training

At the same time, the branch remained committed to maintaining and enhancing the technical competence of its officers and men. One young air defender recalled that his unit "always had plenty of practice ammunition" — this when the infantry was drilling with lumps of wood roughly shaped to look like rifles.

As early as 1922, AAA practices were being directed against targets towed by airplanes, and in 1927 the first joint AAA-Air Corps exercises were held, with a view to devising tactics for the defense of air fields. These joint exercises continued every year thereafter, at overseas posts as well as in CONUS, and both sides came away the more proficient for it.

Unfortunately, the Great Depression put a severe dent into the AAA's training regimen. In 1933 the Coast Artillery School was shut down, partly the result of budget cuts, partly the result of the Army's mandate to organize the New Deal's Civilian Conservation Corps. Target practice was completely suspended, although joint Air Corps exercises did continue on a reduced basis.

A Strong Foundation

By 1935, it was clear that the Army had turned the corner. Appropriations grew rapidly. In 1940, congress budgeted $8 billion for the War Department — a sum greater than the total for the preceding 20 years. By mid-1941 plans were underway to raise an Army of 1.2 million men — the Army that would expand several times further once the United States entered World War II.

But it was those lean interwar years that yield the most pertinent lessons for today's air defenders. We would do well to keep the policies of our branch forebearers in mind as we plot our strategies for the years to come. We would do well to pay attention to the priorities that the AAA set for itself when it faced problems and shortages far graver than we are likely to see ourselves.

There are many parallels between the peacetime of the 1920s and 1930s and the present peacetime. As was done successfully in the past, continued attention to leadership, research and development, intellectual freedom, soldier care, and training are likely to pay us rich dividends in the future. □

Dr. Jesse H. Stiller is the ADA Branch Historian, U.S. Army Air Defense Artillery School, Fort Bliss, Texas.

CSM Harry E. Hicks, ADA's senior enlisted advisor, (right) points out safety checks during a routine visit to an ADA unit motor pool.

Hicks Speaks on ADA Concerns, Strengths

Command Sergeant Major Harry E. Hicks Jr. is the senior enlisted advisor for the U.S. Army Air Defense Artillery School and post command sergeant major at Fort Bliss, Texas. Hicks replaces CSM Raymond H. Godfrin who retired in May.

CSM Hicks joined the Army in 1959 and his major ADA assignments include time in Anchorage, Alaska; Chun-Chon, Korea; Homestead, Florida; and Fort Hood, Texas. His last assignment was as the command sergeant major for the 94th ADA Brigade, 32nd Army Air Defense Command, in Germany.

In this interview with *Air Defense Artillery,* CSM Hicks looks at ADA goals, offers advice to sharp soldiers who may sometimes feel taken for granted and shares his views on the resurgence of ADA branch pride.

ADA: What came to mind when you were notified that you had been selected for this position?

HICKS: Honestly, I was numb, then overjoyed, then grateful. It was sort of a surprise, but it was a dream come true. I think I've proven myself through the years — I have been with air defense for the 28 years of my military career. I started out in air defense, and I've worked my way up through the leadership positions in air defense.

ADA: What goals for ADA do you bring with you to this assignment?

HICKS: I don't believe in starting a new assignment with obvious changes in mind. I want to observe before any changes are made. I certainly don't want to change something that doesn't need changing. A general goal, however, is to maintain the motivational climate here; a climate where soldiers will want to work, to do a good job at whatever they're doing, in order to succeed. This is for every soldier, not just ADA MOSs. I want the soldiers in support MOSs to feel a part of the ADA family also.

My first impression of Fort Bliss, the Air Defense Artillery Center, is an optimistic one. I have not been assigned at Fort Bliss since my tour at the U.S. Sergeants Major Academy in 1978. Since then, TRADOC's and Fort Bliss' installation of excellence program has created a pleasant working environment. The uniformity and cleanliness apparent all over the post display the pride and professionalism of everyone assigned here.

If there is a single goal that I bring with me, it has to be to ensure that whatever training we do, and there is much in air defense, we do it with a deep awareness of safety. If our NCOs are committed to safety, then we are ahead of the game. The reason is that NCOs are the ones who see soldiers on a day-to-day basis. NCOs can make the on-the-spot corrections needed to protect our soldiers from injury or death. Every soldier has a sergeant. And it is that sergeant's job to take care of him. Safety is a big part of the NCO job. We must show compassion, be aware of the strain intense training puts on our soldiers and know when to stop for safety's sake. This is simple soldier care.

Every soldier has a sergeant. And it's the sergeant's job to take care of him.

ADA: What challenges do you see ahead for yourself and all ADA NCOs?

HICKS: Challenges come with change. Much is changing in air defense. We have new weapons systems, new equipment and new tactics. NCOs must learn their new jobs in a swift fashion and be thoroughly prepared to teach younger soldiers how to operate sophisticated equipment. I must stress that the basics, good reading and comprehension skills, are important for NCOs. They must be prepared to learn and prepared to teach.

ADA: Speaking of teaching, did you have a mentor or role model as a young soldier, and do you think role models are important for soldiers?

HICKS: Yes, I had several role models. If I saw someone near me doing something good or great, I watched and I learned. If I saw someone making mistakes, I recognized them and learned from these. I had role models at every level of leadership. It is important to be aware that, as you progress in your career, others are observing and learning from you. NCOs have a responsibility to lead by example, by fine example.

ADA: What career advice do you have for soldiers and NCOs?

HICKS: For any soldier who wants to be successful, education is the key, especially if he or she is shooting for a first sergeant or sergeant major assignment. Also it's important that soldiers set their sights early, but not too high. They should stair-step their goals and aim for them early. I can't stress that enough. You must set your goals and do this early enough to explore all the options of a military career. Have a plan.

ADA: The Army has emphasized concepts like values, integrity, courage and honor. How do senior NCOs share their values with younger soldiers?

HICKS: I'm glad you asked. But before I talk about how NCOs may share their values, I'd like to explore each of these concepts from my perspective.

What are values? They are attitudes that place an importance on people, things or concepts which dictate our behavior. We learn our values from our parents, our peers, our communities. Strong leaders have strong values. When you talk of values, integrity, courage and honor, as four parts in the leadership pot, values make leadership boil.

Integrity is honesty and truthfulness. At the top it is essential. Integrity should be uppermost in the character of our NCOs. Also integrity applies to young soldiers who come to their NCOs for help. I'm upset by soldiers who

ask for help and don't tell the truth. We must be honest with our problems.

Courage is a trait all soldiers need, especially NCOs. NCOs are the balance between soldiers and officers. An NCO must have the courage to tell a young soldier he is wrong, even when that soldier questions the NCO's authority. NCOs must have the courage to correct what needs to be corrected. Also, NCOs must have the courage to tell their officers when they are wrong, when something is not in the best interest of the unit and its soldiers. I have a "two star" to stand up to. It takes courage to tell someone they are not right, but that's NCO business and, if a soldier doesn't have the courage to speak up, then he is in the wrong business.

Honor sums up all of these ideas. Honor comes from having strong values, integrity and courage. For me, honor has been my selection as the senior enlisted advisor to Maj. Gen. Infante, chief of Air Defense Artillery. He is a leader that demands respect. He is powerful, and it is an honor to be part of his team.

Now how can NCOs share their values with soldiers? They set the example. They must have good values, be honest and willing to stand up for soldiers and show a sense of pride in what they are and what they are doing. When young soldiers form their opinions and look for role models, NCOs will be scrutinized. We owe it to our young soldiers, the future NCOs of the Army, to share our knowledge and live by the example we want to set.

ADA: When you were a specialist or sergeant, what dreams or frustrations did you have? What advice would you give soldiers today based on this?

We cannot be successful without a sense of pride, and that includes ADA branch pride

HICKS: Well, it wasn't all that long ago, and yes I do remember dreaming of a first sergeant's job and later of this one. But a frustration I think many good soldiers can relate to is the added obligations units will sometimes pile on their best soldiers. Good soldiers are counted on by a unit, and pretty soon these soldiers may feel that the mediocre soldiers next to them are taking a ride, not pulling their part. In some ways that may be true. But it's changing.

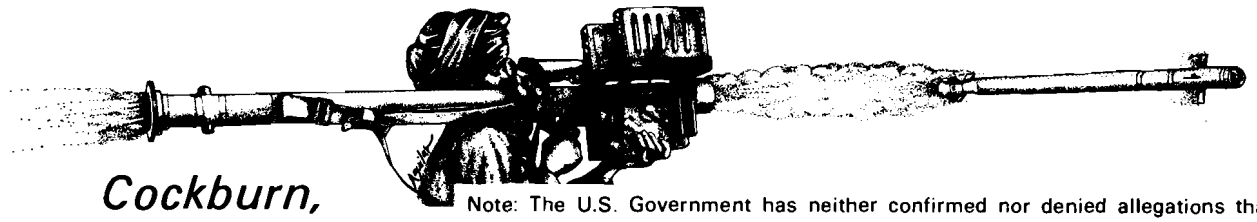
There was a time when our best soldiers weren't allowed to leave a unit for schooling. The soldiers of little value to the mission of the unit were given the school slots. Today, with the emphasis on education, and a sharper awareness of this unfairness, our best soldiers are being sent to school first. But, NCOs and officers today must take care not to make excessive demands of their best soldiers and, instead, encourage marginal soldiers to pull their full load.

ADA: Has the leadership role for ADA NCOs changed?

HICKS: Yes, our leadership style must change as our society changes. Our soldiers are coming into the military with more education. More soldiers than ever are coming into air defense with a high school education or GED. They are in the habit of questioning things around them. We must not let these questions frustrate us. It is important that NCOs learn to capitalize on soldiers' curiosities and interests. We have to explore new ways to express our authority and remain open to these soldiers; however, we must teach soldiers swift obedience to orders in peacetime as well as on the battlefield.

ADA: At this year's ADA Commanders' Conference, the subject of branch pride was explored. Can ADA NCOs be a part of this branch pride, how?

HICKS: NCOs must take pride in what they do and where they are. We cannot be successful without a sense of pride and that includes ADA branch pride. But it can't stop with us. We must share our sense of branch pride outside our own community. We must let other branches know that we have an important job to do and do it well. We have to sell ourselves. I think, for NCOs, joining the ADA Association is a good start. The ADA Association is making a strong comeback and, it's tough to admit, but I was a member of a number of associations before I even knew ADA had an association. We must take pride in ourselves and reflect that pride wherever we go. It's a matter of beating our own drum. □



Cockburn, Where is Thy Sting?

Note: The U.S. Government has neither confirmed nor denied allegations that Stinger missiles are in use by rebel forces in Afghanistan. The article below reflects the views of the author and not necessarily those of the U.S. Army, the Department of Defense, or the U.S. Government.

by Robert Andrews

Those Stinger anti-aircraft missiles that are proving so effective in Afghanistan (and Angola) are knocking out more than Soviet helicopters and MiGs from the sky. They are also shooting down the arguments of Pentagon critics who say American high-tech weapons are too complicated to work on real-life battlefields.

Richard Weintraub reported in the *Washington Post* (January 27, 1987) that the Afghan mujahideen had downed "90 to 100 Soviet or Afghan government aircraft" with the portable, shoulder-fired Stinger, a successor to the Redeye that incorporates recent advances in infrared sensor technology.

David B. Ottoway reported (*Washington Post*, February 8, 1987) that after training courses of six to eight weeks, Afghan guerrillas "were averaging seven to eight hits for every 10 Stingers fired." According to Ottaway, Jonas Savimbi's troops have been scoring similar successes in Angola.

On February 10, Gary Lee of the *Washington Post* reported that Western diplomats in Moscow were estimating a loss of aircraft at "the rate of one a day after the Stingers were introduced into the rebels' arsenals."

Yet only six months before, the technology-bashing crowd of Pentagon critics unleashed a blitz of articles saying that Stingers were too complicated for their intended users and so badly designed that they couldn't work.

Martin Binkin of the Brookings Institution, writing in the *Los Angeles Times* (July 1, 1986), cited the Stinger as an example of a "trend toward more complicated, less reliable and more difficult-to-maintain equipment." He argued that firing the missile required reasoning skills and hand-eye coordination beyond the ability of most soldiers, and that it was designed so that only two percent of all Army soldiers are tall enough to use it safely. That was "good reason," he suggested, "to be skeptical about its capabilities . . . in the hands of Third World forces."

Wayne King and Warren Weaver Jr., in the *New York Times* (August 3, 1986), called the Stinger "too complicated for the caliber of soldier" assigned to firing it; he referred to "18 complex" preparatory steps, a figure also cited by Binkin and by Molly Moore in a *Washington Post* article, "U.S. Troops Find Weapons Too Complex."

Wayne Biddle in *Discovery* reported that "the concentration of hydrogen chloride emitted by the firing of the missile is 20 times greater than Occupational Safety and Health Administration standards.

And Andrew Cockburn in "The Stinger is No Stinger" (*New York Times*, July 22, 1986), complained that Stinger's two pound warhead was too "puny" to inflict much damage on targets. He argued, furthermore, that "a humid climate, such as that of Nicaragua, will play merry hell with the Stinger's delicate electronic innards" — a prediction that will surprise the Cuban pilots who have seen their comrades downed in Angola.

Like all weapon systems, the Stinger has its drawbacks, and some of the criticisms mentioned in these articles may have been justified. But as experience on the battlefield has shown, these limitations can be overcome and are trivial when compared with the weapon's phenomenal performance.

Next time Andrew Cockburn, Molly Moore, Martin Binkin and other strident critics of Pentagon technology try to discredit a U.S. weapon system and, by inference, the ability of our government to provide for the nation's defense, look at their track record. The people who write about weapons systems should be held as accountable as the people who build and use them.

Robert Andrews, a retired Army colonel and former CIA officer, is director of congressional relations for Rockwell International Corp.

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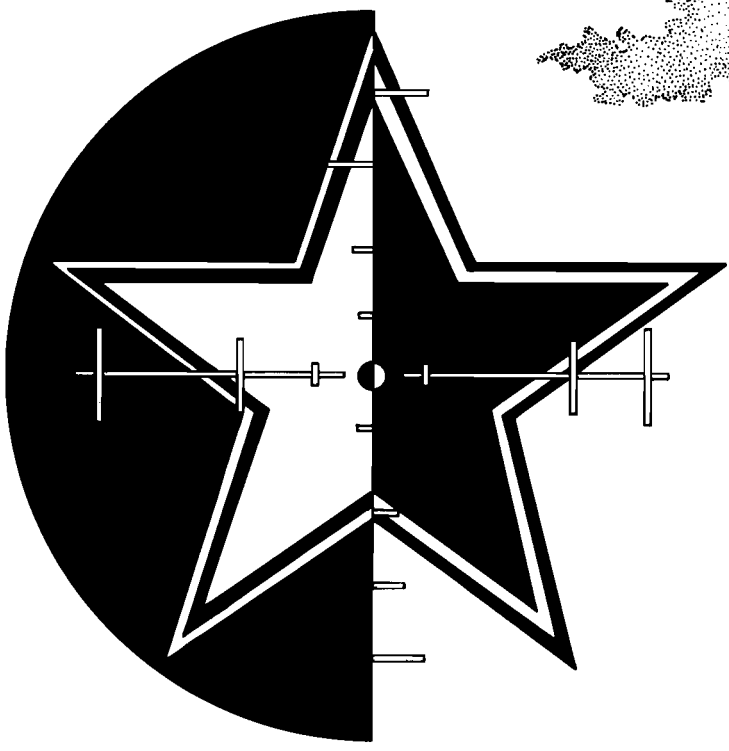


Looking Through the Sights . . . At Adversary Air

by CWO 2 Michael J. Doyle

The giant saguaro cactus had colorful buds, or was it fruit, crowning its very top. John noticed that he had to crane his neck and look up to see it. He had the impression that the top of the cactus had been in "freeze-frame" as he churned by the base of the 40-foot-tall desert sentinel. John was always amazed at the detail a person could assimilate in a split second. He was slightly on edge as he trashed across the desert terrain like a mechanical land shark going to a feeding frenzy.

His AH-1S Cobra was vibrating like a live thing as John bobbed and weaved around — seldom over — the saguaro, palo verde and ironwood. He dipped down, disappearing into the rocky stream beds that coursed the 20-mile-wide billiard table, abruptly bounding up and out on the far sides. Occasionally he could see the fleeting black shape of his wingman about 1,200 feet abeam on his starboard side.

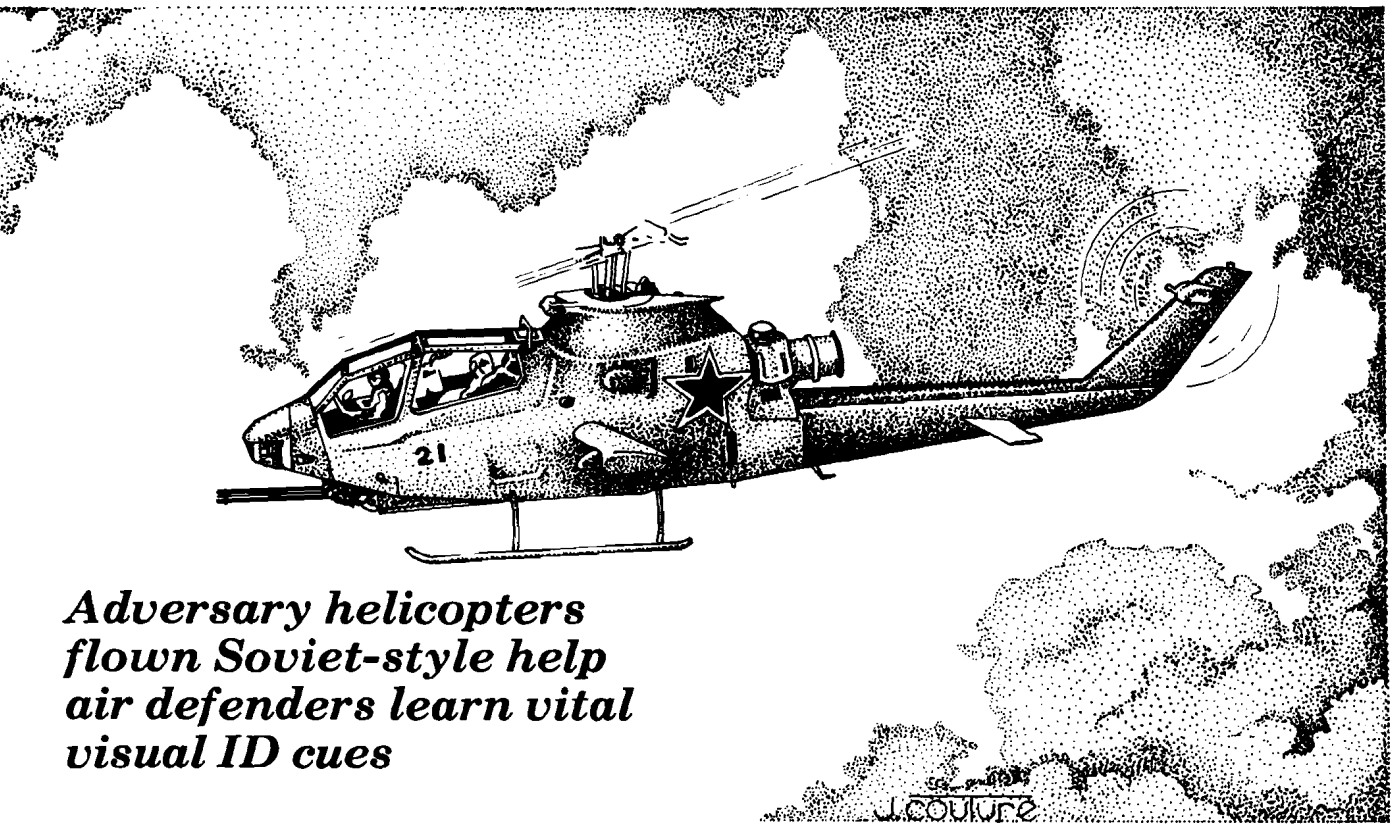
The audio from the APR-39 had been emitting squeaks and squawks and cricket noises ever since they left the sand dunes. The strobes on the face of the instrument had flashed and flitted intermittently. This radar warning activity was starting to draw more of his attention. This, and the job of flying literally through a stubby forest of desert growth at high speed, was starting to cause John's muscles to tense in his neck and shoulders.

Just as he was urging himself to relax, the electronic strobe flashed bright on the APR-39 indicator. The audio was an irritating screech. The electronically generated strobe light indicated straight ahead — 12 o'clock. "Damn," he thought. "They've got me locked up. Maybe a zero doppler turn . . . what the hell, might as well try it."

"Pappy . . . Maniac. In place, ninety right, hard turn . . . Go!"

CWO 2 John C. Burt, Utah Army National Guard, Adversary Air Cadre pilot (call sign "Maniac"), and his wingman, a former Marine Corps fighter pilot, CWO 2 Bob ("Pappy") Scheinblum, were attacking a Hawk missile site with rockets, TOW missiles, and if they survived to get close enough, cannon.

This was their second mission of the day. The first had been a knock-down, drag-out, bare-knuckle brawl of a dissimilar air combat maneuvering period with two different sections of Marine F-4 Phantom fighters. The Phantom pilots had been very aggressive and Maniac, Pappy and



Adversary helicopters flown Soviet-style help air defenders learn vital visual ID cues

their co-pilots had been challenged to fly their best section tactics. They managed to defeat most of the coordinated fighter attacks by employing "Loose Deuce" doctrine and by not making any mistakes. Predictably, the fighter drivers were impressed with one of the mission learning objectives — that going down to duel with a section of well flown attack helicopters could be like pulling a badger out of a hole. You can get hurt.

The day's adversary air support mission was typical of those taking place over a period of almost three weeks, every six months in the ultra low-level, air-land battle environment created by Marine Aviation and Weapons Tactics Squadron-1 (MAWTS-1) at Yuma. These missions are vigorously contested by the aviators of the Utah Army National Guard.

MAWTS-1 is a unique squadron in the Marine Corps and in the world. A post graduate-level research, study and think tank, MAWTS-1 conducts, twice each year, a Weapons and Tactics Course for Marine aviators from all over the Corps. The final examination is a series of aviation operations conducted in support of combined-arms warfare by the students. The students, who are all specially selected second- and third-tour pilots, and air defense artillery and other supporting arms officers, plan each operation to the smallest detail. Then they fly the mission in their own aircraft against real adversaries.

The adversary support comes from units of all U.S. armed services. Typical regular players include graduates of the U.S. Navy Fighter Weapons School ("Top Gun"), the famed Air Force 555th ("Triple Nickel") Fighter Squadron, and the Navy Pacific Fleet Adversary Squadron, ("Fighting One Twenty-Six").

In keeping with this high caliber of expertise and professionalism, the aviators and troopers of The Attack Helicopter Troop, 163rd Armored Cavalry Regiment, Utah Army National Guard, flying AH-1Ss and OH-6s, assume their role of rotary wing adversary air with enthusiasm and imagination.

The Utah Guard currently operates the only known rotary-wing adversary air cadre qualified and current in air combat maneuvers. These aviators are graduates of the Rotary Wing ACM course at MAWTS-1. Utah Army Guard aviators attend the Marine ACM course for the express purpose of aggressor air qualification.

When the S-models (for surrogate) from Utah arrive at Marine Corps Air Station, Yuma, they undergo a transformation on the flight line to

Opposing Forces helicopters fly Warsaw-Pact-style formations during adversary air support missions at Yuma, Ariz.

become threat simulators. Large red stars bordered in white or yellow are painted on engine cowling doors. Similarly, bold Warsaw-Pact-style buzz numbers are painted on forward fuselages. As the days go by, "confirmed" kill markings are added to canopy framings as the bandits fight their way through the numerous and varied air and anti-air war scenarios. Often they shout over the common UHF frequency threat war cries such as, "Pshakrev! Holevah! Amerikanski!" or "Moonyea Nooshnah toilietnah Boomagah!" (Roughly translated into English it means, "I want toilet paper.")

The aggressor guardsmen try to bring as much realism and tension as they can to the battle scenario. They fly the various formations and tactical doctrines as used by threat and Third World air arms in addition to simply "flying the best airplane they can" when the odds get really rough. CWO 4 Gary Chadwick (call sign "Snake") remarks, "It is a very satisfying feeling to go out against multi-layered air-to-air and anti-air defenses —real, in place, physically operating components mind you — and at the same time be responsible for enhancing the training realism for all these quality professionals you see here."

The rationale and logic of the case for dedicated adversary air contends that aircraft flown in actual Pact and Third World formations, tactical dispositions, *and* command and control methods by pilots schooled in those doctrines add realism for the supported unit. Models, drones or inanimate targets simply cannot provide this.

The formations, maneuvering doctrines and command and control used most commonly by Pact helicopter forces differ quite a lot from the most current and modern tactical formations being taught in this country. Therefore the "look" one gets can be the first and best clue to the nature of the "birds" on the horizon. That is to say, threat or friend?

According to Capt. John Koehler, a Marine Corps officer of air defense artillery and aviation, the processes of short-range air defense are simple. Acquire the target. Identify it. Shoot it. But, as we know, each of these tasks is a process in itself. Acquiring a target and, just as important, identifying it can be a very tense and unsure thing in a multiple-threat, multiple-bogie, multi-national war zone.

Imagine, for example, the chagrin all around when the Israeli tank crew sighted on the mountain saddle, from which the Syrian anti-tank helicopters had been launching missiles, and shot the next silhouette that appeared. Naturally, it belonged to an Israeli Cobra returning to friendly lines after a dicey afternoon in harm's way. The kinetic-energy round drilled a dart-sized hole from snout to tail skid. The mighty war Cobra is not 105mm tolerant. The crew was dismounted and dismayed.

The visual ID problem will doubtless be with us

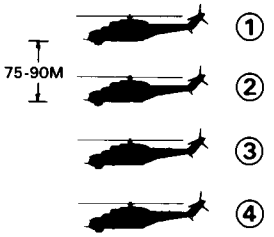
forever, but there are some things that can be done to help. One is to train against adversary air formations that are dispositioned and maneuvered like the ones of our most likely real-world adversaries.

Although the Soviets are known to innovate more than we give them credit for, they still use a "welded wing" tactical formation in most of their attack units. This is similar to the fighting wing formation and doctrine of World War II and Korean War days, with subtle differences. But they are radically different in "look" and employment doctrine from the combat spread formations and Loose Deuce style tactics being taught now in this country.

A flight of two or four Hinds viewed from three thousand meters should be identifiable by their formation and maneuver even if the viewer can't see enough detail to tell them from CH-53s. The welded-wing attack formations used by most Soviet (and Soviet-advised) units are distinguishable by the close spacing between the aircraft and by the fact that the wingmen ordinarily fly on the outside of the leader in all turns. This is

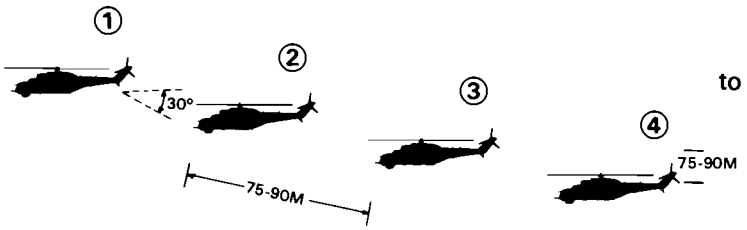
Opposing forces formations

Line. Distances between aircraft: 75-90m.



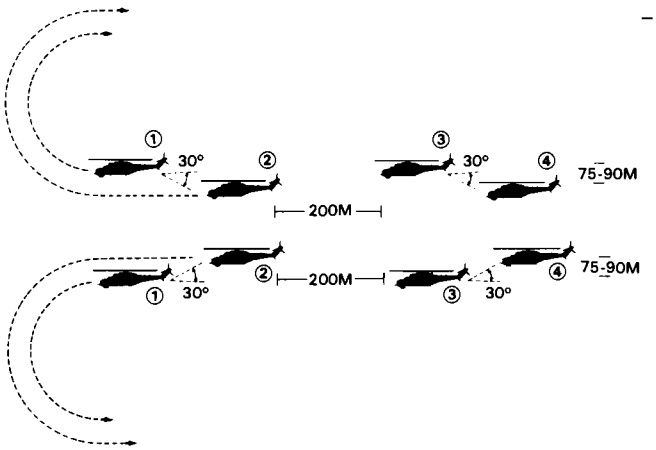
Echelon (right or left).

- Distances between aircraft: 75-90m.
- There is a 30-degree angle between aircraft.



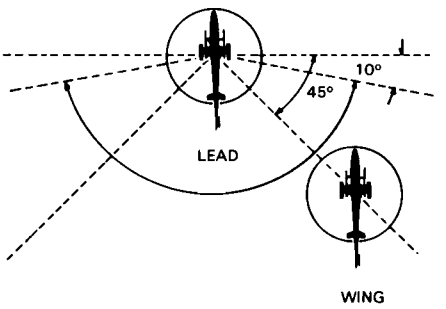
Welded-wing concept.

- The wingman (number two and four aircraft) follow the actions of the leader using the "do what I do" concept.



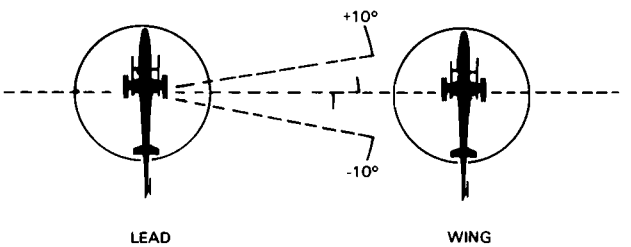
U.S. formations

Combat cruise formation.



- Proper separation between aircraft is 700 to 1,000m.
- Minimum separation is 500m.

Combat spread formation.



These are the two primary formations used by U.S. Army and Marine aircraft at all times when on the move. The movement doctrine is a form of "traveling overwatch." or, if contact is anticipated by a ground threat, "bounding overwatch."

quite unlike the free cruising maneuver now being taught to U.S. Army aviators, especially air-to-air combat qualified Army aviators. Seldom will the wingman of a U.S. section (two aircrafts) be closer than a thousand feet horizontally to his leader. The second section of an Army four aircraft division will be maneuvering independently in support of the first section.

Thus, a forward area air defense team out front in the brush with their Stingers, and any other forward elements of air defense, can look for visual cues — apparent at the first moment of sighting — if they know what to look for. This is where adversary air formations knowledgeable in threat tactics and doctrine can be valuable training assets. Drones, models, etc., just don't think, nor do they talk or fly formations very well. And the most important thing they don't do is *debrief* the mission. This is where the learning points are pressed home.

Adversary air crews can provide additional effects such as broadcasting aural electronic engagement, or "lock up," signals over the common radio frequency — the same sort of aural warnings the engaged site or aircraft would customarily receive via their organic radar warning suite. Even without the lighted, flashing strobes on the face of an indicator (a la "Greta"), it will definitely get the attention of any engaged or about to be engaged troop or aviator, especially when an acquisition tone screeches into his headset, followed immediately by a "lock up" fire control tracking tone. These special effects are limited only by the imagination of the players.

Do the guardsmen provide the kind of realistic adversary air support the Marines had hoped for? According to Brig. Gen. E.T. Cook Jr., deputy chief of staff for training for the U.S. Marine Corps, "Flying as adversary air, and using Soviet tactics, [Utah Guard pilots] performed their mission in a flawless manner. They hit hard and fast and returned to debrief each encounter in detail. Although safety was paramount, their performance enabled our students to taste the nearest thing to combat available today and gave a chillingly realistic exposure to the threat. The officers of MAWTS-1 are eager to work with the professionals of the Utah Army National Guard in the future. The exchange of tactical concepts, experience and expertise can only have positive effects on the tactical training of both organizations."

CWO 2 R.P. "Pappy" Scheinblum, a former U.S. Marine Corps Fighter pilot colonel, flies opposing forces aircraft as part of the Utah Army Guard adversary air support missions at Yuma, Ariz.

How did Maniac and Pappy fare against the Hawk battery? They somehow, incredibly, survived the outer ring of Stinger teams. Not a single "Smokey Sam" was launched until . . .

"Hammered us good and proper," said Mr. Burt. "The day before, we'd had some success. We thought we'd figured their system out. But these missile guys are tough!"

In order to make the most of assets available in this time of budget cuts and "multiple mission optimization," whatever that is, Aviation units as well as Air Defense Artillery units — in fact, the entire combined arms team — should take a close look at the training benefits offered by units hosting trained adversary air cadres.

As an attack pilot in an armored cavalry regiment, when I go to where there is a war, I hope — I know — my ADA partners on the field will be as highly trained and proficient with longbow and javelin as I am with sword and shield. Our cooperative effort will ensure it. □

Prior to civilian employment as an airline pilot and affiliation with the U.S. Army National Guard, **CWO2 Michael J. Doyle** was a commissioned officer with the U.S. Marine Corps. He flew fighter and attack aircraft from 1962 until 1972, including a tour in Vietnam as an attack pilot flying A-4 aircraft. His last assignment as a regular Marine officer was instructor pilot, VMT-103, MCAS, Yuma, Ariz., teaching air-to-air and air-to-ground fighter tactics and gunnery. He currently flies TA4 Skyhawk aircraft with the U.S. Navy Pacific Fleet Aggressor Squadron, VF-126 at NAS Mirimar, San Diego, in the capacity of interservice training liaison officer, air-to-air combat. His present Army National Guard assignment is attack pilot, AH-1S Cobra.

Training Patriot for Europe

The 6th ADA Brigade builds on Patriot's success as it prepares Patriot units to do their NATO job

by 1st Lt. Hank Coverston

A major objective for Air Defense Artillery during the upcoming year is to build on the success of Patriot. This was one of six objectives set during the 1987 ADA Commanders' Conference held at Fort Bliss, Texas.

A major objective for the 6th Air Defense Artillery Brigade (formerly The School Brigade), Fort Bliss, is to prepare Patriot units for U.S. Army Air Defense Artillery Center certification prior to taking their places in the NATO line of defense. That means, though Europe's forests are halfway around the world from Texas' deserts, the brigade must train Patriot units to NATO standards before they deploy to Europe.

Patriot battalions must complete the collective training process that molds them into cohesive combat ready units prepared to take on the challenges of a European assignment. Five battalions have deployed to the Federal Republic of Germany and one remains stationed at Fort Bliss to provide support for Patriot training at the Air Defense Artillery Center. Two more Patriot battalions (minus) destined for Europe as well as two battalions (minus) scheduled to remain in the United States will be activated. Back fill units will activate and train to bring the deployed battalions to their full strength.

Patriot is the new cornerstone of NATO air defense at the theater level. Aware of Patriot's importance to NATO, the 6th ADA Brigade focuses its collective training on the "NATOization" of these battalions. In doing so, units arrive in the European theater more familiar with the NATO environment and, therefore, are better prepared to assume their NATO missions.

Continual coordination between the 6th ADA Brigade with the main command and control agencies in Europe such as the 4th Allied Tactical Air Force, Sector Operating Center III and Allied Air Forces Central Europe is essential to the NATOization process of these units. The 6th ADA Brigade uses NATO documents and regulations, obtained and updated through the 32nd Army Air Defense Command (AADCOM), to ensure units are trained to the latest NATO standards. In addition, staff officers from the brigade and from 32nd AADCOM make trips between Europe and the United States for face-to-face coordination between agencies to improve cooperation in the NATO training effort. The trips also allow the brigade direct observation of fielded Patriot units to evaluate the effectiveness of present training.

Although the 6th Brigade is responsible for the planning, activation and conduct of training for new Patriot units, responsibility also continues through shipping the battalions to their final destinations. Many other agencies at Fort Bliss aid in the training and maintaining of the new Patriot units. These include the TRADOC systems manager for Patriot, the Patriot Deployment Office and the Hawk/Patriot Department among others.

The collective training process, for units deploying to NATO, is divided into the following seven phases:

- Phase One — Pre-activation (six months)

• Phase Two — Activation (four weeks)
• Phase Three — Equipment acceptance (four weeks)
• Phase Four — Collective training (18 weeks)
• Phase Five — Equipment turnover (four weeks)
• Phase Six — Preparation for shipment (two weeks)
• Phase Seven — Departure and leave time (four weeks)
Patriot units not deploying to Europe do not go through phases five through seven.

Once activated and equipment is accepted, the real work as a collective effort begins. Phase Four, the collective training phase, is an 18-week process based on standards developed from Army Training and Evaluation Program 44-635, standards from the U.S. Army Air Defense Artillery School and standards from 32nd AADCOM based on NATO doctrine and tactics. Evaluations are programmed in the training at the seventh, eleventh, fourteenth and sixteenth week. This allows the units to adjust their training emphasis, as necessary, as intensity levels increase.

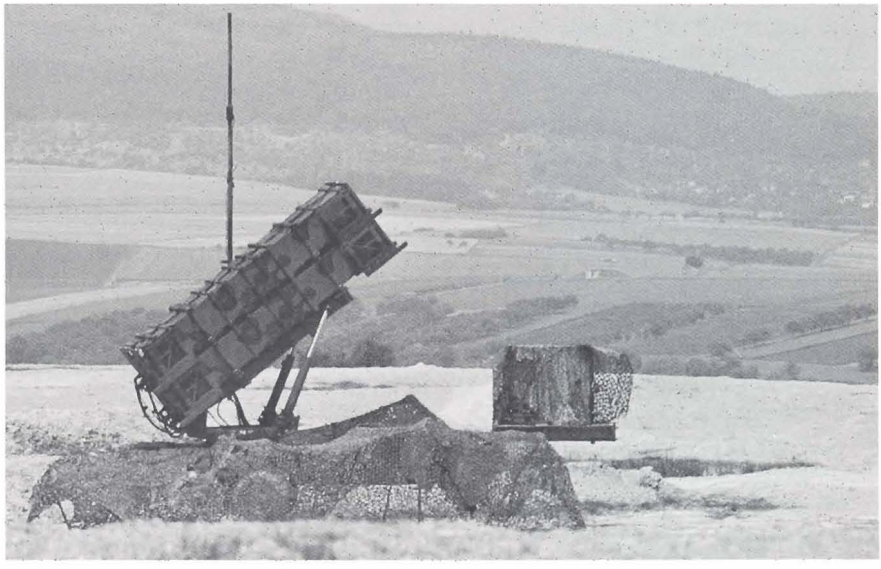
Similar to the steps in learning to walk, Patriot collective training works in stages. The units must first "crawl" then "walk" and later begin to "run."

The units start out slowly with individual, crew and platoon training. This gradually includes the entire firing battery and lasts two or three weeks. By this time, the battery is ready to integrate into a battalion for training along with the other batteries, adding the element of higher-level command and control. At this stage, command post exercises and communications exercises usually are frequent. Tactical control officers and their assistants work intensely on the skills of air battle management during this time.

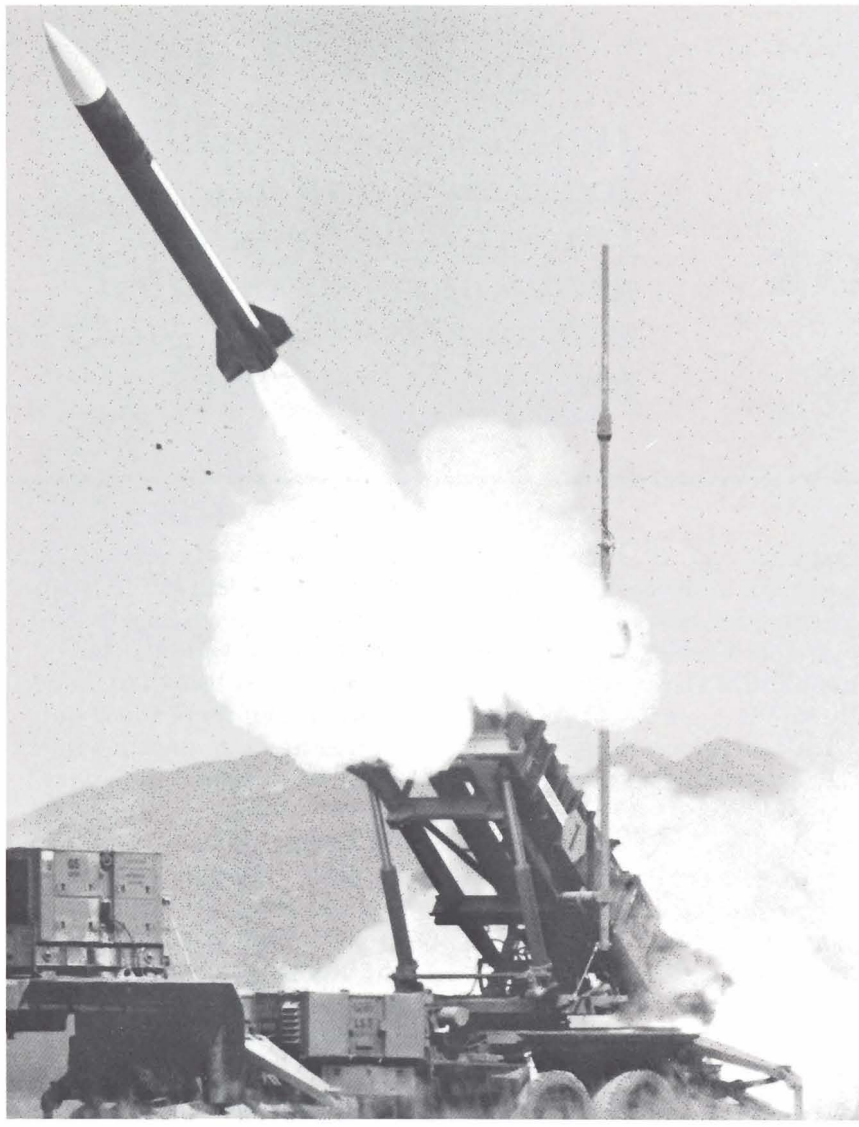
Communications training is vital in preparing Patriot to deploy to Europe.

After seven weeks of collective training, they are expected to "run" by the time their first evaluation rolls around during the seventh week. This gives the unit a chance to integrate all facets of its training, up to that point, by performing its air defense mission.

There are several key training courses included in the collective training process. Communications is vital in Patriot operations, and communications soldiers get extra training on the special communications equipment of the system. Other important training includes nuclear, biological and chemical; Stinger or man-portable air defense systems; and "Magic Mast" for soldiers working with the antenna mast group.



A battalion evaluation gives a unit a chance to integrate all facets of its training.



Collective training challenges Patriot units to start from scratch and train to a point where they can take their place in the NATO defense.

Training support doesn't stop there. The 6th ADA Brigade support covers a wide spectrum of training areas. To test the soldiers' mettle against electronic countermeasures or jamming, the 6th ADA Brigade engages in electronic warfare. Live aircraft provide for a realistic radar picture and occasional strafing runs over the batteries. During these live-aircraft missions, non-tactical peripheral equipment is connected to the information and coordination central (ICC) to record all the data used in the mission. It is converted into a computer printout which can be checked later to determine battalion emplacement, alignment and correlation accuracy.

In addition to the high-visibility training support, the brigade also works on operational areas such as supply/logistics, personnel actions and security/intelligence.

Trainers from Raytheon Company, manufacturers of the Patriot system, assist in operations training. There is one trainer at each battery and at the battalion headquarters. They offer ideas and suggestions to the units to increase training effectiveness during the time-limited collective training phase.

A unique training feature of the Patriot system is the troop proficiency trainer (TPT). The TPT is a valuable tool because it allows the crews to train in air battle management using only the engagement control station or ICC and special built-in TPT software. The TPT software can be set up with scenarios over terrain similar to the European area where the unit will deploy. This allows the crews to NATOize their air battle management to the future deployment area before they even leave the States.

The Patriot conduct of fire trainer (PCOFT) is another tool for training tactical control crews through the use of computer-simulated battles. PCOFT can supplement air battle management training. It is valuable for initial and refresher training.

Both the Patriot system and the collective training processes are growing and changing to meet the needs of the air defense community and overall air defense mission. Collective training now challenges the Patriot units to start from scratch and train to a point where they become a functioning air defense artillery asset. At this point they may further train for a NATO mission or continue to upgrade their proficiency to support CONUS unit missions. Either way, Patriot carries this fine level of performance forward, building on its success. □

1st Lt. Hank Coverston is an assistant Patriot operations officer with the S-3, 6th Air Defense Artillery Brigade, Fort Bliss, Texas.

The Patriot Premise

It takes fierce training, teamwork and heart to transform a fledgling group of soldiers into a cohesive battalion ready to join NATO defenses

by Capt. Edmond Leedham

Intensive training is the norm for Army units everywhere. The vast training grounds of Army posts boast staging areas for countless hours of practice and sweat to train right, to train ready. However, Patriot collective training is singular in that more than 400 soldiers, with varying levels of Army experience and weapons system expertise, are challenged to transform themselves into a cohesive, razor-sharp unit in the shortest possible time.

So when red and orange flames illuminated the early twilight as a Patriot missile roared through the sky, the enthusiastic cheers accompanying this fiery spectacle marked more than the successful completion of a demanding collective training cycle; it represented the zeal 8th Battalion, 43rd Air Defense Artillery soldiers brought to this ultimate test of fitness.

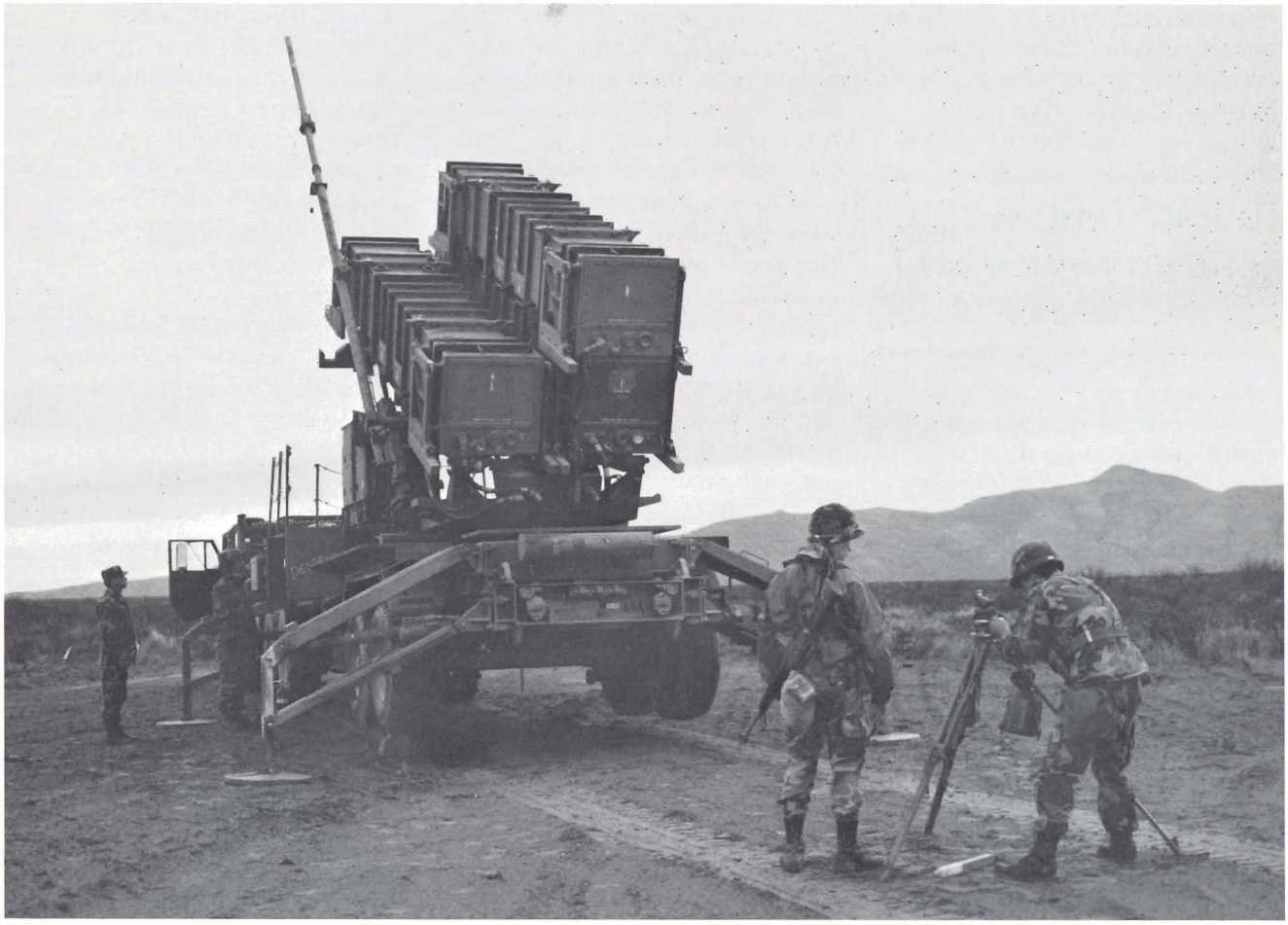
The 8/43rd ADA is the fifth Patriot battalion to be activated at Fort Bliss, Texas, for deployment to NATO Europe. The 8/43rd ADA was activated Oct. 17, 1986. The battalion, after earning center certification this spring, deployed to Giebelstadt, Federal Republic of Germany, this summer.

Intense preparation for the collective training cycle, which prepared them for deployment, began when 8/43rd ADA soldiers took possession of well-worn equipment. This equipment, during four years of training five different Patriot battalions, had accumulated the equivalent of 20 to 25 years of field use. Although the equipment was received in relatively good condition, a credit to the unit that possessed it previously, the 8/43rd ADA soldiers were determined to pass it along to the next unit in even better shape. This was the impetus for exacting training in initial equipment operation and maintenance. Also, during this time, training concentrated on common tasks such as weapons, driving, map reading and other skills that would be used throughout the collective training cycle.

The soldiers of 8/43rd ADA, many of whom were fresh out of advanced individual training and other Patriot-peculiar schools, had been given a good start, but quickly realized there was a great deal left to learn. As in most newly activated units, the battalion's NCO strength was less than 50 percent, and many of those assigned had not operated in a field environment for several years. In turn, many soldiers were required to assume leadership roles well above their rank or experience. Perhaps the greatest task of all was meeting the challenges of this training in only 15 weeks.

One of the greatest initial hurdles, for the soldiers, was learning to drive vehicles, especially the heavy expanded mobility tactical truck, in the desert under tactical conditions. Not only were battalion soldiers required to perfect their skills as operators of Patriot and Patriot-related equipment, but most had to learn and master the basics of life in a tactical environment. Even the smallest task, once mastered in the classroom or in garrison, was far more formidable in a field environment.

Many of the Patriot air defenders practiced routine tasks such as camouflage emplacement, land navigation, ground defense, field hygiene and living on MREs for the first time.



The Patriot launcher is emplaced by soldiers of A Battery, 8/43rd ADA, prior to missile firing at McGregor Range, N.M. (Photo by Frank Trevino)

Anticipating the challenges that did, indeed, surface during the first weeks of collective training, battalion leaders had devised an incremental training plan. The plan allotted three to four days of field training per week with only one to two weeks of garrison training during the entire cycle. The guiding principle of this plan was that all training objectives scheduled for a particular week must be accomplished before leaving the field. The goal was to achieve each week's objectives in a time frame that would allow enough time for recovery operations, and still leave weekends free for soldiers to rest before another demanding week.

A typical week began with a 4 a.m. recall. Upon signing in, soldiers turned their attention to uploading personal and unit equipment for convoy. The convoy normally commenced a three-day exercise during which each of the battalion's batteries was emplaced and march ordered at least once daily.

During the first weeks of training, the amount of operating time between each emplacement and march order often left little time for sleep. Every soldier was required to perform one or more different functions in addition to his or her primary duty. It was not uncommon for a launcher crewman, after having emplaced a launcher, to spend "three hours on 'hot crew,' three hours on guard duty, and just when it was time to rest, get the word to march order."

While the battalion was generally successful in meeting its three day target, the return to the rear often came late in the evening of the third day. Refueling and washing vehicles, and properly accounting for and securing sensitive items often delayed release of soldiers until the early hours of the fourth day.

These weeks would have been difficult enough if all that had to be done during garrison time was recovery and maintenance operations. However, 8/43rd ADA soldiers also had to complete many deployment-related

requirements such as levy briefings, transportation appointments, immunizations and acquiring passports for family members. In addition, soldiers,

". . . shoot, move, communicate and maintain"

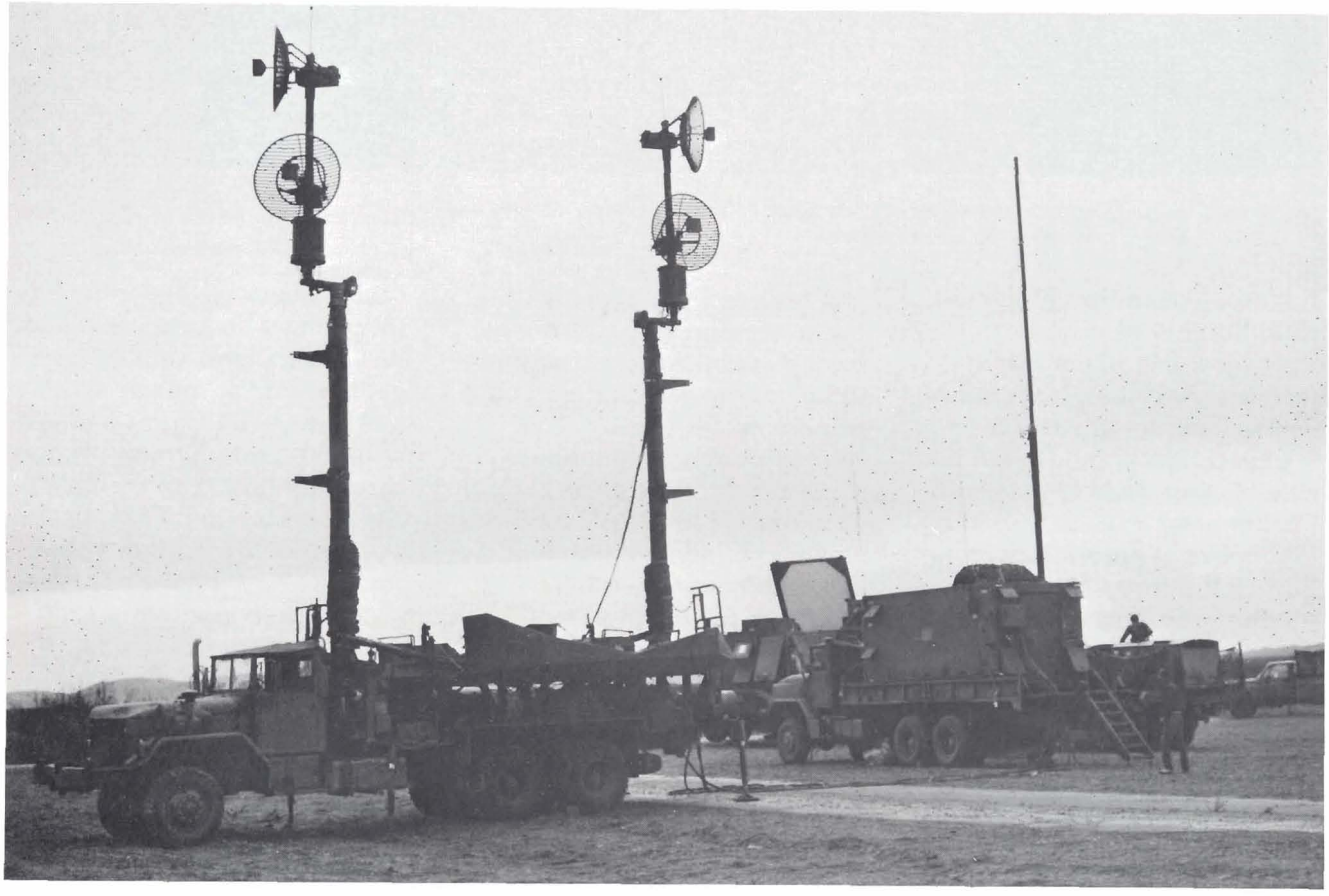
returning from the field, performed routine duties such as guard at least once during the days in garrison. All of these time consuming requirements had to be completed on precious garrison days. This routinely caused havoc with schedules for training and maintenance operations which then had to be deferred until the weekend.

During this compressed cycle, 8/43rd ADA soldiers not only mastered individual skills, but learned how to lead, how to follow and how to work as a team. Camouflage that initially took four to five hours to erect, soon went up during darkness in thirty minutes; convoys that departed point A, now arrived together at point B; Battery X could effectively emplace on a site laid out by Battery Y's reconnaissance selection and occupation of position team. The list goes on.

The battalion's performance during center certification, a three-day exercise designed to evaluate the unit's ability to "shoot, move, communicate, and maintain," typified the effort of 8/43rd ADA soldiers during the entire collective training cycle. Throughout this crucial evaluation, including the live fire exercise, the soldiers of 8/43rd ADA demonstrated not only technical competence, but, also, teamwork, heart and the ability to face and overcome formidable obstacles.

The cheers that followed the successful launch of the battalion's third Patriot missile were not so much the response of individuals happy to have completed a rigorous training cycle, but the sentiment of dedicated soldiers who have accomplished much and are ready to join NATO defenses. □

Capt. Edmond Leedham is an 8/43rd ADA S-3 tactical officer.



The 8/43rd ADA sets up Patriot equipment for firing at McGregor Range, N.M. The battalion has since deployed to the Federal Republic of Germany. (Photo by Spec. Stephen Hammer)

New ADA Targets Tested

Aircraft recognition and hostile aircraft engagement skills improved after just one session with new targets

by SSgt. Dean A. Osborne Jr.

The radio-controlled miniature aerial target (RCMAT) has emerged from storage and has winged its way into a primary role in ADA training with the 9th Infantry Division and I Corps at Fort Lewis, Wash.

The primary target for those looking skyward is the FQM-117B, a 1/9-scale, three-dimensional Soviet MiG-27 Flogger D issued to the RCMAT section of the 1st Battalion, 67th Air Defense Artillery Battalion, by the U.S. Army Missile Command (MICOM). This RCMAT, available to all short-range air defense battalions, has been most often used for Vulcan, Chaparral, Stinger and Redeye gunner training and tracking, and for small arms air defense training by the units within the corps.

What's new? The RCMAT MiG-27 Flogger D has been joined by the Soviet Su-25 Frogfoot, the Mi-24 Hind D helicopter and the U.S. Air Force F-16 Fighting Falcon at Fort Lewis.

Soldiers who used to shoot at "anything that flies" now are confronted with freindly as well as hostile aircraft in a field environment. In combat, what flies should not necessarily die, and waiting to sort them out on the ground is not the most prudent training policy.

Surely, viewgraphs, 35mm slides and photographs improve aircraft identification, but the true test is in the field when the weather, field conditions and pressure of meeting an Army training and evaluation program standard require air defenders to produce.

A variety of models now allow commanders to tailor their air defense training programs to meet their wartime contingency missions. For example, in some areas of the world, the U.S.-built F-4 Phantom may be hostile to U.S. forces or the Soviet-built MiG-27 may be friendly. Soldiers now must not only learn to identify the aircraft but must also determine if the aircraft's actions meet the criteria for engagement.

The RCMAT section of the 1/67th ADA has teamed with the U.S. Army Development and Employment Agency (ADEA) to evaluate the effectiveness of these models and their applicability for Armywide use. Under the supervision of SSgt. Dean Osborne, the four-man section of Sgt. Angel Colon, Spec. Guy Adams and Spec. Scott Milburn, has used the ADEA commander's initiative program to purchase three-dimensional scale models of the Su-25, Mi-24 and F-16. The models use the same logistical support and radio control as the MICOM-issued MiG-27, thereby reducing the train-up and preparation time required for the operators.

Sgt. Angel Colon, 1/67th ADA RCMAT section, launches the 1/9-scale Hind D target during engagement exercises at Fort Lewis, Wash.

The RCMAT section, 1/67th ADA, displays recent additions to its miniature aerial-target training team. Holding 1/9-scale targets are (from left to right) Sgt. Angel Colon with the Frogfoot, Spec. Scott Milburn with the Hind D and Spec. Guy Adams with the Fighting Falcon. The 1/9-scale Flogger D sits in the foreground.

The training consists of classroom instruction on small arms air defense, enemy tactics, aircraft recognition and rules of engagement. It also includes a live-fire exercise conducted in the field at Fort Lewis or Yakima Firing Center, Wash.

The unit faces the reality of fast movers and realizes the value of "volume of fire" during the live fire. Needless to say, the soldiers fire on the threat Su-25, Hind D and MiG-27 without hesitation. And then — wham! An F-16 slips in behind a MiG-27 and the F-16 becomes a victim of fratricide. It usually happens only on the first pass over, however. Soldiers immediately learn that there is a technique to small arms air defense and that practice does, indeed, improve the chances of knocking the bad guys out of the skies.

Their aircraft recognition and hostile aircraft engagement skills improved after just one session with the RCMATs. The soldier response to the RCMAT program has been positive. Questionnaires distributed after the training session indicated that this program is unique and that the soldiers want more of it. The consensus of participating soldiers is that the RCMAT has a training role to fulfill that has been neglected in the past.

What's on the horizon? The RCMAT section already has ongoing projects with ADEA to produce a more effective training program. A miniature multiple integrated laser engagement system (MILES) kit has been procured and will be placed on the MICOM-issued MiG-27. The MILES kit has a detection system with a flash-bang device which provides instant feedback to soldiers using the Army-issued MILES on M-16 rifles, machine guns or any other MILES weapon, including the Vulcan, Chaparral or Stinger.

In addition, the RCMAT can fire back with its own beam. Although not tested to date, this system appears to be the closest simulation to actual air engagement since MILES was adapted to air defense.

The 1/9-scale RCMAT offers a realistic silhouette when flown at 300 meters from the observer. It approximates the actual aircraft, including speed, at 1,200 meters. The 1/9-scale model has several advantages for the RCMAT section in the field. The models are all compatible with the MICOM-issued equipment. They can be launched by hand and recovered with minimal damage. They are easier to transport than the larger models (1/7 or 1/5 scale), using organic transportation or administrative transportation motor-pool vehicles. And, there is less to repair when damage does occur.

Fort Lewis is considering expanding the RCMAT program. Plans include procurement of additional models of aircraft such as the MiG-25 Foxbat, Su-24 Fencer, A-10A Thunderbolt II and the F-4 Phantom, to name a few.

The program, a success to date, will continue to document this training so it may be considered for Armywide use. Until then, additional information may be obtained by contacting SSgt. Osborne at AV 357-2547. □

WHIP

3/1st ADA Juggles Combat Deployment Without a Slip by Using WHIP

by CWO 2 Pierre LeBlanc

Out of nowhere, the call came through right after lunch. Was this the real thing? Was the unit going to war? People rushed in all directions. So many details had to be tended to in order to get the unit on the airplane and "wheels up" in a few short hours.

Then the reports started coming in. A truck broke down on its way to pick up essential equipment. A faulty radio was installed. One platoon moved off its site and left several tents behind. Another platoon left three soldiers behind in the havoc.

A mess!

What everyone had hoped would never happen was in full swing: confusion. That was when the head scratching and finger pointing began. Was this any way to go off to combat?

Now sit back and ask yourself, "Could this actually happen?" Could the proverbial forgotten brick cause the entire building to crumble? What overlooked detail could result in the injury, or worse, the death of a soldier?

Many may say, "Never, that won't happen in my unit." But just consider the myriad of small programs that must be managed to ensure that nothing goes wrong. How many programs? Try loadplans, missile maintenance, motor maintenance, vehicle and personnel assignments and equipment service to name a few.

In the 3rd Battalion, 1st Air Defense Artillery, Fort Bliss, Texas, we examined this possibility. With so many balls in the air, how do we keep going without letting at least one fall? The answer seems to be another program. It is actually an operational concept known as the whole inspection process (WHIP). WHIP, foremost, is a battery-level tool.

Unlike a tank, Hawk does not move, shoot and communicate out of one piece of equipment. In Hawk we move with a truck, shoot with a missile system that works off a trailer, and communicate with a radio in another vehicle. WHIP puts all of these together as a package. A package consists of a prime mover and its load, and a trailer and its load. That package is then considered one complete element and becomes the basis for the rest of the program. Everything is built around the package.

Who makes WHIP work? The operator of the equipment. Each package has an assigned driver and assistant driver. The driver is responsible for the prime mover and its load. The assistant driver is responsible for the trailer and its load. They perform the inspections on their assigned equipment.

Behind the operator stands the platoon sergeant. He is the program manager. He ensures that all packages assigned to his platoon are ready at all times.

The maintenance officers in the unit ensure that the program runs smoothly and that the necessary materials are available for the operators and mechanics. They also provide the quality control by lending assistance when needed without becoming the "head wrench."

At battery headquarters, all the results are compiled to show the commander just how mission capable the unit is.

How and when is WHIP done? There are two levels of WHIP. WHIP I consists of weekly preventive maintenance checks and services on all items

of equipment within a package. This includes radios, vehicles, bed load, and the trailer and its load. WHIP II is a monthly inspection which requires that all package elements be assembled and inspected together. Load plans are checked and the package is moved as one unit to ensure that it is totally mobile, functional and safe.

The results of a WHIP will show the package as either mission capable or not mission capable. These results are collected and reviewed by the platoon sergeant. He makes sure corrective action is started. Then, the WHIP results are passed to battery headquarters. The results can be given one of three ratings: green, if all the elements of the package are fully mission capable; amber, if one or more items are not mission capable; and red, if all the elements are not mission capable. (Individual elements of the package are given only a green or red rating; either they work or they don't.)

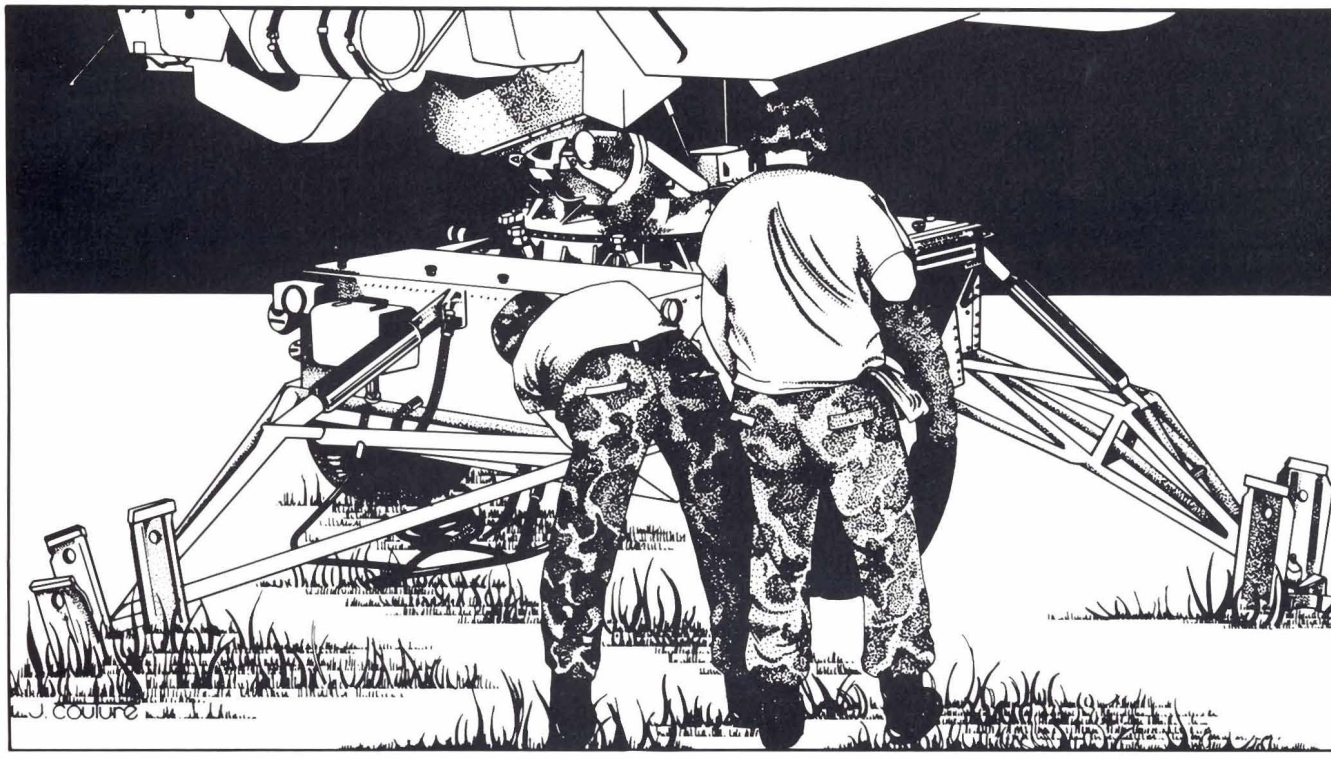
As an additional tool, the scheduling of periodic services by package reduces the sporadic effect of scheduled maintenance on operational capability. Each package has a WHIP packet maintained on it. This packet contains a list of all elements of the package and a list of all publications applicable to the package. It also includes the load plan, personnel assignment roster, safety checklists, services and the results of the last WHIP.

Why WHIP? There are a number of reasons for this program. First, every item in the unit is looked at weekly. No emphasis is placed on one area over another. Second, since soldiers are assigned a package, they begin to gain an affinity for the equipment they operate. This is much like the owner of a car who can detect potential problems before they surface. Third, confusion is eliminated. Unit members know where they ride when it's time to move out and what equipment must be present. Fourth, once a package is created, missions such as airload operations are easier because load plans and personnel requirements are already established.

Another reason to use WHIP is that the commander can look in one place and quickly ascertain his mission capability. The commander can see the number of amber or red packages and the items within these packages that cause these ratings. This helps the commander determine what must be done to make the unit ready to go to war and win. Without WHIP, a commander must look in several places, at virtually the same time, to get this information.

WHIP is not new. Every unit does similar things. WHIP is more an operational concept than a maintenance program. What WHIP does is compile several related programs under one umbrella to make them less complicated. □

CWO 2 Pierre LeBlanc is the automotive maintenance technician for C Battery, 3rd Battalion, 1st Air Defense Artillery, Fort Bliss, Texas.



ADA Warrant Civilian Schooling

The civilian-education career goal for ADA Warrants is an associate's degree in a career-related program

by CWO3 Jim N. Cupp

Air Defense Artillery is now selecting soldiers to be ADA warrant officers who, initially, may have less technical expertise but have the potential necessary to make professional warrant officers in ADA MOSs. The branch is able to do this because of a warrant officer training system which guarantees that all warrant officer candidates receive certified training.

In addition to formal ADA technical schooling, ADA warrants may also attend civilian schooling. The goal for ADA warrant officer civilian schooling, set by the Department of the Army (DA), is an associate's degree in a career-related program before the 15th year of active federal service.

ADA warrants now have a number of programs available to help them reach this goal. A career-related degree helps satisfy the skill development and occupational needs of the Army, increases a warrant officer's career potential and improves individual job satisfaction.

While an associate's degree is not required for promotion or additional technical schooling, it is a realistic education objective. The right education can give today's warrant officers the vital skills needed to deal with both the technical and interpersonal role of their positions.

There are several ways to earn a civilian degree. The two most popular are off-duty college and DA full-time student programs.

Off-duty College

In the off-duty college program, courses are offered either by local community colleges or universities during off-duty hours at most Army installations. Most of these schools are members of the Servicemembers Opportunity College (SOC) network. SOC affiliated schools provide flexible programs for military students, and accept applicable credits from other participating institutions. This is an important consideration, because soldiers face frequent permanent change-of-station (PCS) moves while pursuing their degrees. To help offset the cost of attending off-duty courses, a soldier can use the GI Bill, if eligible, or some form of tuition assistance.

Full-time Student Programs

Currently, DA offers three programs that allow a warrant officer to complete associate degree requirements on a full-time basis: fully funded, degree completion and permissive TDY. Under all three programs, the degree must be in an MOS-related academic discipline.

Warrant officers must meet the following prerequisites to be in a DA full-time civilian schooling program:

- Be able to fulfill the active duty service obligation incurred from the schooling before their mandatory release date. (This is normally computed at a ratio of three to one.)
- Have a secret clearance or higher, if required.
- Have academic records, educational tests and other indicators that reflect an aptitude for schooling.
- Have a military performance record that shows potential for a highly successful career.
- Submit formal application. (See AR 621-1 for details.)
- Have a minimum of three years active duty warrant officer service. (Other-than-Regular-Army officers must begin the civilian schooling program before their 14th year of active federal service.)

Full-time Fully Funded

Under the fully-funded program for full-time students, the Army pays for tuition and fees and authorizes reimbursement of up to $600 each academic year for textbooks, supplies and related expenses. The individual receives full pay and allowances and is authorized a PCS move to attend school.

This program is open to applicants who are within 18 months of completing degree requirements. Applicants who can complete their studies in the least amount of time have a greater chance of selection for the program. Degrees pursued under this program must be closely aligned with the officer's MOS. Positions for the fully funded program are competitive and only the most qualified applicants will be accepted.

Applicants for the fully funded program must complete DA Form 1618-R, Application for Detail as Student Officer at a Civilian Educational Institution or Training with Industry Program. The form may be reproduced locally on a standard sheet of paper. Applicants must send the form, in duplicate, through the first field grade officer in their chain of command.

The endorsement must include the commander's evaluation of the applicant's abilities, scholarly attitude, initiative and aptitude for the course of study. The applicant must also include a letter of acceptance from the school he or she desires to attend. This letter must contain the following information:

- Registration date
- Date school begins
- Date degree requirements will be completed
- Cost per academic session
- Prerequisite undergraduate courses that must be taken (if any)

The completed application must include the following:

- DA Form 1618-R
- Endorsement (field grade)
- Letter of acceptance (school selected)
- Official transcripts

Full-time Degree Completion Program

The degree completion program offers a warrant officer the opportunity to go to school as a full-time student for up to 12 months. The institution must be academically accredited, and the associate's degree must be in an MOS-related academic discipline.

This is a partially funded program for which the Army authorizes full pay and allowances and a PCS. However, the individual must bear the cost of all tuition, fees and textbooks. Students who have GI Bill entitlements may offset expenses by applying to the Veterans Administration for in-service financial assistance under the provisions of the Veterans Readjustment Benefits Act (PL89-358).

Applicants must submit a written application. The letter will be forwarded by the applicant's command to HQDA (DAPC-OPW), Alexandria, VA 22332-0400. The immediate supervisor must appraise the applicant's ability, initiative, potential and duty performance. The application must include the following:

- Name, grade, social security number and primary MOS
- Date and source of appointment
- Years and months of actual warrant officer service
- Specific degree to be obtained
- Academic data (summary of all credit hours)
- Degree plan
- Name of institution desired to attend
- Present assignment and telephone number
- Official college transcripts
- Letter of acceptance

The application must also include the following service obligation statement:

"If I am entered into a degree completion program per AR 621-1, I agree that on completion of the education or withdrawal or removal from the program, I will serve on active duty for a period equal to three times the length of schooling unless sooner relieved for the convenience of the government. The total obligation incurred through participation in this program will not, in any event, be more than six years. Service obligation will be computed, in days, per AR 350-11. I also agree to bear all expenses for this training, including tuition fees and books."

Full-time Permissive TDY Program

This program is limited to students who, in less than 20 weeks, can complete schooling which results in the awarding of an academic degree. Study may be either en route to a PCS assignment or, if assigned to a permanent duty station, on a TDY-and-return basis. Service obligation will normally be three to one. □

CWO 3 Jim N. Cupp is the warrant officer professional development manager for the Office, Chief of Air Defense Artillery, Fort Bliss, Texas.

ADA Career News

Compiled by the Professional Development Division, Office, Chief of Air Defense Artillery, U.S. Army Air Defense Artillery School, and the ADA Enlisted Careers Branch, DA Military Personnel Center.

Qualifying for Colonel

Air defense officers looking toward promotion to colonel should be aware of the following career qualifying factors.

Minimum qualifications are the following:

- Complete the requirements of military education level 4, graduate from a command and staff college
- Have an assignment as a staff officer in a lieutenant colonel authorized staff position at division or installation (center or school) level or higher

Exceptional qualifications are the following:

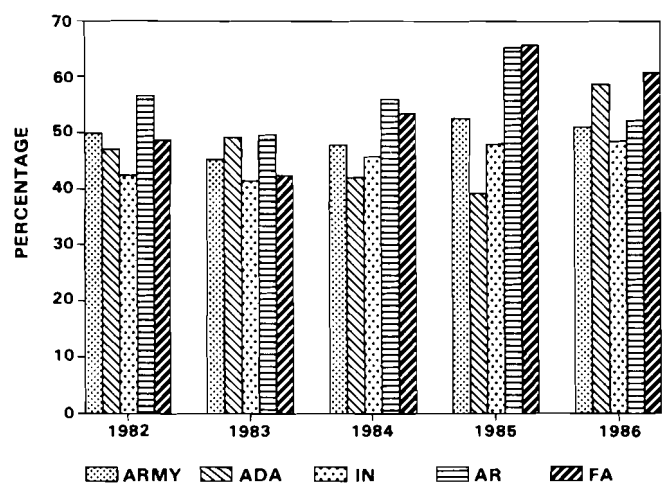
- Successful battalion command
- Completion of the requirements of military education level 1, graduate from a senior service college
- Serve as a deputy commander or brigade executive officer of an ADA brigade or its equivalent

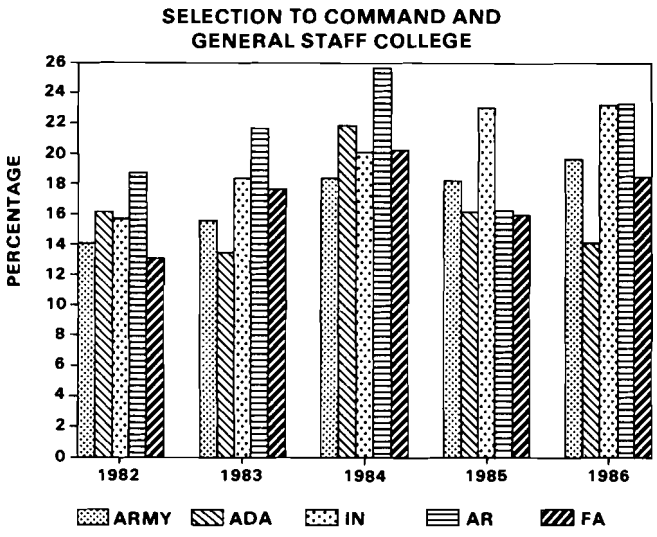
ADA officers qualifying for promotion to colonel typically have had these assignments:

- Command of an ADA battalion
- ADA staff and/or general staff positions at all levels including DA staff
- Staff and faculty positions in service schools, ROTC or USMA

However, duty positions with troop units in Air Defense Artillery at the lieutenant colonel level are extremely limited due to the small number of ADA units above the battalion level.

SELECTION TO COLONEL





ADA Lieutenant Colonel Promotions

Results of the recent lieutenant colonel board reflect that, even in this period of budgetary constraints and promotion slowdowns, Air Defense Artillery officers continue to excel and are more than competitive with their Army contemporaries.

The results of the FY 87 Lieutenant Colonel Selection Board

	PREVIOUSLY CONSIDERED			FIRST TIME			TOTAL		
BR	ELIG	SEL	%SEL	ELIG	SEL	%SEL	ELIG	SEL	%SEL
AD	46	6	13.0	77	62	80.5	123	68	55.2
AR	50	3	8.8	172	117	68.0	222	120	54.0
AV	190	16	8.4	252	179	71.0	442	195	44.1
EN	75	1	1.3	111	74	66.6	186	75	40.3
FA	109	6	5.5	182	122	67.0	291	128	43.9
IN	166	10	6.0	305	197	64.5	471	207	43.9
ARMY AVG	1104	80	7.2	1904	1324	69.5	3008	1404	46.7

Qualification for Lieutenant Colonel

Minimum qualifications for promotion to lieutenant colonel include the following:

- Graduate from a command and staff college
- Successfully command a battery

Exceptional qualifications for promotion include the following:

- Serve as a table of organization and equipment ADA battalion S-3 or executive officer
- Serve as a primary staff officer at brigade level or at key staff positions at division level or higher.

Typical assignments for ADA officers at this level include air defense staff positions at all levels, with emphasis on DA staff and faculty positions in service schools, ROTC or USMA.

Generally, there are fewer troop assignment positions for ADA officers than the other combat arms branches, providing fewer opportunities to serve as primary staff officers at battalion level. Also, there are few air defense units above the battalion level; therefore, ADA officers have limited access to brigade and higher staff positions.

Another peculiarity for ADA officers is ADA's responsibility for Nike Hercules custodial units in Europe with the associated command and staff positions. These units are smaller in size than conventional battalions and batteries, but the demands and responsibilities associated with their command are comparable. The battery commander is called detachment commander.

ADA Warrant Promotions

Below are the ADA promotion results from the FY 86 Warrant Officer Selection Board. Air Defenders did extremely well, exceeding the Army average in selection to CWO 3 by 2.0 percent and the Army average in selection to CWO 4 by 19.4 percent.

Promotion to CWO 3:

	Considered	Selected	Percentage Selected
ADA average	77	55	71.4
Army average	1422	987	69.4

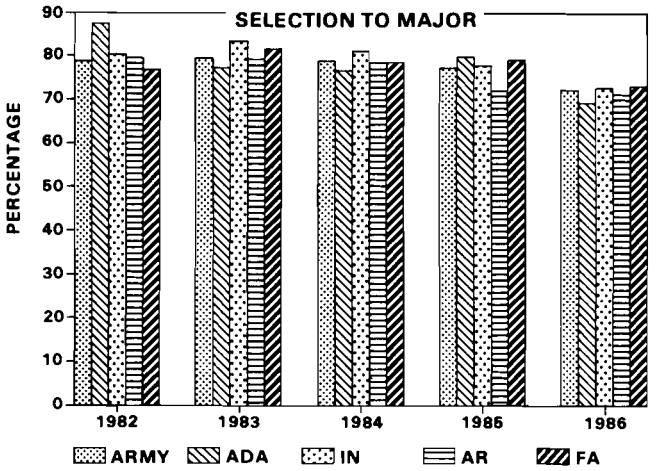
ADA Specialties	Considered	Selected	Percentage Selected
221B	2	2	100
222B	7	4	57.1
222C	3	2	66.6
223B	44	36	81.8
224B	18	10	55.5
224D	1	0	0
225B	2	1	50*

* Boarded as 287A (data processing systems repair technician)

Promotion to CWO 4:

	Considered	Selected	Percentage Selected
ADA average	19	15	78.9
Army average	686	408	59.5

ADA Specialties	Considered	Selected	Percentage Selected
221B	3	1	33.3
222B	2	2	100
222C	4	4	100
223B	7	7	100
224B	3	1	33.3



ADA Sergeant Major Promotion

The results of the February 1987 sergeant major promotion board for ADA career management fields (CMFs) are as follows:

	Percentage Selected		
	Primary Zone	Secondary Zone	Total
CMF 16	16.9	8.3	13.7
CMF 23	12.5	7.1	10.0
Total ADA	16.2	8.1	13.1
Armywide	18.2	6.9	13.5

A further analysis of the promotion board results follows:

In CMF 16, 131 soldiers were eligible. Eighteen soldiers, 14 in the primary zone and four in the secondary zone, were selected.

CMF 16 selectee profile	Primary Zone	Secondary Zone
Average civilian education	12.6 years	13.5 years
Average age	41.6 years	40.8 years
Average time in service	21 years	19.8 years
Average time in grade	4.5 years	3.1 years

In CMF 23, 30 soldiers were eligible for promotion. Three soldiers, two in the primary zone and one in the secondary zone, were selected.

CMF 23 selectee profile	Primary Zone	Secondary Zone
Average civilian education	14 years	16 years
Average age	42 years	43 years
Average time in service	22.7 years	20.6 years
Average time in grade	4.1 years	2.7 years

All of the soldiers selected for promotion included a current military photograph with their file.

An analysis of the results shows that ADA CMFs did well when compared to the Armywide average. CMF 16 exceeded the Army average by .2 percent. CMF 23 was 3.5 percent below the Army average. Overall, the ADA CMF selection rate was almost identical to the Armywide average selection rate.

ADA Master Sergeant Promotion

An analysis of the July 1986 master sergeant promotion board for ADA career management fields (CMFs) results show that CMF 16 did extremely well, exceeding the Army average in every category. CMF 23 did poorly when compared to the Army average as a result of low DA selection objectives.

The results of this board follow:

	Percentage Selected		
	Primary Zone	Secondary Zone	Total
CMF 16	40.9	9.2	17.2
CMF 23	15.3	1.2	7.8
Armywide	22.4	5.7	15.5

In CMF 16, 435 soldiers were eligible for promotion. Seventy-five soldiers, 45 in the primary zone and 30 in the secondary zone, were selected.

The typical CMF 16 soldier selected for promotion to master sergeant had 12.7 years of civilian education, was 38.2 years old, had been in the service 16.8 years, had 4.5 years time in grade and an SQT score of 84.7.

In CMF 23, 319 soldiers were eligible for promotion. Twenty-five soldiers, 23 in the primary zone and two in the secondary zone, were selected.

The typical CMF 23 soldier selected for promotion to master sergeant had 12.9 years of civilian education, was 38.4 years old, had been in the service 17.8 years with six years time in grade and an SQT score of 92.

ADA SFC Promotion

The results of the sergeant first class promotion board for ADA career management fields (CMFs) follow:

	Percentage Selected		
	Primary Zone	Secondary Zone	Total
CMF 16	14.6	2.6	9.7
CMF 23	46.1	13.8	36.2
Armywide selection	21.6	8.1	16.7

In CMF 16, 1878 soldiers were eligible for promotion to sergeant first class. One hundred and eighty-three, 164 in the primary zone and 19 in the secondary zone, were selected.

The average soldier selected in CMF 16 had 12.5 years of civilian education and was 33 years old. Also, the average selectee had 11.8 years time in service, 5 years time in grade and an SQT score of 83.2.

In CMF 23, 423 soldiers were eligible for promotion to sergeant first class. One hundred and fifty-three, 135 in the primary zone and 18 in the secondary zone, were selected.

The average soldier selected in CMF 23 had 12.4 years of civilian education and was 31.7 years old. Also, the average selectee had 11.2 years time in service, 4.1 years time in grade and an SQT score of 87.8.

MOS 16P Cap to E7

Due to the formation of corps Chaparral units, MOS 16P now caps at the grade of E7. This MOS structure became effective September 1987 and will appear formally in an update to AR 611-201. Soldiers in MOS 16R grade E7 who have received formal training and are serving in Chaparral units/duty positions will be considered for reclassification to MOS 16P.

Soldiers in MOS 16R grade E7, Chaparral trained and presently assigned to Vulcan units desiring reclassification to MOS 16P, may apply in accordance with Chapter 2, AR 600-200.

ADA Needs MOS 16T Soldiers

Requirements for qualified MOS 16T soldiers soar as more Patriot battalions come on line. To meet the need, MILPERCEN solicits highly motivated soldiers to submit a DA Form 4187 requesting reclassification. They also urge soldiers to see their re-enlistment NCOs to inquire about their eligibility for retention and cross-training into MOS 16T. Soldiers selected will attend a fast paced 10-week course at Fort Bliss, Texas, prior to assignment to an activating Patriot battalion or one already deployed in Europe. For more information, contact SFC Shelton or SFC Mead at AV 221-8052.

Patriot ASI-T5

Due to the increased emphasis on qualified Patriot Intermediate Maintainers, additional skill identifier (ASI) T5, and the lack of sufficient volunteers to fill training seat quotas, MILPERCEN must now direct 24T Patriot Operator/System Mechanics to training.

Soldiers who are selected by MILPERCEN to attend training in ASI-T5 will incur a 30-month service remaining obligation upon completion of the course. Currently, MILPERCEN is in the process of screening the career management individual files of all 24T personnel in grade E5 and above who meet the established criteria for selection.

The prerequisites for selection are as follows: MOS 24T minimum of 18 months, grade E5 or above and EL score of 110 or above. In some instances, prerequisites may be waived (i.e. 12 months in MOS, EL score 105). Volunteers are still encouraged to submit a DA Form 4187 for consideration for training in ASI-T5.

Revisions of CMF 23

During FY 87, major revisions affecting military occupational specialties (MOSs) within Career Management Field 23 have been implemented.

All skill level 4, SFC positions of MOS 24C have been converted to MOS 24R. Skill level 4 24Cs are being encouraged to request reclassification into MOS 24R or another shortage MOS within CMF 23 or the Army.

MOS 24E is being deleted from the Active Army inventory, and the pulse acquistion radar duties and positions are being transferred to MOS 25L. Additional skill identifier (ASI) G6 duties and positions associated with MOS 24E are being transferred to MOS 24C. Reclassification actions are to be completed by April 1988. Soldiers possessing MOS 24E have been notified by letter to request reclassification to another shortage MOS within CMF 23 or the Army.

MOS 26H is being deleted from the Active Army inventory and those identification friend or foe duties and positions are being transferred to MOS 25L. Reclassification actions are to be completed by April 1988. Soldiers possessing MOS 26H have been notified by letter to request reclassification to another shortage MOS within CMF 23 or the Army.

The conversion of Chaparral battalions to corps level now requires an MOS 24N to perform the duties associated with ASI X7 forward area alert radar repairer. Four ASI X7 positions that were associated with MOS 24M have been converted to MOS 24N in each corps battalion. Reclassification will take place between Sept. 1-23, 1988. Some soldiers possessing MOS 24N are already in training for ASI X7.

TRAINING TIPS

Air Threat Handbook

The U.S. Army Air Defense Artillery School has published an "Air Threat Handbook" that provides air defenders a concise and complete picture of the air threat. The 500-page handbook is classified secret. It includes a description of the threat posed to Patriot, Hawk and the forward area air defense system by fixed- and rotary-wing aircraft, artillery, multiple rocket launchers, short-range ballistic missiles and electronic warfare systems.

The handbook is available to S-2s in the active Army, Army Reserve and National Guard. The point of contact for additional information is Maj. Porfirio Montes (Commercial 915-568-5810 or AV 978-5810), Threat Division, Directorate of Combat Developments (ATSA-CDT-T), U.S. Army Air Defense Artillery School, Fort Bliss, TX 79916-7050.

Communicative Skills Assistance

The U.S. Army Air Defense Artillery School's Communicative Skills Office will, on request, make training assistance visits to field units worldwide to help soldiers learn how to prepare paperwork and briefings that communicate rather than confuse.

"The ability to communicate clearly and quickly in writing and speaking is a critical leadership skill," said the school's communicative skills officer, Maj. Mike Wilcomb. "Our mission is to improve the communicative skills of young officers and NCOs. For the first time, we are making help available within the school also available to unit commanders."

The Communicative Skills Office will conduct briefings and workshops ranging in length from 30 minutes to eight hours. The Executive Workshop, a four-hour overview of the new Army writing style, is the most frequently requested presentation. One-hour professional development classes for small groups of battalion officers and NCOs have also proven effective.

The Air Defense Artillery School will foot the bill for CONUS units; OCONUS units will have to pick up part of the tab.

For more information, call AV 978-4843 or Commericial 915-568-4843, or write: Communicative Skills Office, ATSA-DT-CS, U.S. Army Air Defense Artillery School, Fort Bliss, TX 79916-7090.

Vulcan Visual Engagement Simulator

A Vulcan visual engagement training simulator (VETS) may soon provide individual and collective training for all active duty and Army Reserve Vulcan crews.

"The VETS concept calls for an instructor station to communicate sound and images to the weapon system through a data link," explained James Crouch, chief of the New Systems Training Office, Directorate of Training and Doctrine (DOTD), U.S. Army Air Defense Artillery School (USAADASCH), Fort Bliss, Texas. "The gunner receives a target image superimposed on the actual terrain background."

According to Crouch, VETS advantages include no ammunition expenditure, no live aircraft requirement, scoring and replay capability, no flight profile restrictions, no performance envelope limitations, realistic enemy threat scenarios and closed-loop training.

DOTD first tested a short-range air defense strap-on trainer using split-beam technology in 1986. Maj. Gen. Donald R. Infante, USAADASCH commandant, authorized its purchase this winter. The school has submitted a request for "off the shelf" acquisition to the U.S. Army Training Support Center.

The basis of issue will be 10 VETS for USAADASCH, 42 for active Army Vulcan units and 48 for the Army National Guard.

ADA Training Targets

The U.S. Army Air Defense Artillery School, Army Research Institute and the Army Missile Command's Target Management Office are developing a new range target system and revised air defense firing tables.

The range target system, consisting of 1/5th-scale, three-dimensional rotary- and fixed-wing aircraft, replicates the current air threat. The targets are equipped to receive plug-in modules, infrared devices, radar and scoring lasers. They are also equipped for multiple, integrated laser engagement system combat simulation. The updated firing tables will use the new targets for qualification and certification training.

"The present method of placing weapon systems on a line and moving targets back and forth in front of them must give way to training as we fight," said Col. Joel H. Ward, head of USAADASCH's Directorate of Training and Doctrine. "Several troop units have seen prototypes of the new targets during live fire exercises and combined arms live fire exercises, and they like them. We'll need one year to develop the targets and range firing tables. We expect to present them to the field by the first of July 1988."

Stinger Training Launch Simulator

The U.S. Army Missile Command is using a two-phase basis of issue plan (BIP) for fielding eagerly awaited Stinger training launch simulators (STLSs).

Active Army, Army Reserve and some National Guard units will receive STLSs during Phase I, August 1988 through April 1991. Phase II, from October 1990 through April 1991, will complete fielding to National Guard units.

STLS BIP

MACOM	Time Frame	Quantity
USAREUR	Aug-Oct 88	40
EUSA	Nov 8	84
FORSCOM	Dec 88 - Feb 90	56
WESTCOM	Mar 90	4
ARNG (Phase 1)	Apr 90	66
USAR	May 90	6
ARNG (Phase II)	Oct 90 — Apr 91	100

National Guard units will receive STLSs through direct issue to the unit, from their regional training aids support center on permanent hand receipts, or during annual or round-out training.

Mission Training Plans

The Directorate of Training and Doctrine, U.S. Army Air Defense Artillery School, Fort Bliss, Texas, is developing mission training plans to incrementally replace battalion Army training and evaluation programs (ARTEPs). Under the improved ARTEP concept, the directorate will develop 24 mission training plans by echelon (platoon, battery and battalion) to satisfy the training and evaluation needs of all fielded ADA weapon systems and organizations.

Draft editions of four mission training plans, Chaparral Platoon, Forward-area Alerting Radar Platoon, Stinger Platoon and Vulcan (Self-Propelled) Platoon have already been fielded. The directorate plans to publish three new mission training plans per quarter until the last is printed and distributed in FY 91.

The five major milestones for each mission training plan are available from the Doctrinal Literature Office, ATSA-DTM-DL, Directorate of Training and Doctrine, U.S. Army Air Defense Artillery School, Fort Bliss, TX 79916-7090.

Safety at the NTC

The National Training Center, Fort Irwin, Calif., has experienced numerous fighting position "cave-ins" that have resulted in casualties.

These cave-ins typically occur when soldiers are not trained in the proper construction of fighting positions with overhead cover or when soldiers are trying to "make do" with inadequate material. All too often, the first fighting position a soldier constructs is during an NTC rotation. Stinger teams and air defense observation posts experience an average of one cave-in per rotation.

The following field manuals should be available to assist soldiers in proper construction of fighting positions:

- FM 5-103 (Survivability)
- FM 21-75 (Combat Skills of the Soldier)
- FM 77-7 (Mechanized Infantry Platoon and Squad)

FEEDBACK

IFF Training

There have been several training and doctrinal shortfalls identified in the use of identification, friend or foe (IFF), by air defense artillery and aviation units. A field fix is in use at Fort Bliss, Texas, that can be used as an interim testing device for the Mark XII IFF.

The antennas of two modified transponders are mounted on a telephone pole which allows users to test their IFFs by keying the transponders and receiving a return signal. Codes for testing Mode IV are set in monthly, but can be changed as required. This system will not work with Hawk or Patriot units, but does work well with Stinger, Chaparral and forward area alerting radar.

These shortfalls are being addressed in the Army mission training plans scheduled for fielding now.

For additional information, contact CWO 2 Moon or SFC George at AV 978-7230/2482.

Change to SQT

Have you noticed that your 1987 skills qualification test (SQT) score was higher or lower compared to last year? There's a reason for this. SQT scoring procedures have changed.

The U.S. Army Training and Doctrine Command initiated a minimum passing score (MPS), based on normal test validation processes. The MPS is the lowest score you can make on your SQT and still pass. Each MOS will have a different MPS for each skill level test and this score may change every year to ensure valid testing. The MPS is determined during the SQT development.

Confused? The following are two examples of the new SQT scoring system:

- You are a 16D skill level 1 soldier. Your 1987 SQT has an MPS of 69. This means you must achieve a "raw" score of at least 69 to pass. Any raw score below 69 is a failing score.
- You are a 16D skill level 3 soldier. Your 1987 SQT has an MPS of 72. This means you must achieve a "raw" score of at least 72 to pass. Any score below 72 is a failing score.

All raw scores on SQTs will be "adjusted" based on the minimum passing score. In the first example, if a 16D skill level 1 soldier's raw score is the MPS of 69, his record will show that he got 60. All scores above or below the MPS will be adjusted. When you are notified of your score, it will be the adjusted score.

The following is an example of the raw and adjusted scores for a 16D3 whose MPS is 72:

Raw Score		Adjusted SQT Final Score
100	=	100
90	=	86
80	=	72
75	=	64
72	=	60
64	=	53

We'll be glad to answer any questions on this new TRADOC scoring procedure. Call or write USAADASCH, ATTN: ATSA-DTI, Fort Bliss, TX 79916-7090; AV 978-2615 or commercial (915) 568-2615/4930.

Chaparral Maintenance Safety

Chaparral units complain that during the removal of the Chaparral's main power unit, one of the spreader (lifting) bar attachment bolts will occasionally break. This broken bolt may cause the main power unit, which weighs about 450 pounds, to fall back into the compartment. This may cause serious damage to the engine itself or injure the person performing the procedure.

The probable cause for the bolt breaking is human error. Either the spreader (lifting) bar is inserted into the wrong hole of the two existing engine block holes, or the spreader bar is incorrectly attached to the engine block.

The following recommendations should be adhered to when installing the spreader bar for removal of the main power unit.

- The spreader bar (PN 13238429, NSN: 5120-01-163-4745) should be marked on one end, on opposite sides, with a yellow tag reading "flywheel side." If the marking is missing, measure from center of the lift attachment point to the ends of the spreader bar; one end will measure less than the other. The shorter measurement will be the end of the lifting bar that will face the flywheel side.
- The bolt that is opposite the one attached to the flywheel should be inserted into the hole between the oil filter and the valve cover. See TM 9-1440-2585-20-3, paragraph 4-63B illustration, to ensure that the bar has been properly installed.

Caution. Ensure the spreader bar bolt is not bolted to the existing hole adjacent to the fuel shut off solenoid and fuel line. Inserting the bolt in this hole will cause the engine to tilt while being lifted. Strain created by this uneven distribution of weight may cause the bolt to break, resulting in damage to equipment and serious injury to maintenance personnel.

- When removing the nuts and washers from threaded pins on the main power unit support assembly shock isolators, use a deep-well socket (NSN 5120-00-242-3347).

Patriot Maintenance

Personnel from the Patriot Department, U.S. Army Air Defense Artillery School, during troubleshooting procedures, detected a Patriot equipment discrepancy.

The power meter of the built-in measuring equipment (BIME) registers power readings before the circuit is energized.

This erroneous indication is caused by radio frequency interference in and around the Patriot radars. All systems up to production system 25 (serial #600078) may be affected.

In several instances, the data link terminal causes the interference. Other radiating equipment would be just as likely to cause the BIME to indicate a false reading.

During troubleshooting procedures, maintenance personnel discovered a different type cable in system 25 on both the driver and final BIME power monitors. The cable, part number 11464717-1, was tried in earlier systems and corrected the malfunction.

Units experiencing this problem may want to replace the BIME cable (2W524), part number 11441715-1, with the newer cable, part number 11464717-1. A quality deficiency report was submitted to Missile Command on this subject.

FC 44-20

Air defenders need more identification, friend or foe (IFF), training. That's the feedback from recent Directorate of Evaluation and Standardization, U.S. Army Air Defense Artillery School, evaluations and from commanders in the field.

To meet this need, the school's Short-range Air Defense (SHORAD) Department, in conjunction with the Directorate of Training and Doctrine, is developing Field Circular 44-20, SHORAD Systems IFF. The field circular is designed to support and standardize training in the following areas:

- IFF programmer/battery charger preventive maintenance
- Charging IFF batteries
- Code book instructions
- Determining Zulu time

The field circular is scheduled for distribution, along with lesson plans and a video tape explaining how to program the IFF, in October 1987.

Pump on the Main Power Unit (M48A2)

Units report that the fuel pump attaching bolts securing it to the engine block (main power unit) crankcase occasionally vibrate loose. This allows the engine oil to escape. Operating the engine without sufficient oil will cause severe damage to the internal components of the engine.

In TM 9-1425-2586-10, Table 3-1, under Item #2, recommend the following be added: Crew member should manually check the mechanical fuel pump bolts on a weekly basis for looseness. If loose or leaking oil, notify organizational maintenance.

In TM 9-1440-2585-10, Table 2-1, Item #34, add the following: Note: Maintainer should manually check mechanical fuel pump bolts for looseness. If loose, tighten bolts as required.

Also, the following are reliable indicators of clutch and generator drive belt tensioner arm sheave malfunctions:

- Excessively hot belts
- Rubber residue around the main power unit
- Rubber residue collections on the compartment door
- Excessive play in the sheave assemblies
- Sheaves cannot be rotated manually

In TM 9-1425-2586-10, Table 3-1, under Item #11, recommend the following be added: Examine the clutch and drive belt tensioner arm sheaves for excessive play. Manually rotate them back and forth to ensure that sheaves turn freely. If the sheaves bind or grind, this is an an indication that the bearings are wearing out.

SCANNING

Patriot Operators Graduate

The U.S. Army Training Center, Fort Bliss, Texas, graduated 119 16T MOS (Patriot Missile System Operator) during the first half of FY 87. An additional 309 students were expected to graduate by the end of the fiscal year. The expected FY 87 total of 428 graduates would represent an 88.6 percent increase from the FY 86 total of 227.

These graduates include Skill Level 1 soldiers just completing basic and advanced individual training as well as mid-level enlisted soldiers graduating from the transition course.

PIVADS Update

The primary objective of product improvement modification of the Vulcan is to increase the accuracy of tracking and gun pointing. Simplifying maintenance is a second objective.

The improved sight, turret drive and microprocessor enable the system to meet demanding acquisition and tracking requirements needed to engage sophisticated threats. The improved sight reduces the gunner's tracking workload to make

corrections. The azimuth gear drive virtually eliminates backlash and wear. The microprocessor's target filtering and prediction capability allows accurate tracking. Once a target is acquired, the microprocessor produces rate-aids, based on target position data, which reduces gun-pointing errors. The inclusion of built-in test equipment identifies faults before and during operation; it also increases system availability by reducing repair time.

The PIVADS distribution plan will fill in the following priority: Europe, Korea, Western Command and Forces Command units. Distribution of Vulcans and PIVADS to the National Guard has been tied to the displacement of active Army Vulcan battalions with the forward area air defense systems.

The PIVADS in-process review for type classification standard is scheduled for September 1987.

ADA Functional Review

An ADA functional review was conducted in July at Alexandria, Va. Functional reviews provide the Deputy Chief of Staff for Personnel, Department of the Army, with a perspective on key proponent manpower and personnel issues. The ADA functional review addressed all ADA specialty codes and military occupational specialties, critical personnel issues, standard requirement code structural changes and the impact of force modernization on personnel.

The Office, Chief of ADA, and the ADA Personnel System Staff Officer, U.S. Army Air Defense Artillery School, share responsibility for the ADA functional review. *Air Defense Artillery* will report on the outcome of the most recent review in a subsequent issue.

ADA Functional Area Assessment

The ADA functional area assessment (FAA), which took place in September at Fort Belvoir, Va., focused on the heavy division ADA battalion, light division ADA battalion, corps Hawk ADA battalion and corps Chaparral ADA battalion.

FAAs are primarily concerned with force modernization and the support of programmed unit transitions. They help ensure that unit readiness is not adversely affected by force integration, organizational development, or material acquisition and fielding.

The Office, Chief of ADA, U.S. Army Air Defense Artillery School, Fort Bliss, Texas, is responsible for the preparation of the ADA FAA. *Air Defense Artillery* will report on the outcome of the FY 87 in a subsequent issue.

ADA Association Elections

The Air Defense Artillery Association held elections for new council members recently. Col. Vince J. Tedesco was elected president of the association. Newly elected council members include Col. John B. Rodgers, Col. Ralph L. Allen, retired Col. Mike Digenaro, Maj. Conrad Crane, Maj. George Mendoza Jr., CSM James R. Jetter, SGM Joseph Jordan and SGM Glen Gleason.

The newly elected president, Col. Tedesco, stated, "The Air Defense Artillery Association is your association. It is not a Fort Bliss association, nor is it an officers' association. It is for all air defenders."

PIVADS Status

While forward area air defense system components are capturing most ADA headlines, Vulcan is scheduled for product improvements during FY 88 and FY 80 that should restore some of the battlefield effectiveness it has lost to increased threat capabilities during the past two decades.

Built-in test equipment (BITE), which can identify 95 percent of all faults at the organizational level, will replace the AN/MUM-3 and AN/TPW-23 test sets. The digital fire control processor (FCP) will replace the current analog sight, allowing faster and more accurate processing of fire control data. The optical sight M61A1 (director sight system) will replace the M61 sight, increasing the gunner's target tracking efficiency. And the azimuth and elevation drive system will be modified to reduce mechanical errors.

Modification work will begin at Fort Bliss, Texas, during the first quarter of FY 88; at USAREUR during the second quarter of FY 88; at FORSCOM during the third quarter FY 88; at WESTCOM during the first quarter FY 89; and at EUSA during the second quarter FY 89.

U.S. Army Maintenance Management Center new equipment training teams will train unit personnel on the product-improved Vulcan Air Defense System (PIVADS) at unit locations.

Make It Work For You

Want to improve your job knowledge and professional development? Then visit your education center and enroll in an Air Defense Artillery School correspondence course in your career field. For more information, call the program manager at the U.S. Army Air Defense Artillery School, Fort Bliss, TX, AV 978-7111 or commercial 915-568-7111.

The following correspondence courses are offered by the Air Defense Artillery School:

Officers Correspondence Courses Offered

- Air Defense Artillery Field Grade Refresher Course
- Reserve Component ADA Officer Advanced Course
- Air Defense Artillery Officer Advanced (SCAT) Course
- Air Defense Artillery Company Grade Officer Refresher Course

Enlisted Correspondence Courses Offered

- Air Defense Artillery Senior Sergeant Course (MOS 16Z)
- Common Military Subjects for Skill Levels 1 through 4 (All MOSs)
- Hawk Missile Crew Member Course (MOS 16D)
- Hawk Missile Crew Member Merger Training (MOS 16D)
- Hawk Fire Control Crew Member Merger Course (MOS 16E)
- Intermediate Duster Training (MOS 16F)
- Advanced Duster Training (MOS 16F)
- Senior Duster Training (MOS 16F)
- Chaparral/Vulcan System Orientation (MOS 14B and 16F)
- Operations and Intelligence Assistants (MOS 16H)
- Operations and Intelligence Assistants Merger Training (MOS 16H)
- Defense Acquisition Radar Crew Member (MOS 16J)
- Defense Acquisition Radar Crew Member Merger Training (MOS 16J)
- Air Defense Artillery Short-Range Missile Crew Member Course (MOS 16P)
- Air Defense Artillery Short-Range Gunnery Crew Member Course (MOS 16R)
- Man-portable Air Defense System Crew Member Course (MOS 16S)
- MANPAD System Controller (MOS 16S)
- Hawk Firing Section Mechanic (MOS 24C)
- Hawk Fire Control Mechanic (MOS 24E)
- Hawk Information Coordination Central Mechanic (MOS 24G)
- Chaparral Weapon System Mechanic (MOS 24N)

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Subjects: We are interested in all subjects relating to the diverse field of air defense artillery (ADA), including —

- Army doctrine and policies
- Tactics and strategy
- Leadership
- Lessons learned
- Weapons and equipment
- Foreign forces

Historical articles should have contemporary value. If you have an idea for an article, contact us and explain your theme, scope and organization. It will save both of us time and will help in our planning.

Style: *Air Defense Artillery* prefers concise and direct wording in the active voice. Every article should have a beginning that catches the reader's attention, a body containing the crux of the article and an ending which concludes or summarizes. Keep the article as simple as possible. Write with your audience in mind. We edit all articles, but appreciate a polished submission. We do not normally have writers review their articles after they have been edited, but we do make it a practice to consult with authors on any significant changes made.

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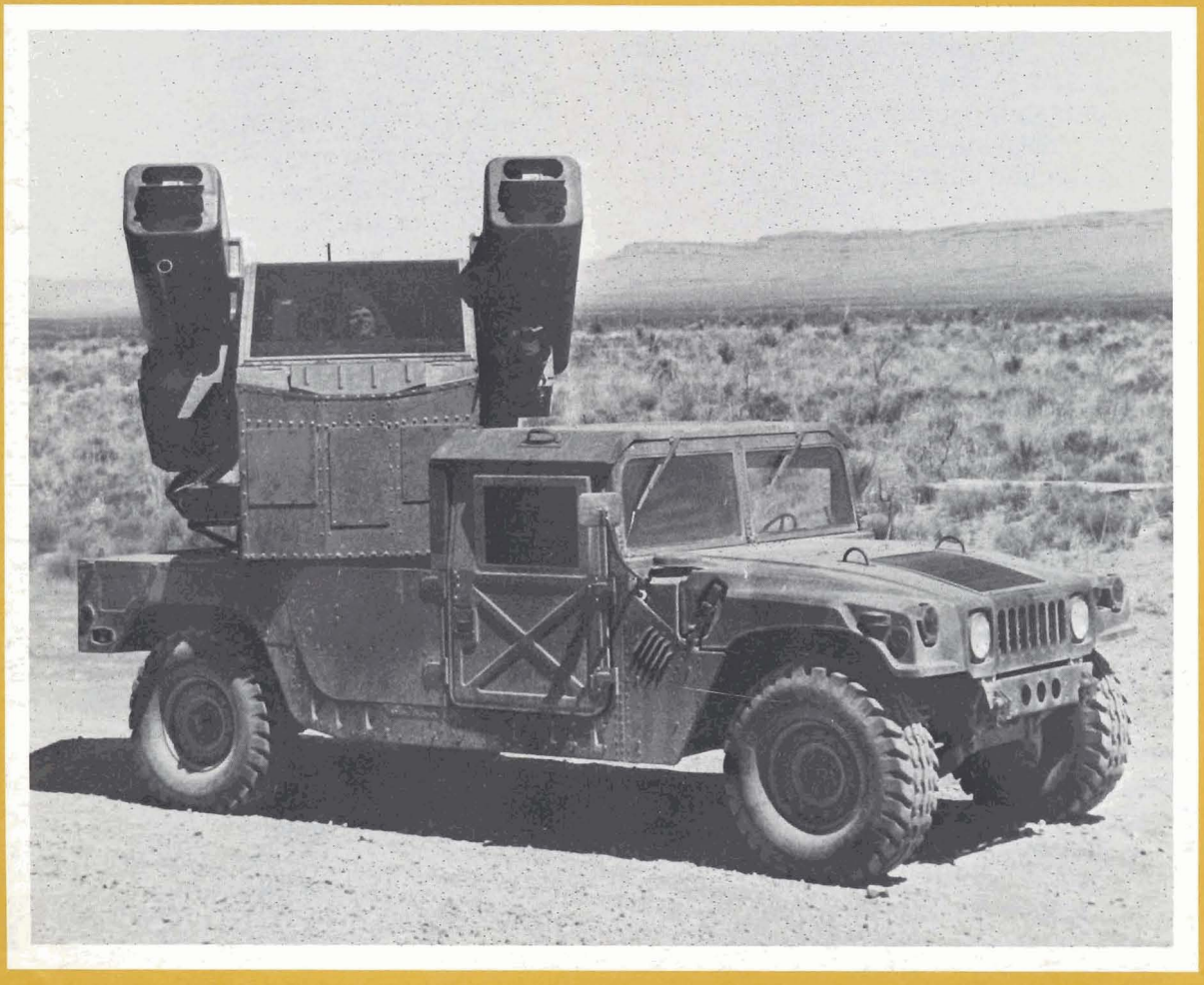
If you are interested in a particular subject, chances are that others will be too. Pick a subject, thoroughly research it and think all your ideas through. Write with enthusiasm, but be natural. □

The Army selects ADA's forward area air defense line-of-sight forward system.



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