

AIR DEFENSE ARTILLERY



PB 44-89-2

MAY-JUNE 1989



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Production Delay

Air Defense Artillery has resumed publication with this, the May-June issue. Funding shortages caused suspension of the March-April issue.

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Farewell to the Schoolhouse



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

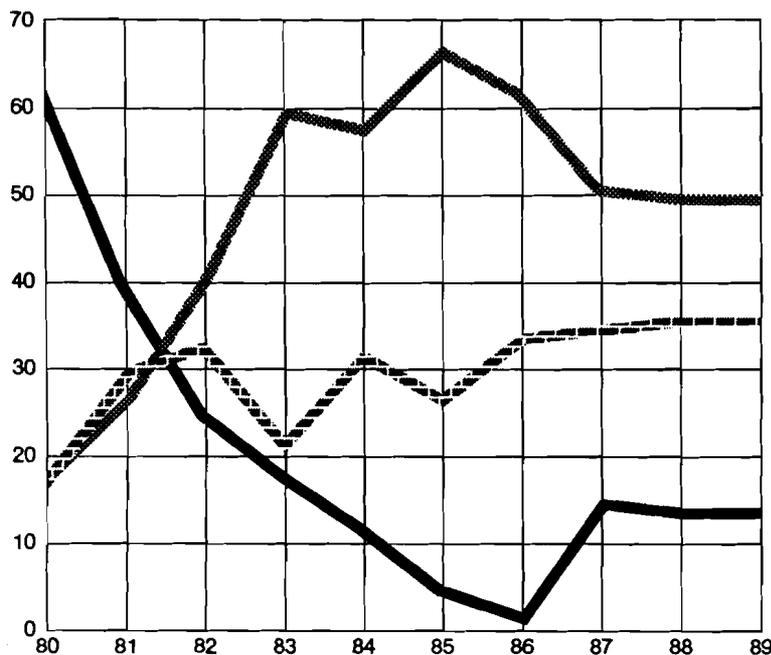
This "Intercept Point" looks back and ahead. As this will be my last "Intercept Point" as branch chief, I want to summarize the "State of ADA" and leave you with some challenges and a vision for the future.

Overall, ADA today is at about a "B" to "B+" state. I say this on an

evaluation of the following four areas essential to our branch's health:

- Quality soldiers and their care ("B-").
- Fielding of quality equipment ("B+").
- Formulation of doctrine and supporting organizations ("B").

QUALITY OF ENLISTED ACCESSIONS



■ CAT 1-3A

■ CAT 3B

■ CAT 4

Intercept Point

- Development of future leaders ("A").

Let's expand on these four areas.

Quality Soldiers and Their Care

Today we in ADA have, without doubt, the finest youngsters I've seen in 30 years of service. Compared to other combat arms, ADA has fewer "CAT 4s" by up to 15 percent! I've inserted the "Quality of Enlisted Accessions" chart to remind each of you how far we've come — and leave you with the challenge to retain this quality. This will not be easy: there will be up to a 20 percent decrease in the next three years as the 17- to 21-year-old resource pool from which we recruit begins to shrink.

A partial solution is an aggressive re-enlistment program. Does your unit have one? Don't let the

good ones get away. Retain the quality. Value this among your highest priorities.

The NCO Corps is dynamite! The "Year of the NCO" showing our appreciation for the foundation of our great Army is certainly deserved. But it is here in ADA that we have our largest problem — the slowness of promotions, especially to grade E-7. If it were within my power as branch chief to fix any one problem, this would be the one. While we've made some progress, we have a long way to go. Part of the answer is reducing the number of MOSs — a good plan that needs to be put to use. Our challenge is to, in a make sense way, reduce the number of MOSs and continue to fight for increased promotion allocations. Prepare your NCOs for promotion boards — the best form of soldier

care.

On the officer side, a brighter picture. We're doing well! ADA officers compete favorably when they go before promotion boards. The newly published promotion list shows ADA lieutenant colonels being promoted to full colonel at a rate equalling or exceeding the Army average.

Our officer corps is competitive. Our balance is not quite right in that we have too many "operators" and not enough "developers." More folks need to get into the materiel acquisition business. A natural for air defenders. Think on it!

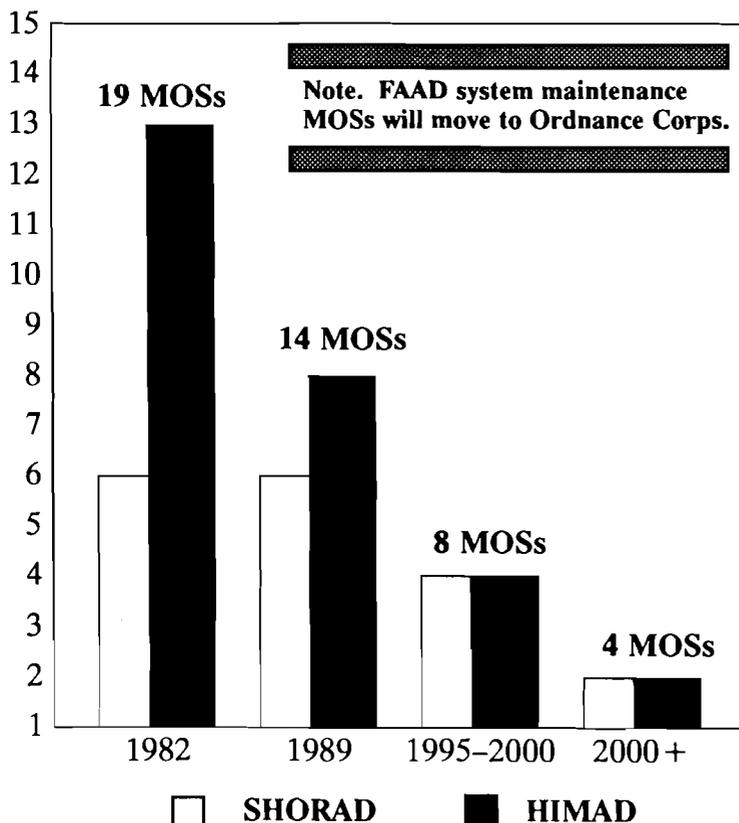
Fielding of Quality Equipment

Solid progress. Not the same branch in this area as we were following the demise of Sergeant York. FAAD is institutionalized within our Army and good progress is being made on all components. Patriot is, without doubt, one of the Army's biggest success stories. Even in this era of decreasing budgets, the future is bright.

On the FAAD front, PMS is a reality! With the completion of the highly successful PMS IOT&E, we will increase the production rate and soon they will populate the field. The first ADATS platoon is on station at Fort Bliss, training for the same test to be conducted in the spring of 1990. My prediction is that the results will be the same as PMS. FOG-M prototypes are also on station at Fort Bliss and training, firings and learning continue. This dynamite system will revolutionize the battlefield. Our integrator, C³I, is progressing well on the software and hardware fronts, but we need to better sort out our near-term radar needs and let a radar contract.

On the HIMAD front, the last Patriot half-battalion is almost en route to Europe and backfill of the other half has begun. Patriot fielding and field performance continue to be a showpiece on how to do it right for the Army. Hawk Phase III is about to become operational at Fort Bliss and, although extended over about seven years vs. a desired four years, fielding is programmed. Working with 32nd

ADA MOSs



ADA OFFICER PROMOTIONS VS. ARMY AVERAGES

RANK	FIRST TIME CONSIDERED		PREVIOUSLY CONSIDERED		RECAP* AVERAGE		+ / - FROM ARMY	
	ADA	ARMY	ADA	ARMY	ADA	ARMY	FTC	RECAP
COL	46.3%	40.5%	2.1%	0.6 %	28.6%	20.4%	+ 5.8%	+ 8.2%
LTC	72.0%	65.0%	2.9%	2.2%	52.5%	39.9%	+ 7.0%	+ 12.6%
MAJ	69.6%	68.5%	8.1%	18.5%	47.8%	54.7%	+ 1.1%	-6.9%
CPT	82.0%	87.0%	53.5%	35.5%	80.0%	84.4%	-5.0%	-4.4%
CW4	100.0%	80.9%	0.0%	18.5%	85.7%	71.9%	+ 19.1%	+ 13.8%
CW3	56.0%	58.8%	0.0%	32.7%	51.4%	49.9%	-2.2%	+ 1.5%

**RECAP is the average of the "First Time Considered" and "Previously Considered" categories, as well as the "Below the Zone" category which is not listed here.*

NCO CHAIN OF COMMAND HELP

- Anticipate Boards**
- Complete The Record EERs**
- Ensure A Logical Rating Scheme**
- Reward Your Good Soldiers**
- Have A Plan For File Review**
- Push the True "Below The Zone" Soldier**
- Ensure EERs Receive The Same Care as OERs**
- Insist On Officer Involvement**
- Make Every Year The Year Of The NCO**

Unbalanced ADA MOSs place many ADA NCOs at a competitive disadvantage. Commanders must ensure the chain of command is supportive of their soldiers' career aspirations.

Tactical Defense Alerting Radar

by 1st Lt.(P) Scott A. Zeches

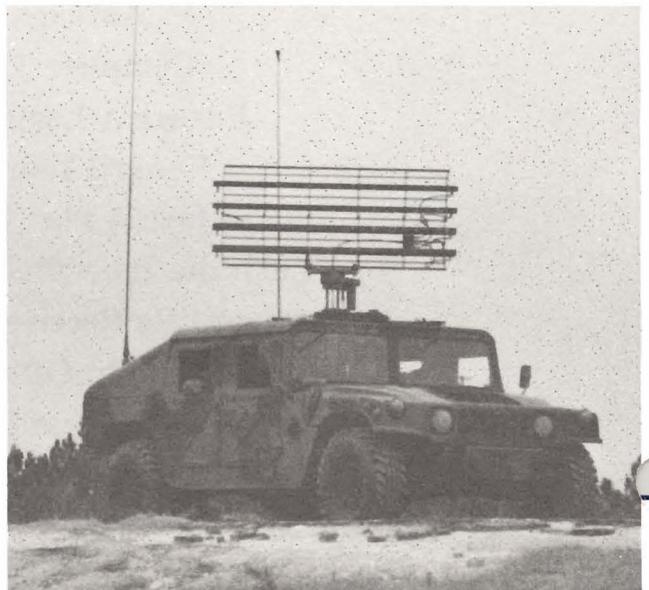
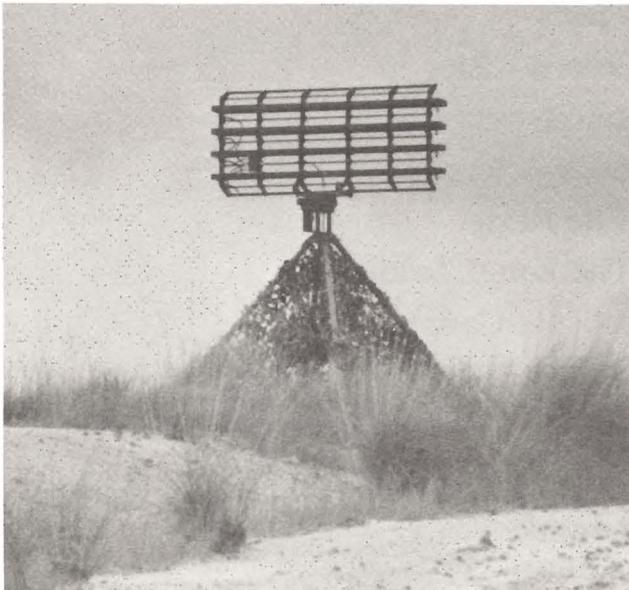
The tactical defense alerting radar (TDAR), the new early warning radar currently being tested and under consideration for purchase by the U.S. Army as a viable replacement for the forward area alerting radar (FAAR), is on hand at 3rd Battalion (Airborne), 4th Air Defense Artillery, the 82nd Airborne Division's air defense battalion.

This lightweight air-droppable radar, with its two mounting configurations (quadripod and vehicular), uses Doppler "pulse type" radar waves to detect

targets and distinguish between rotary- or fixed-wing aircraft. The TDAR can detect targets up to 20 kilometers away at altitudes up to 10,000 feet above ground level.

Developed by the Lear Astronics Corporation, the TDAR was originally tested in the early 1980s by the Israelis for use in their vast deserts. Reportedly, their combat test results were superb.

The Army currently has four TDARs which were purchased by the Army Development and Evalua-



tion Agency (ADEA). However, after ADEA was disbanded, these Army-owned radars were transferred to the 82nd Airborne Division because they better supported the division's no notice, 18-hour worldwide deployment mission. Because the FAAR's excessive size and weight preclude its insertion with initial airborne operations, a lightweight sensor was required to fill this void. Although acquisition of a lightweight sensor is a priority for the air defense community, final selection and fielding are well into the future. The TDAR provides 3-4th ADA an interim sensor until the final fielding of the forward area air defense C³I.

We received the TDAR in April of 1988, two weeks prior to the division's annual exercise, Market Square II, and the battalion's Army training and evaluation program (ARTEP). At first, we were apprehensive about using it for the ARTEP, but with some orientation and training we felt the system could do the job, said SFC Tomas Delgado, FAAR/TDAR platoon sergeant with 3-4th ADA. "The system's light weight, air-drop capability, and ease of operation fully complements the way we support the Infantry. For the first time we were included on the aircraft priority vehicle list. We were dropped in with the air defense weapon systems and kept up with them on the ground."

The TDAR can be deployed on its standard quadripod for ground use, mounted on various telescopic masts (available through local purchase) to elevate the antenna above terrain masking obstructions (trees and hills), or mounted on a prototype HMMWV "center mast mount." The radar unit also can be easily mounted to any suitable support structure for shipboard or static operations.

Set up on the quadripod, the radar antenna can be remotored from the vehicle and display unit up to one kilometer away. This allows the squad to position the radar on high ground for the best tracking ability while placing the vehicle under cover and concealment for optimum crew survivability.

Using a "Kevlar" HMMWV with turret opening, members of the 3-4th ADA designed a "center mount" that allows the pedestal and radar to be mounted on the vehicle, protruding through the opening in the roof. Our tests of the rotating antenna prove that it will withstand speeds of more than 25 miles per hour.

Set up on the modified high mobility multipurpose wheeled vehicle (HMMWV), the TDAR can track from any location. It takes less than three minutes to orient the radar. This allows the TDAR squad to keep up with a highly mobile maneuver force or tactical convoy and to provide surveillance of main service routes.

Identified as possessing high mobility characteristics and requiring minimal emplacement time for operation, the sensor's employment was guided by

three mission scenarios during Market Square II: provide early warning coverage of a designated sector, provide early warning coverage of a specific high speed air avenue of approach, and provide early warning coverage of a defended area. Operating under these scenarios, the TDAR gained immediate recognition after numerous attempts to penetrate the division's airspace failed. The aircraft were detected and subsequently destroyed by defense weaponry. On frequent occasions, with the TDAR placed near

the forward edge of the battle area (FEBA), enemy helicopters were detected as they lifted off from their forward ammunition and refueling points (FARPs), giving our commanders added intelligence data and narrowing the likely enemy air avenues of approach. In another situation, TDAR was the key player in providing early warning for an air defense ambush.

against a threat airmobile operation.

While the TDAR may not be the ultimate answer to the Army's future needs for a low-level early warning sensor, it does provide the tools needed now. The TDAR proves that placement on initial airborne aircraft is space well spent.

Israeli combat tests of TDAR report superb results

The TDAR receives the target data and plots the information on its display unit. The operator reads the display, determines the manual SHORAD control system (MCS) and sends the information to the weapon systems via FM radio, much the same as with the FAAR system.

The TDAR components include the antenna/quadripod assembly, the radar transceiver (RT) unit and the remote-controlled display unit. The RT has eight selective frequencies, self-contained and external filters and the ability to connect up to four display units. The system is completely waterproof and set up for night operations. Average power output for the radar is 10 watts.

Specifications

Size: Approximately four cubic feet in the transporting configuration.

Height: Nine feet to top of radar.

Weight: 217 pounds.

Remote Range: Up to 1 kilometer from radar to operator/vehicle.

Airborne: Wedge, pallet or heavy drop.

Airmobile: Light utility helicopter or larger.

Prime Mover: Kevlar HMMWV with turret opening (M-1026 with winch).

Maintenance: Test set built in, mainly component replacement.

Design: Simplistic, four subcomponents and minimal moving parts.

Crew Drill: Less than 10 minutes.

1st Lt.(P) Scott A. Zeches is the Tactical Defense Alerting Radar platoon leader in Headquarters and Headquarters Battery, 3rd Battalion, 4th Air Defense Artillery, Fort Bragg, N.C.

Tropic Lightning ADA



Soldiers should be more than “training aides” for staff officers

The 1st Battalion, 62nd Air Defense Artillery, doesn't spend all of its time defending Waikiki Beach. Schofield Barracks, Hawaii, is the home base for the "Aim High" battalion, but its training area is the entire Pacific Basin.

Tasked to provide limited air defense in general support of the 25th Infantry (Light) Division, the famed "Tropic Lightning" Division, the 1-62nd ADA is one of the most often deployed battalions in the world. During a typical year, the battalion participates in numerous exercises such as Team Spirit in Korea, Cope Thunder in the Philippines, Pitch Black in Australia, Cobra Gold in Thailand and Orient Shield in Japan. The battalion recently added another "exotic" locale to its itinerary — the Joint Readiness Training Center at Fort Chaffee, Ark.

*The battalion's recent exploits at Team Spirit and Cobra Gold have been described in recent issues of **Air Defense Artillery**. The following narratives, which describe 1-62nd ADA training exercises in Australia, the Philippines, Japan and Hawaii, reveal the battalion's strategies for working with allied forces, incorporating realism into training and maintaining the emphasis on individual training during collective training exercises.*

Cope Thunder

by Maj. William C. Bielefeld

Individual training is the backbone of the Army's combat readiness and the foundation on which all other training is based. It seems, however, that we devote most of our time and resources to collective training missions and neglect individual training. Unit training plans, moreover, tend to peak for the major event on the horizon while paying only lip service to preparing soldiers to perform their individual combat missions. In the process, soldiers become little more than training aides whose sole purpose seems to be helping leaders and staffs learn their collective missions.

The Stinger missilemen of 1st Battalion, 62nd Air Defense Artillery, routinely participate in Cope Thunder — a major exercise that offers soldiers a perfect opportunity to enhance their individual combat skills.

The U.S. Air Force sponsors seven Cope Thunder exercises each year in the Republic of the Philippines. The multinational exercises drill the Air Force in all aspects of the air battle. Significantly, extensive air-ground operations are conducted on the bombing range at Crow Valley, not far from Clark Air Force Base. These operations provide Stinger teams a chance to hone their air defense skills in an environment that resembles combat.

Recently, the Stinger platoon from A Battery, 1-62nd ADA deployed to the Philippines to take part in Cope Thunder 89-2. Upon arrival at Clark Air Force Base, the Stinger platoon immediately departed for Camp O'Donnell. Located on the site of the World War II prisoner of war camp at the terminus of the

Bataan Death March, the camp lies about 30 miles north of Clark AFB.

The typical Cope Thunder training day starts prior to BMNT (beginning of morning nautical twilight) with the occupation of firing positions. The need to occupy firing positions before the bombing range goes "hot" adds a sense of urgency to the operation. The platoon headquarters quickly establishes communications. Early warning information is passed from either range control or U.S. Marine Corps Hawk radars using the manual SHORAD control system. The Stinger soldiers spend the day performing — within range safety constraints — the same mission they would perform in combat.

Cope Thunder's major selling point is the vast array of aircraft that fly simulated attacks against ground targets in Crow Valley. The valley boasts numerous targets which simulate tank columns, airfields and buildings. Stinger teams test their mettle against A-10s, F-16s, F-4s, OV-10s, F-18s, C-130s and other aircraft launched by the U.S. Air Force, Navy and Marine Corps and by the military forces of Singapore, the Republic of Korea, the Philippines and Australia.

A typical attack run in Crow Valley starts when an OV-10 spots a ground target and marks it for an attack aircraft. Next, A-10s appear out of nowhere, firing their 30mm guns, taking evasive maneuvers and dropping flares to avoid ground-based heat-seeking missiles. Seconds later, an F-16 appears on an air interdiction mission. It drops bombs on the target area while flying patterns designed to avoid

air defense fires. Finally, search and rescue helicopters appear to look for downed pilots. The scenario repeats itself almost every hour of the day.

The training day ends with a return to the base camp at Camp O'Donnell. Following an after action review, the Stinger teams prepare for their next day of training.

Cope Thunder is particularly rewarding for Stinger soldiers because it is one of the few exercises geared especially for air defense training. Most 1-62nd ADA Stinger soldiers agree that the quality of individual training available at Cope Thunder is rivaled only by training at the Joint Readiness Training Center, Fort Chaffee, Ark. A Stinger team chief summed up the way air defenders feel about Cope Thunder. He said his Stinger section had traveled all over the Pacific Basin and participated in many exercises with the infantry and as part of the battalion, but that Cope Thunder was the only exercise that allowed Stinger teams to focus on doing what they will do in war — shooting down enemy aircraft.



Orient Shield

by 1st Lt. Michael T. Parker

Elements of B Battery, 1-62nd ADA, recently took part in Exercise Orient Shield. The annual exercise conducted on Honshu, the chief island of Japan, is yet another example of the myriad training opportunities available to Tropic Lightning air defenders.

The 38-man air defense support element, consisting of one towed Vulcan platoon with two Stinger sections, one forward area alerting radar (FAAR) section and headquarters support accompanied the 25th Infantry Division's 3rd Brigade to the Ojobibara Training Area. Once there, they linked up with elements of the U.S. IX Corps, 5th U.S. Air Force and the Japanese Ground Self Defense Force's 6th Division to begin the three-week exercise which was highlighted by a five-day combined arms exercise.

Upon their arrival, the "No-Slack" soldiers of B Battery found themselves participating in demanding bilateral training with their counterparts from the 6th Artillery Regiment. The American and Japanese soldiers, quickly overcoming the language barrier, demonstrated the capabilities and tactical deployment of their respective weapon systems. The U.S. soldiers were impressed with the Japanese's demonstration of their L-90 guns and motorized surface-to-air missile systems. On the fourth day of the exercise, the soldiers combined forces. Using Japanese CH-46 helicopters and composite U.S.-Japanese pickup and landing zone personnel, they successfully air assaulted a Vulcan platoon and a

Stinger section.

"It was a great feeling," exclaimed 2nd Lt. Mark Pincoski, Vulcan platoon leader and officer-in-charge of the air defense slice, "to see soldiers of two different nations working together as one to achieve a common goal."

And work together they did as they took on the demanding and fast-paced combined arms FTX. More than 2,000 Japanese and U.S. soldiers took part, with B Battery once again proving the extreme importance and versatility of air defense on the modern battlefield. The many "hostile" F-16, A-10 and Japanese F-1 aircraft flying attack profiles gave ample opportunity for the air defenders to prove that they could detect, track and engage enemy aircraft to protect rear areas and maneuver elements.

With the "war" still in its infancy and the friendly Blue Forces in their initial defense positions, the enemy Orange Forces attempted to fight a deeper battle by air assaulting platoons into the Blue Forces' rear area. The alert Vulcan and Stinger gunners thwarted the assault with precise and timely engagements. Soon the Blue Forces, despite a bitterly cold snowstorm, were in position to counterattack. The air defenders again found themselves in the spotlight. The Blue Forces' swift air transport of the Vulcan platoon, providing both ground and air defense of a critical river crossing, proved a key factor in the eventual defeat of the enemy.

Pitch Black

by Capt. Medardo T. De La Cruz

The hit movie "Crocodile Dundee" transplanted an Australian backwoodsman into New York City with great comic effect. When a 1-62nd ADA Stinger detachment ventured into the Great Outback, however, the results weren't always funny. The light air defense artillerymen found adjusting U.S. tactics and logistics to Australia's vast territory and limited defense budget a challenge.

Pitch Black, an annual Australian combined service air defense exercise, tests the capabilities and effectiveness of Australia's air defense systems and concepts. The Commander in Chief Pacific Command sponsored the 25th Infantry's Division participation.

The most recent exercise took place in the vicinity of Darwin in Australia's Northern Territory. Pitch Black exercised the Royal Australian Air Force (RAAF) and the Royal Australian Army's (RAA) 16th AD Regiment combined air defense capabilities in the defense of vital assets around the RAAF Base at Darwin and an early warning radar site at Port Keats, 200 miles southeast of Darwin.

The 1-62nd ADA Stinger detachment, commanded by 1st Lt. Terry Parker, was, in Australian terminology, "under command" or "in direct support" of the 16th AD Regiment commanded by Lt. Col. John Derbyshire.

Phase I of the two-phase exercise consisted of a 150-mile inland trek south to the Daly River region. This five-day phase, designed as an ADA "Warmup" exercise in the rugged Australian outback, included tasks to improve gunner skills, perform equipment function checks and test command, control, communications and intelligence (C³I) links.

During Phase I, the Stingers protected an eight-kilometer main supply route. To their left were Rapier missile systems. The integration of Stingers and U.S. interoperability with Australian tactics and C³I were priorities for the Stinger detachment.

Phase II, conducted in the urban environment of Darwin, also lasted five days. The Stingers defended the Port of Darwin and key civilian installations, and Rapiers defended Darwin RAAF Base and the early warning radar site at Port Keats.

The 16th AD Regiment deployed nearly 1,800 miles from its home base in the vicinity of Adelaide, South Australia, to Darwin. The regiment deployed 110 Battery, a Rapier battery of three troops or systems and three Blindfire tracking radars, and 111 Battery (-), consisting of one troop or five RBS-70 systems. The regiment also deployed its organic system's

maintenance battery. The Stinger detachment, "under command" of the regiment, complemented the two Australian air defense systems.

The 1-62nd ADA deployed a five-man early warning control cell from Headquarters and Headquarters Battery, the Stinger platoon headquarters and two Stinger sections from A Battery.

Due to cargo limitations, only five high-mobility multipurpose wheeled vehicles (HMMWVs) deployed: the early warning control vehicle, the Stinger platoon headquarters vehicle, two section sergeant's vehicles and one Stinger team vehicle. The 16th AD Regiment provided six Land Rovers, complete with drivers and radios, to the Stinger detachment for use as Stinger team vehicles.

One of the major lessons learned during Pitch Black '88 was the need for interoperability, which is vital to successful operations. Interoperability problems led to difficulties in several areas.

Unfamiliarity with Stinger capabilities resulted in non-optimum tactical deployment during Pitch Black. The Australian Army, and especially the 16th AD Regiment, are small and strictly budgeted. Observations from Pitch Black show this to be the guiding force in their weapon systems tactical deployment.

The Australians use two air defense weapon systems: the RBS-70mm and Rapier. These are manually and optically guided "beam-riding" missile systems. The costly sophistication of "fire-and-forget" vs. the relatively inexpensive and simple "beam-riding" missiles is the trade-off.



This trade-off also impacts on Australian tactics. During extensive discussions and observation of tactical deployment, the Australians practice air defense principles of mass, early engagement and mutual and overlapping coverage. The overriding principle seems to be mass in defense of critical assets. A concentration of systems enables the Australians to engage aircraft from multiple systems with an optimal two-missile engagement.

The Stinger crews operated using Australian deployment tactics as if their weapon systems capabilities were comparable, rather than superior, to Redeyes or RBS-70s. After explaining Stinger's capabilities, we were able to make some improvements in tactical deployment. The less-than-optimum deployment, however, demonstrated that allies must completely understand each other's capabilities if systems are to complement each other and maximize overall air defense coverage. We must place more stress on discussing weapons capabilities and employment consideration during planning meetings to ensure the best employment. During combined exercises, each nation must display their weapons and teach others of their capabilities.

One of our major problems was learning the Australians' tactical standing operating procedures (TACSOP) and operating in an unsecured radio net. The first phase of Pitch Black afforded the opportunity to learn the Australian air defense TACSOP. Our radio operators, inexperienced in operating on unsecured radio nets, quickly overcame this problem through the great patience and expert training given by the Australian liaison team attached to the Stinger detachment.

Using brevity codes and encoding and decoding on similar communications-electronics operating instructions (CEOI) type code books is essential to communicating with allied armies. Exchanging TACSOPs prior to the exercise, perhaps during the initial planning meeting, will better ease transition by allowing greater familiarity of procedures.

Understanding the Australian logistical system was a challenge. The vastness of the Australian continent dictates the Australian logistical system. Fuel and water are their biggest concerns. During Phase I of Pitch Black we made a 150-mile, one-way deployment into the Daly River region of Australia that can only be likened to deploying from Fort Carson, Colo., to the foothills of Wyoming. The Australians do not have water or fuel trailers. Their primary means of resupply is the tried and true World War II method of exchanging an empty fuel or water can for a full one.

HMMWVs, which use diesel, do not have fuel cans as basic issue items, whereas the Land Rovers assigned to the Stinger detachment use gas and have several fuel cans. The water can situation was better since all vehicles carried a minimum of two water cans. Because accountability of cans was important, water was transferred into U.S. water cans and fuel cans for diesel were issued to the detachment for the duration of the exercise. It's important to reach agreements on fuel and water resupply prior to

deployment. Units must come prepared to use the system.

The final adventure in logistics was rations during the first phase. The Australians have what they call a "Ten-Man Ration Pack." It consists of two smaller packs of from 15 to 20 cans of meat, vegetables and dessert food products in addition to a plastic container complete with condiments such as sugar, tea, coffee and spices. This ration is designed to feed a five-man squad a minimum of two full day's rations. As with our old C-rations, there is an acquired taste and skill required in preparation of relatively delicious and nutritious meals. However, we quickly learned to subsist on the Australian system and even grew to enjoy it.

Allies must completely understand the other's capabilities to complement and maximize overall air defense coverage

Another lesson learned relates to adapting the HMMWV for operations in Australia. The HMMWV has little protection from the shrubs and short trees encountered in the Australian outback. During the Daly River phase of Pitch Black, many HMMWV drivers encountered rugged, shrub-covered terrain. The Australian Land Rover's high suspension, relatively skinny body width and, more importantly, front bush guards are well suited to this terrain. Almost all of the HMMWVs sustained minor damage to their fiberglass hoods as a result of operating in the dense brush. Bush guards should be designed and installed on the HMMWVs that deploy in terrain similar to Australia's outback.

The Stinger detachment received extraordinary support from the RAAF and the 16th AD Regiment. Their "can do" attitude made RAAF in- and out-country processing flawless. The 16th AD Regiment officers and men were excellent hosts and always eager to exchange information. Liaison officers Capt. Paul Patty and 1st Lt. Duncan Murdoch were particularly effective in instructing us in "ways Australian."

The 16th AD Regiment plans to incorporate a similar Pitch Black type exercise during the Kangaroo '89 exercise. Derbyshire has heartily invited the 1-62nd ADA to participate.

Overall, Pitch Black provided outstanding training and served to highlight the similarities between and the interoperability of U.S. and Australian Air Defense Artillery.

Bacon Sands

by Capt. Medardo T. De la Cruz

Some of the battalion's most effective training takes place at home in the Hawaiian islands.

"Hostile aircraft! Incoming!" was the cry of the Vulcan squad leaders as they engaged MiG-27 radio-controlled miniature aerial targets (RCMATs). The silent seaside of Barking Sands, Hawaii, was split by the buzzing sound of the RCMATs, the roar of small arms and the belching, ripping retort of Vulcan fire.

The 1-62nd ADA conducts its manportable air defense (MANPAD) system annual service practice and quarterly Vulcan skills sustainment on the island of Kauai at Barking Sands Pacific Missile Range Facility. The recurring training exercise is called Exercise Bacon Sands. During the most recent iteration, new battalion commander Lt. Col. Roger Wright challenged the battalion, for the first time, to conduct realistic tactical firing during Bacon Sands. The exercise was to test the skills of the gunners and also the leadership abilities of platoon leaders and noncommissioned officers. The challenge was met in a most unique way.

The first phase of Bacon Sands was towed Vulcan sustainment firing. During the six hours of squad-leader conducted training, Vulcan gunners destroyed 15 RCMATs and scored numerous multiple hits on several others. The Vulcan gunner's maintenance record equaled their marksmanship: not one gun required downtime.

During the second phase, a live-fire exercise, four Vulcan platoon leaders received four tactical missions based on the ADA (Light Infantry Division) Army training and evaluation program.

2nd Lt. Keith Sasada's (A Battery) Vulcan platoon, augmented by two Stinger teams equipped with Redeye missiles, tackled the first mission. The unit, assigned the deliberate defense of a critical asset, was dug in along the beachside firing range before dawn. The unit came under aerial attack by multiple MiG-27 RCMATs. The Vulcan gunners engaged as the Stinger gunners readied their Redeye missiles. Two ballistic aerial targets (BATs) were launched and just as quickly destroyed. The unit then cleared the range for the next mission.

2nd Lt. Mark Pincoski's (B Battery) towed Vulcan platoon, augmented by two Stinger teams, took on the next assignment — air defense of a wheeled convoy. The unit, integrated into the convoy, came under aerial attack by multiple MiG-27 RCMATs. The Vulcan gunners engaged the hostile aircraft as the convoy took evasive actions. Two BATs, launched in quick succession, followed the RCMATs. Both were destroyed by the Redeyes.

The dismounted Vulcans and two Stinger teams of 1st Lt. Terry Parker's (A Battery) platoon were next. They were to provide air defense of a light infantry unit nearing the completion of a six-mile foot march.



The unit came under aerial attack by multiple MiG-27 RCMATs as it neared its objective. The Vulcans immediately engaged the hostile aircraft while the Stinger teams prepared their Redeye missiles. Two BATs were launched and destroyed by the Redeyes.

2nd Lt. Gary Arnold (B Battery) was assigned the final mission. Air assaulted into a landing zone, his Vulcan platoon, augmented by two Stinger teams, had just completed its hasty defensive positions when it was attacked by multiple RCMATs. Again, the Vulcans engaged the hostile aircraft as the Stinger gunners prepared their Redeye missiles. One BAT was fired and quickly destroyed. A second BAT was launched, but a Redeye malfunction robbed the unit of another kill.

The battalion's last visit to Bacon Sands proved exceptionally successful in several ways. Gunner proficiency, as evidenced by the high kill ratios during the sustainment firing, was at an all time high. Eight RCMATs were killed during the live-fire exercises in a tactical environment. The Stinger teams had five direct hits on the BATs and two tactical kills. The malfunctioning Redeye was an unfortunate but "real world" problem. The gunner had a perfect tone and probably would have killed the BAT. The exercise stressed that platoon leaders must follow troop-leading procedures and maintain command and control.

Each time 1-62nd ADA scored a hit it scored points for Air Defense Artillery. Maj. Gen. Charles Otstott, 25th Infantry Division commander, was impressed with the preparedness and performance of the air defense units. Air Defense Artillery once again demonstrated its value as a combat multiplier.

JRTC

by 1st Lt. Darwin H. Jones

Not all 1-62nd ADA training takes place on the far side of the international date line. Fourteen soldiers from A Battery demonstrated combined arms teamwork in the 25th Infantry Division's first rotation to the Joint Readiness Training Center (JRTC) at Fort

Chaffee, Ark. The Stinger section participated in a number of battle scenarios including defense in sector, deliberate attack, movement to contact and lodgement operations.

During 11 days of simulated combat, Stinger soldiers proved their value as a combined arms asset. Throughout the exercise, at least two teams were attached to the maneuver battalion to provide "First to Fire" forward area air defense. During one three-day period, one team was credited with the destruction of five MiG-21s portrayed by F-15 Falcons from Little Rock Air Force Base. These aircraft, with their tactical maneuvers and "nap of the earth" flight patterns, provided excellent tracking training for Stinger teams. Other air defense missions included Stinger air assault missions and defense of the brigade support area and main supply routes. A Company, 1st Battalion (Airborne), 509th Infantry provided the OPFOR.

Not only did the "Light Fighters" air defenders have to keep their eyes to the skies, they also had to worry about an aggressive insurgent guerrilla force on the ground. Stinger teams in the rear sector saw plenty of action at night as guerrilla forces launched several attacks on locations such as the brigade support area. Logistics resupply and casualty play added realism to the exercise. The Stinger soldiers were very successful, destroying seven out of eight enemy aircraft that entered the friendly area of operations.



Light Fighters Course

by Capt. Medardo T. De la Cruz

The 25th Infantry Division's Light Fighters Course distinguishes light fighter air defenders from other air defense artillerymen.

Conducted at Schofield Barracks, this challenging, confidence-building training program develops and sustains individual knowledge and capabilities in a variety of basic skills critical to small unit combat

operations and individual soldier survival. The course is not a "once in a lifetime experience." The division requires each assigned battalion to complete the course every 18 months.

The entire "Aim High" battalion participates in the fast and furious four-phase training exercise. The first three phases of the Light Fighters Course consist of required training conducted by highly qualified Light Infantry Training Center cadre. They include assault climber, land navigation and air assault operations. Each of the three phases lasts from dawn to dusk. Typically, the battalion is broken into training companies which are further divided into platoons led by junior officers and into squads led by junior NCOs. Commanders, staff officers and senior NCOs become participating members of the squads. This allows the junior leaders to execute the training.

The cadre give initial instructions and orientation for each phase and then guide rehearsals for the upcoming practical exercises. Land navigation is one of the most challenging phases of instruction. The course starts with basic compass training and ends with an advanced engineering course, reputedly one of the toughest in the Army.

The assault climber operation, with its rope bridges and cliffs, is by far the most physically demanding phase. The rugged ravines and gullies of Schofield Barrack's East Range has humbled many a light fighter, both old and new. "Did you see that bottomless ravine we just went down and back up! Teamwork got the squad across," Capt. Virgil R. Priestly, 1-62nd ADA's S-4, was overheard saying during the most recent iteration.

Air assault operations is the most exciting phase. The Blackhawk demonstrates its capability to rapidly displace combat power great distances as ADA Light Fighters air assault various pieces of their equipment. "Air assault skills are forgotten if not practiced. This training gives a refresher to past students and whets the appetite for "Wanna Be" air assault light fighters," said a Vulcan squad leader.

The fourth and last phase of the Light Fighters Course consists of a squad forced march, squad tactical movement scenarios and the obstacle course. All too quickly the "fun and games" are over. The battalion conducts a triumphant foot march back to garrison to be greeted by "Welcome Home" signs and cheers as they march through the post. Unit family support groups serve refreshments for all.

The training is challenging, fast paced and often difficult; however, it never fails to leave each participant with a sense of pride and a feeling of accomplishment.

Maj. William C. Bielefeld is executive officer of 1-62nd ADA.

Capt. Medardo T. De la Cruz is the S-3 HIMAD section air defense coordination officer for 1-62nd ADA.

1st Lt. Michael T. Parker is the 1-62nd ADA assistant ABMOC officer.

1st Lt. Darvin H. Jones is a B Battery, 1-62nd ADA, platoon leader.

*In an imperfect world, the Joint
Readiness Training Center makes
perfection the standard*

“Super Bowl” for Light Divisions

by Capt. Tom M. Schossau and 1st Lt. Randall D. Knapp

The Joint Readiness Training Center (JRTC) at Fort Chaffee, Ark., is the “Super Bowl” for light divisions in the same way the National Training Center (NTC) is the “Super Bowl” for mechanized infantry and armored divisions. The relatively new 50,000-acre combined arms arena offers a totally realistic training environment for light divisions and the ADA units which support them.

The JRTC is part of the Army Combined Training Center (CTC) system which includes the NTC and the soon-to-be-completed Combat Maneuver Training Center (CMTC) at Hohenfels, West Germany. Both the NTC and CMTC provide combined arms training for mechanized infantry and armored units. Although the JRTC is just now nearing the end of a two-year operational test phase, battalion-size task forces from each of the Army’s light infantry, airborne and air assault divisions have completed at least one JRTC rotation.

The 2nd Battalion, 62nd Air Defense Artillery, Fort Ord, Calif.,

recently provided air defense for elements of the 7th Infantry Division (Light) during an 11-day JRTC rotation. While comparisons between the JRTC and the more familiar NTC are inescapable — the two are similar in many ways — this article will highlight differences which are, for the most part, a function of METT-T.

We began train-up and preparations for JRTC months in advance. The train-up program replicated the missions, duration and intensity of a JRTC rotation. Our Stinger teams trained weekly by road marching 10 to 12 miles with a full pack and Stinger field handling trainers (FHTs), full-size replicas of the Stinger air defense missile system. This training was necessary because light ADA units typically conduct dismounted operations in which stealth is a prime requirement.

The task force also practiced disseminating air defense warnings down to infantry platoon and squad level. JRTC observers/controllers recognize the importance of early warning. “Air defense early warning is critical,”

reads an entry from the JRTC observer/controller list of concerns. “ADA leadership must ensure all task force elements receive the current air defense warning and applicable early warning information.”

The task force also practiced air defense with small arms and non-dedicated manportable air defense (MANPAD) systems organic to light infantry units, only to learn that they needed much more practice. This discovery wasn’t entirely unexpected: one entry from the JRTC observers/controllers list of chronic weaknesses exhibited by visiting task forces states bluntly that “Non-dedicated MANPAD systems are ineffective.” Hoping to do better than the units that had preceded us, we trained divisional non-dedicated MANPAD gunners in the moving target simulator, then coached them through practical field exercises. By the end of the train-up period, they were able to properly execute engagements.

One of the most important concerns at the JRTC, we quickly discovered upon our arrival, is the

requirement for ground security at the expense of early engagement. The ground threat posed by small opposing force (OPFOR) patrols complicates ADA defense design. As a result, one can expect more ADA elements to function in direct support to task force elements for security purposes. This upsets the preferred direct support/general support command relationship to the task force and complicates area coverage. Direct coordination between supported infantry units and air defense elements within night defensive perimeters does, however, increase ADA survivability.

Supporting offensive operations proved to be more difficult than supporting defensive missions. Integrating and moving with maneuver (infantry and aviation) elements is very difficult, particularly in unfamiliar terrain and at night. Mass and mix are not necessarily concerns since task force elements are constrained by the task organization. However, a decision to leave ADA units behind during night offensive missions typically results in enemy aircraft devastating the advance at dawn. When ADA does move forward, particularly during dismounted infiltrations, ammunition stocks become critical. Stinger gunners must have enough missiles on hand to repel enemy air attacks at first light. According to current doctrine, JRTC observers/controllers expect Stinger teams to fire two missiles at each jet before earning credit for a successful engagement. As a result, ADA leadership must get missiles forward — even if they have to be carried by infantrymen or by helicopter resupply before first light.

The JRTC imposes rules for standardization and fairness. The JRTC expects battalion ADA elements to defend all critical assets, even brigade priorities such as the brigade support area and airfield. JRTC evaluators do not recognize notional ADA elements in defense of critical assets. MILES availability and distribution are crucial since Stinger teams and non-dedicated gunners are not allowed to participate unless they are equipped with Stinger MILES.

However, Stinger FHTs can be substituted for MILES-equipped Stingers to replicate the volume and weight for resupply wargaming.

Other air defense personnel serve as useful coordinators and coaches to provide assistance to the evaluated battalion task force. For example, an ADA liaison officer in the brigade tactical operations center can coordinate actions and help disseminate critical air defense information. The publication of aircraft silhouettes and

ADA Concerns

The air defense concerns below are extracted from a list prepared by JRTC observers/controllers.

- Air defense early warning is critical.
- 20mm ammunition and Stinger missiles are prestocked.
- Nondedicated MANPAD systems are ineffective.

basic ADA procedures in annexes for use by common soldiers and non-dedicated gunners prove useful. While a forward area alerting radar (FAAR) can assist the task force in the dissemination of air defense information, maintenance support becomes a major concern. Since FAARs can trigger MILES, they require special placement on the battlefield by JRTC evaluators.

The JRTC is quite different in some ways from NTC. The most notable difference is the air threat. At the NTC, one can consistently expect two to three sorties of enemy aircraft per day. By comparison, enemy air activity was non-existent during our first several days at the JRTC, but gradually increased to two or three sorties for the duration. While the OPFOR aircraft at the NTC are distinctly different from friendly aircraft, replicating a NATO environment, the JRTC sometimes flies the same type aircraft for both sides — an accurate representation of a third-world environment that requires gunners to focus more on insignia and hostile acts before engaging.

On the other hand, the ground threat against ADA at JRTC is significant while the ground

threat to ADA units at the NTC is almost non-existent. Not surprisingly, this threat was most severe the first several days while task force elements secured the lodgement area.

Other major differences are vehicles and terrain. The JRTC OPFOR possesses relatively few vehicles. This makes friendly vehicles extremely noticeable, and they become easy targets. Stinger teams at the JRTC may dismount for better cover, concealment and survivability amid the rolling hills and occasionally dense vegetation of JRTC. The terrain increases their survivability, but limits their fields of fire. In contrast, Stinger teams operating at the NTC must work hard to conceal themselves, but enjoy unrestricted movement and unobstructed fields of fire.

Finally, 2-62nd ADA perceived the evaluators at JRTC to be more conscious of doctrinal precision. The JRTC evaluators begin their assessments at the unit's home station by viewing strategic and tactical deployments. They appear as concerned with doctrinal correctness as they do with the outcome of engagements. It's not so much whether you win or lose, but how you execute. Similarly, JRTC evaluators stress exacting troop-leading procedures and basic soldierly habits such as maintenance and personal hygiene. The senior JRTC evaluator commented, "Although no unit is perfect, the training standard at JRTC is perfection. This is a tough standard that all units must constantly strive to achieve."

An 11-day JRTC rotation, like its counterpart at the NTC, is a challenging training exercise that subjects participants to extreme stress and fatigue, factors which complicate even the simplest of missions. Although each center has its own unique evaluation criteria, both challenge units to reach new limits of endurance and attain new levels of perfection.

Capt. Tom M. Schossau is the assistant S-3 for Headquarters and Headquarters Battery, 2nd Battalion, 62nd Air Defense Artillery, Fort Ord, Calif. **1st Lt. Randall D. Knapp** is a Stinger platoon leader with B/2-62nd ADA.



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First Brigade-Size ARTEP

The first brigade Army training and evaluation program (ARTEP) in 32nd AADCOM history was recently conducted by the 94th Air Defense Artillery Brigade.

The exercise, which included a river crossing, an air assault operation and successful interoperability with Hawk and Patriot missile systems, may be the beginning of a new trend of brigade ARTEPs for 32nd AADCOM's air defenders.

Capt. Don B. Hyde, from 94th ADA Brigade's S-3 section, played a key role in setting up the scenario for the exercise. Hyde said, "The objectives of this ARTEP were to enable us to take a look at the entire brigade in the field, our

defense plan, communications, logistics and command and control. The brigade, as a whole, worked together and solved the little problems they faced during the exercise."

The scenario of the river crossing and air-lift was complex. Air bases had been destroyed, but friendly units had to move forward to support and protect the supply route by pushing the enemy back into its own territory. Bridges across the Rhine River were also knocked out.

The knocked out bridges didn't stop the 94th ADA Brigade. They simply had the 565th Engineer Battalion from Karlsruhe assist them across the river with rafts that could carry the brigade's vehicles and equipment.

Short-range air defense at the river crossing site consisted of

Chaparrals, Vulcans and Stingers. A Hawk assault fire unit (AFU) provided long-range air defense. The significance of the exercise is that the Hawk unit was controlled by a Patriot battalion. This met the one training objective for the Hawk AFU to get all of its target information from Patriot.

Chinook and Black Hawk helicopters provided by the 205th Aviation Brigade air-lifted Chaparrals, Stingers, Vulcans and some Hawk launchers across the river. The Pathfinders, who assisted on the loading and landing zone and gave instructions on how to properly sling-load the equipment, were from the 12th Aviation Brigade.

— Barbara A. Biskupich

Japanese Patriot Instructors

Capt. Shinya Tanaka and 1st Lt. Susumu Kawabata of the Japanese air Self-Defense Force were recent visitors to the 3rd Battalion, 43rd Air Defense Artillery, Fort Bliss, Texas. During their stay, the Japanese teamed up with 3-43rd ADA soldiers from various military job specialties ranging from 140E (Patriot Systems Technician) to 24T (Operator Maintenance). The open exchange of ideas and free flow of knowledge will allow the Japanese to become better instructors in their air defense school.

"During our participation in a field exercise we were able to watch the highly skilled United States soldiers emplace and operate the Patriot missile system," Tanaka said. "Their level of tactical and technical knowledge was impressive."



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After taking part in a reconnaissance, selection and occupation of position (RSOP) operation, Kawabata said, "We feel the Patriot system is only as good as the RSOP team because without proper alignment data the system is useless."

The knowledge and experience provided by the soldiers of the 3-43rd ADA helped them improve their own proficiency and understanding of how Patriot works, they agreed.

— 1st Lt. Thomas J. Gall

RATT Competition at Fort Hood

Soldiers of the 2nd Battalion, 5th Air Defense Artillery, participated in the last radio teletype (RATT) competition held at Fort Hood, Texas.

The Army's new multiple subscriber equipment (MSE) radio gear will replace the old RATT rigs, according to SSgt. Margaret Stagers, 142nd Signal Battalion, 2nd Armored Division.

"This is the last RATT competition," Stagers said. "The winner of this competition will retire the trophy."

Ten teams from the 2nd Armored Division competed for the trophy. The competition included a proficiency evaluation of all the RATT teams within the division. In addition, two members of each team took a written test, with the average of their two scores being the team score, Stagers explained.

After the written test, the team had to go to a designated field location, set up the RATT communications, properly camouflage the site and send and receive messages. This phase consisted of nine different parts and was worth a maximum of 200 points.

The RATT is usually the first communications system on line when a unit moves into an area, according to Spec. Lester West.

"While the other systems are being put in, we are up and operating," West said. "We give the commander secure hardcopy communications while the others are getting there."

The 2-5th ADA soldiers' hard work earned them first place in the RATT competition. The three-man team consisted of West, Spec. Welden Verdun and Sgt. Timothy Verner.



Closed

Lead, follow or get the hell out of the way! The motto of the 32nd AADCOM NCO Academy went down with it as it closed its doors for the last time after training 8,513 past, present and future leaders.

The academy conducted its final graduation ceremony for Class 10-88. CSM Robert W. Harman, 32nd AADCOM command sergeant major, was the guest speaker. He and Brig. Gen. Travis N. Dyer, the deputy commanding general of 32nd AADCOM, awarded the final graduates with their diplomas.

The academy, located in Landstuhl, was activated in June 1978 as the 94th ADA Brigade NCO Academy. Only two 2-week pilot classes graduated from the academy while it was under the 94th ADA Brigade.

On Sept. 1, 1978, 32nd AADCOM took over the school, thus giving the academy a bigger role.

Oct. 1, 1978, marked the official opening of the 32nd AADCOM NCO Academy by Maj. Gen. Charles F. Means, and initial accreditation was completed by a team from the U.S. Army Train-

ing and Doctrine Command in April 1979.

The first James L. Nair Leadership Award was presented at the academy graduation ceremony April 10, 1981. Named for the 32nd AADCOM command sergeant major at the time, the award recognizes the countless efforts Nair put forth to create the academy, his constant interest in the progress of academy students and his search for improvements in the NCO Corps. The award, a tradition each cycle at the NCO Academy, was presented to the student who demonstrated the most potential in his or her leadership abilities.

The Primary Leadership Development Course (PLDC), started in July 1983, enabled all MOSs to attend and added a field training exercise.

Now that the NCO Academy is closed, future 32nd AADCOM NCOs will receive their training at Bad Toelz.

— Barbara A. Biskupich

5-62nd ADA Closes a Chapter

As the afternoon sun slipped behind the mountains and the cool desert air settled easily on McGregor Range, N.M., Capt. Gary Sheid gathered his key personnel into C Battery's tactical operations center. The 5-62nd ADA had just concluded an important field training exercise with the M-18A1 Chaparral missile system playing a vital role in the defense of a critical asset.

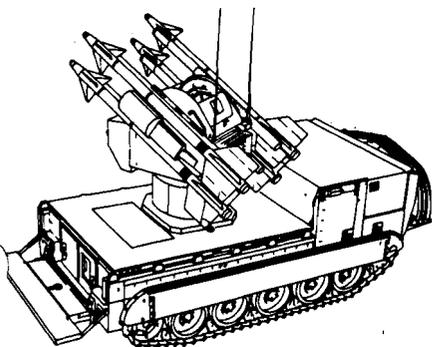
The "Chaps" proved their worth during such drills. But with the battalion's transition to Vulcan/Stinger, the Chaparral was scheduled for replacement. C Battery was to move on order the following morning to Forward Area Weapons (FAW) Site 10 for the battalion's final Chaparral live fire.

Dune and sage yielded to the early morning movement of the

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vehicles. Soldiers and equipment were dusted with the yellow earthen sands of McGregor Range while moving on line.

Short-range air defense (SHORAD) soldiers have a fierce pride in their professionalism. They performed pre-fire checks and erected camouflage with apparent ease. Sweat and discipline had molded the men of C Battery into a team with a deadly battlefield efficiency.



This was proven with "green-time" from Range Control. Missiles were quickly loaded onto the rails. Senior gunners were stationed in their mounts. Squad leaders monitored their radios.

The first target was launched at 1016 hours. The telltale tone in Cpl. Harlon Miller's headset indicated lock-on. SSgt. Michael Burch gave the command to fire, and the Chaparral streaked to a direct hit.

After a 10-minute pause, the tower began another countdown. This time, SSgt. Wilfred Hernandez and Spec. George Winters manned the Chaparral and acquired the target. As Winters fired, however, the rocket motor in the target failed. His prey began a hard dive downrange. The Chaparral missile made an impressive 130-degree adjustment, intercepting the target a short distance above the ground.

The final fire was saved for Sgt. David Bullard and Cpl. David McNeely. Outfitted in cumber-

some chemical gear, their task was to prove the missile's accuracy in an NBC setting. The Chaparral tracked the target, and another direct hit underscored the value of the M-48A1.

Soldiers and family members alike applauded such total success: C Battery was "three for three." Though the cheers have faded to a memory, the remarkable accomplishments of the Chaparral will not be forgotten.

The 5-62nd ADA was converted to a Vulcan/Stinger battalion last January. But the legacy of achievement initiated by the Chaparral will continue to bring honor to those who call themselves "Strong and True."

— Capt. (Chaplain) James S. Boelens
and 2nd Lt. Millard J. Hampton

"Combat Battery" Tactical Firing

C "Combat" Battery, 5th Battalion (Chaparral), 52nd Air Defense Artillery, recently set new standards for Chaparral tactical gunnery. The battery not only conducted live fire with 23 missiles (Chaparral, Stinger and Redeye) in a tactical scenario, it also executed a battery Army training and evaluation program (ARTEP). The implied tasks included preparing Red Cloud Golf, a Fort Stewart, Ga., tank gunnery range, for missile firing.

This firing was the battalion's last tactical gunnery with Chaparral missiles. The 5-52nd ADA was inactivated and reactivated as the 1st Battalion, 5th Air Defense Artillery, in November 1988 and reorganized in February 1989.

Armed with map overlays and field orders for a complex brigade offensive maneuver, C Battery deployed to prepare the range and execute rehearsals. Range preparation involved some administrative procedures such as safety cable emplacement and bunker construction for the Stinger/Redeye firings. The rehearsals

were accomplished from tactical assembly areas which supported the brigade's task forces in a general support role — exactly like the rehearsals advocated — to ensure smooth execution in combat.

The operation focused the air defense coverage on the brigade's passage points at the line of departure/line of contact (LD/LC). The platoons were given subunit instructions which figured into the overall air defense support of the brigade. The battery's tactical operations center (TOC) moved forward to effect command and control of the entire operation. With the range prepared and the rehearsals accomplished, the battery executed its first mission, aggressively supporting a notional brigade movement. The battery TOC moved Stinger teams and Chaparral platoons forward to firing points to support the brigade's crossing of the LD/LC. Once the squads executed an emergency emplacement, they engaged the hostile BATs fired from a location out of sight of the gunner. To make things more challenging, both hostile (orange) and friendly (black) targets were launched, with the decision point for engagement just seconds after target launch. The shoot was highlighted by an airmobile movement of a Chaparral launching station and a dismounted Stinger team, the firing of Stinger missiles from both a Vulcan and an armored personnel carrier, and a special operation involving elements of the 1st Battalion, 75th Ranger, which fired Redeye missiles.

When the smoke cleared, the battery had proved it could fire in a realistic tactical scenario. C Battery up-loaded missiles and moved from an ammunition holding area more than a kilometer away. They also employed new combat battle drills for the Vulcan system and its 16S crewman which involved command and control of special operations such as airmobile movement and integration of out-

side air defense elements.

"The range was set up extremely well and the entire battery worked as a team to set it up and take it down. Overall the platoon had three direct hits," said SSgt. Isaac Smalls of 3rd Platoon. The overall tactical realism of Combat Battery's live-fire exercise was unparalleled in this division. The aggressive and successful execution of the exercise truly demonstrates Combat Battery's ability to be the "First to fire."

— 1st Lt. David Eubanks

3-1st ADA Airload Training

B Battery, 3rd Battalion, 1st Air Defense Artillery, recently became the Army's first Hawk missile unit to conduct an airloading exercise at Fort Hood, Texas.

During the exercise, Army and Air Force personnel faced a number of challenges. In addition to the major components, a large number of trucks and command and control assets were prepared and loaded for deployment. Much of this equipment had recently participated in a 600-mile road march from Fort Bliss and a tough training exercise. The task of preparing this equipment to meet the Air Force's exacting standards proved to be a demanding operation.

To prepare for the airload, B Battery participated in several

training exercises at the universal load simulator. Both Army unit movement specialists and Air Force loadmasters conducted this training. In addition, B Battery conducted an extensive maintenance program to upgrade the condition of their conventional and Hawk equipment.

Assault Fire Platoon 1, commanded by 2nd Lt. Kevin Turner, completed the difficult process of airloading. This included extensive vehicle inspections and repairs, verification of load plans and vehicle markings and weights. Components were then loaded onto aircraft to ensure even weight distribution. The next day Assault Fire Platoon 2, led by 2nd Lt. Mark Price, continued the exercise and airloaded onto a massive Air Force C-5 "Galaxy."

This training was one of a series of exercises planned by III Corps' new Hawk battalion to ensure readiness to support the Phantom Corps anytime, anywhere.

— Gary Domke



2-5 ADA Vulcans 'Shoot 'Em Down'

Vulcan crews of the "Shoot 'em Down" 2nd Battalion, 5th Air Defense Artillery, 2nd Armored Division, lit up Jack Mountain Range, Fort Hood, Texas, during their quarterly gunnery.

A total of 46 gunners and senior gunners from the battalion's three

firing batteries tried to qualify and score as high as possible. Firing, though, was only one part of the two-week process to determine the best Vulcan squad in the battalion.

Competition for the best Vulcan squad included three areas of evaluation: administration, crew drills and a live fire. Each area was evaluated separately and the overall scores combined.

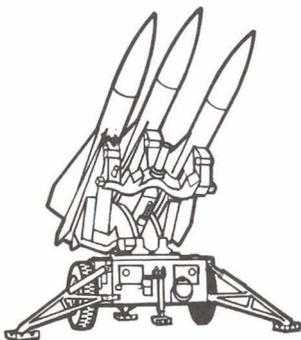
Battalion commander Lt. Col. Barry E. Cardwell conceived the idea of the best squad competition and initiated it earlier this year. Winners of the competition receive an impact Army Achievement Medal and their names are engraved on a plaque that rotates through the battalion.

Evaluation in the administration phase was geared primarily for the NCO of each crew and included a variety of tasks that ensured that the NCO could properly take care of and train his subordinates. Administrative evaluation for the rest of the crew was limited to proper procedures for completing maintenance paperwork on their vehicle.

Crew drills comprised the next phase of the competition. Each crew started this phase with a telephonic recall, followed immediately upon their arrival at the unit with an operation order. Once the crews arrived at the range, each crew was timed and evaluated at the ammunition upload site. Here, speed and teamwork were essential. Each crew was responsible for loading the 20mm ammunition that would later be used for live-firing. Five minutes were allotted to load 500 rounds.

Once the Vulcan crews were online and ready to fire, the final phase began. From behind the firing line a radio-controlled miniature aerial target (RCMAT) was fired up and soon airborne.

"The RCMAT is the actual scale you would see through your sights," 1st Lt. Kenneth Mitchell, A Battery executive officer and



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range OIC, said. "It looks like a Russian Fogger or similar aircraft."

The RCMAT made six passes in front of the firing line, including incoming, outgoing and diagonal passes. Each crew fired two 30-round bursts on each pass, with a total of 1,720 rounds being fired.

In addition to the RCMAT, static and moving ground targets were also engaged from the firing line. After completing this task, the crews moved down-range where they encountered another RCMAT and more ground targets. These targets were engaged while on the move. A night course was also conducted on the same range.

— Rich Staley

6-3rd ADA M-60 Champs

Sgt. Mathew D. Kemper (squad leader), Spec. Samuel A. Weight (gunner), Spec. Wayne C. Ward (assistant gunner) and Spec. Kenneth C. Moren (ammunition bearer) of 6th Battalion, 3rd Air Defense Artillery, took first place in the annual 32nd Army Air Defense Command M-60 machine gun competition held in Europe recently.

The competition included tests on live firing, weapons preventive maintenance checks and services (PMCS), range cards, battle drills and a written examination.

"Competition was really keen," said CSM Robert W. Harman. "Our young soldiers are smarter and better than ever."

— Barbara A. Biskupich

Partnership Shoot

The annual partnership shoot between Headquarters and Headquarters Battery, 32nd AADC, and its partnership unit, the 2nd German Air Division, was held at Messel Range in Darmstadt.

The event gives the German soldiers an opportunity to familiarize themselves with the M-60 machine gun and to qualify with the M-16A1 rifle and the .45 caliber pistol.

Twenty German soldiers traveled from Birkenfeld to Darmstadt to fire. Thirteen other soldiers from local Bundeswehr units, the German Army Officer's School, the 850th Swimming Bridge Battalion, the Darmstadt Army Technical School and VBK 33 also fired.

Everyone who fired qualified, and several soldiers earned the expert badge. SGM Juergen Klawe of VBK 33 was the only German soldier to receive an expert badge for both the rifle and the pistol.

According to Maj. Bud A. Perry, 32nd AADC G-5, many of the Germans commented that they enjoyed the opportunity to fire American weapons and to talk with the American soldiers and officers who were their coaches.

Perry said, "The cool, damp day didn't spoil the warriors' spirit at this partnership event."

After a long day of firing, the Germans were treated to a Western-style barbecue consisting of barbecued spare ribs and chicken, corn on the cob and other side dishes.

The German soldiers enjoyed the day and especially the good food. "This gave the soldiers an opportunity to build person-to-person relationships, which are important to a strong alliance," Perry said.

At the end of the day the German soldiers received their badges and certificates signed by 32nd AADC representative Col. Neal J. Delisanti. The soldiers of the 2nd Air Division awarded Perry a plaque for his work in coordinating this annual event.

"Knowing they still had a two-hour ride ahead of them, the Germans were still eager to stay and

enjoy the comradeship of their American hosts," Perry stated.

— Barbara A. Biskupich

Patriot Batteries First Certified

It was a long hard road, but collective training came to a successful conclusion for the 11th Air Defense Artillery Brigade's three newest units as D, E and F Batteries, 3rd Battalion, 43rd Air Defense Artillery, underwent their final exercise before becoming a full-fledged part of the brigade.

The three Patriot backfill batteries completed their collective training with a Field Training Exercise and live fire under the tutelage of 1-6th ADA.

"The collective training was designed to teach the soldiers the skills they will need to function as a unit," said Capt. Eddie Branham, commander of D/3-43rd ADA. "Training included march orders, emplacement and reacting to an assortment of tactical situations — in short, what the batteries need to know to shoot, move and communicate as an organization."

After nearly three months of training, the soldiers from D, E and F Batteries were ready to take what they learned to the field one last time under the scrutiny of 1-43rd ADA. It was a "make or break" time with certification hanging in the balance.

Following the FTX, the units moved to the launch site at McGregor Range where each battery fired a live missile for the first time. Between the launching of the first missile and the third, less than two hours lapsed.

The certification of the three batteries, activated last fall, makes the 3-43rd ADA, the first Patriot battalion with six fielded firing batteries, said Lt. Col. MacArthur DeShazer, the battalion commander.

— SFC Jim Austin

The Search for SAM

Soviet Air Defense Evolution

by Maj. Robert H. Haseloff

The use of the airplane in World War I and its follow-on development provided the requirement for the Soviet Union to develop an effective air defense system. The Soviets responded to the new threat with the weapons at hand: machine guns and artillery.

To make these weapons effective, the Soviets developed a system of observers and reconnaissance posts in the battle area. These posts provided early warning and passed inbound aircraft information to the fire control centers. Once aircraft were detected, the machine gun operator or artillery control officer switched from a surface role to an air defense role. The weapons had no mounted sights for use against airborne targets, adding to the difficulty of hitting small objects with a bulky weapon. Initially, these anti-aircraft systems may not have destroyed many aircraft, but the gunners probably deterred the accurate delivery of ordnance by the pilots. They did then, accomplish one portion of the basic air defense mission.

During World War II, the Soviets

greatly improved their anti-aircraft artillery. However, by the time they acquired sufficient anti-aircraft weapons and personnel to accomplish the mission, the Soviet Air Force was capable of handling the Luftwaffe air threat. This caused the Soviets to use their recently acquired air defense weapons in artillery and anti-tank roles and increased the split between anti-aircraft defense supporters and tactical airpower supporters on exactly how to perform defense of the Motherland.

The Red Army's drive into Germany during the last days of World War II uncovered many industrial plants and research facilities. These facilities contained a wealth of technology which was later transported to the Soviet Union. The facilities included the German rocket research center at Peenemünde and the radar and missile guidance facility at Würzburg. The knowledge gained from these two programs alone gave the Soviets the lead in development of a missile air defense system. Although technological gains placed the Soviets

In an excellent position, problems in missile technology delayed deployment of a surface-to-air missile until the early 1950s.

Lessons learned in the Korean conflict led to the replacement of heavy anti-aircraft guns with new surface-to-air missiles. Not until April 1965, however, did the Soviets supply SA-2 surface-to-air missile systems to the North Vietnamese. By the end of 1965, 60 SA-2 sites were located around the Hanoi-Haiphong area, and these more than doubled to 152 sites by the end of 1966.

This mix of surface-to-air missiles with anti-aircraft guns proved to be a valid concept in Soviet doctrine, for not until the last major effort, during December 1972, were the North Vietnamese air de-

Soviet air defense was reactive in the initial years. System development usually followed a deployed air threat on the battlefield. This characteristic has changed significantly over the years. New development continues to improve as the number of follow-on systems increases. This is just one example which supports the premise that the Soviets have no desire to finish second to anyone.

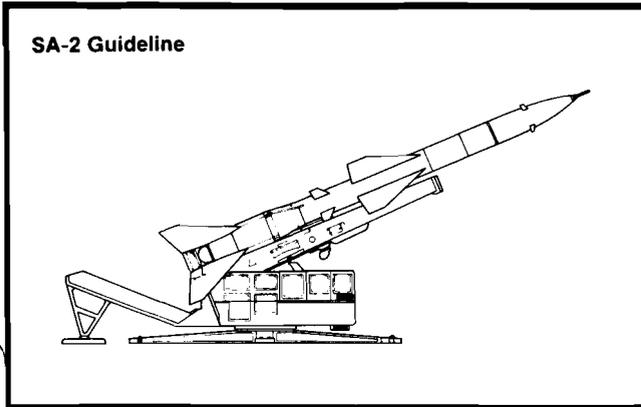
Concepts in Air Defense

The Soviet Union recognizes that air defense is an essential component of their combined arms force. As such, they have given the branch commander of air defense equal rank with the commanders of the tank, motorized rifle and artillery branches. The Soviets also know that NATO tactical air power is very effective and more flexible than their own. If attacking armies drive into West Germany, enemy troops will be forced into chokepoints where air strikes could delay the forces, causing devastating losses to troops and equipment.

The Soviets' approach to air defense is normally described as the "three M" approach — mass, mix and mobility.

The first is a reflection of a standard principle of Soviet military art: mass has a special impact, both psychological and physical, on the enemy. If all other things are equal, quantity will prevail. Mass has never been a Soviet weakness. Anti-aircraft artillery and surface-to-air missile systems provide coverage at all levels of command on a scale greater than any army in the world.

The second principle of Soviet doctrine is mix. Here they reinforce the effort of mass by ensuring coverage of every vital target by several types of missile and gun systems. This redundancy protects against possible technical failure, successful action against one type of surface threat or possible enemy electronic countermeasures.

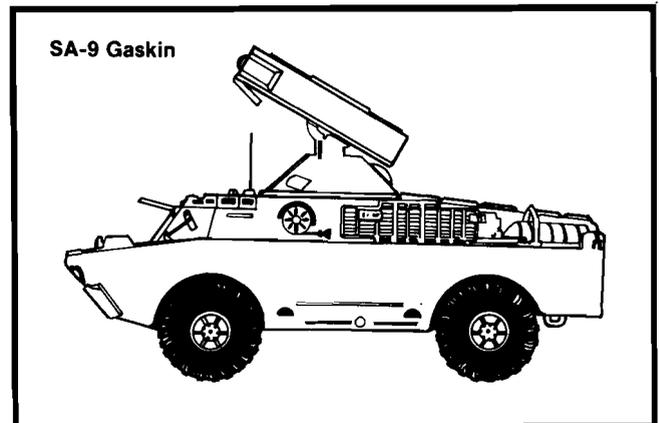


fenses overcome and unable to handle the massive effort from the United States Air Force. The command, control and radar networks were overloaded during the attacks by the U.S. forces. This led to the defeat of over half of the air defense systems.

The Soviet Union, meanwhile, was developing a vast, overlapping air defense network that included the SA-2, SA-3 and SA-4. However, the introduction of the first mobile surface-to-air missile system, the SA-6, was not accomplished until 1967, and this system was not employed in combat until 1973 in the Arab-Israeli war.

This new system ushered in the newest change to Soviet doctrine. The combined effects of the SA-6 and the ZSU-23-4 proved insurmountable in the early phases of the battle. The Israelis only gained the initiative when they destroyed the Syrian air defense control center. The results of the air battle, in which more than 100 Israeli aircraft were downed, proved the effectiveness of mobile air defense.

The new mobile systems provided ground forces with a maneuverable air defense system. While these systems could not defend themselves against ground attack, the ability to maneuver with the ground forces reduced the problem. Developments in Soviet air defense continued to expound on the use of a mobile defense. The development of the SA-9/13 infrared air defense systems, and follow-on developments such as the SA-10 and SA-12 radar-controlled systems, continued to stress mobility.



Each Soviet motorized rifle and tank division has approximately 6 ZSU-23-4s, 20 SA-6/11s and 20 SA-8s in the attached SAM regiment.

Mobility is the final principle and is emphasized in

weapons systems design. This has been proven during the past 20 years of anti-aircraft system development. This design blends perfectly with ground force doctrine which envisions advances by tank forces up to 100 miles per day. This requires that air defense assets be capable of moving forward rapidly to provide an air defense umbrella. The design of this mobile air defense umbrella protects all ground forces from air attack. Simply, it is air superiority in reverse: superiority of ground-based units over tactical air power to such an extent that the aviation threat is eliminated or degraded to a satisfactory level.

The importance of a mobile air defense umbrella to Soviet doctrine cannot be overemphasized. The Soviets feel the only way to win a decisive victory on the central front in Europe is to penetrate quickly into NATO's rear. This is necessary to allow the Warsaw Pact forces to destroy NATO's nuclear delivery capability and disrupt C³ sites. Also, these forces must reach the western coast of France before the arrival of follow-on forces from the United States and Canada.

Integration of Air Defense

When deploying an air defense weapon system, the Soviets apply a principle known as defense-in-depth. This allows the air defense systems to maneuver on the battlefield with the attached forces and accomplish integration at every tactical command level of the Soviet army, from the front surface-to-air missile brigade to the platoon's SA-7 launcher. This forms the Soviet's total air defense system.

This air defense system includes area and point defense weapons. The front and army level SA-4 and newer SA-10 and SA-12 units provide area coverage. These systems protect all units on the front from aircraft flying at altitudes below 13,000 feet.

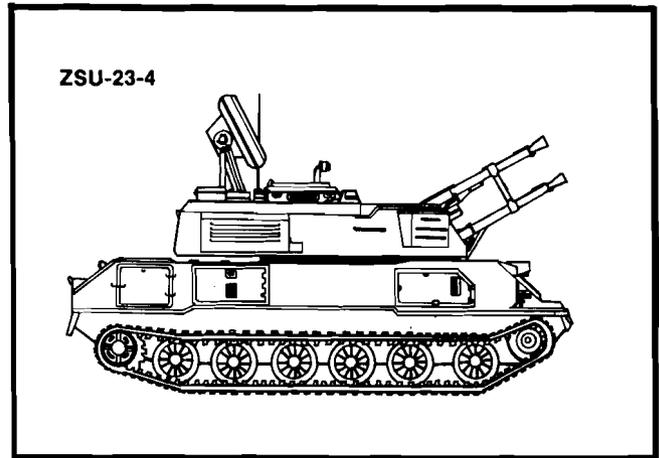
In a point defense, the SA-9/13 infrared systems and the radar-controlled ZSU-23-4 anti-aircraft guns protect specific units; therefore, these units must be positioned near the forces they defend due to their short lethal ranges. The SA-6/11 and SA-8 surface-to-air missile systems bridge the gap between area coverage weapons and point defense weapons. All weapon systems, whether used for point defense or gap filling, tie into a comprehensive early warning and target acquisition network.

The Soviets' goal is to unify air defense assets under a single concept. If they do not have the advantage in the air, then their first priority is to launch an anti-air operation. This provides their aviation assets freedom of movement while causing maximum destruction of enemy aircraft.

To achieve air superiority the Soviets, using coordinated times and altitudes, allow only their aircraft to pass by and destroy all others. Once the Soviets have obtained the initiative in the air, they will shift the focus of their defense units to a defense action designed to protect their troops, installations and high priority assets.

Command and Control of Soviet Air Defense Units

Air defense officers are assigned at all headquarters down to regimental level. Although the air defense commander is subordinate to the ground com-



mander that he is supporting, he is responsible for the coordination of all air defense efforts within the unit's area of operation. This includes the deployment of anti-aircraft artillery, surface-to-air missile systems and associated radar. Also, he must establish coordination procedures with adjoining units and determine the priority of defended areas. Control of air defense assets is highly centralized, especially when troops are in a static position, such as an assembly area, before the attack.

Air defense communications must provide a timely warning of an air attack and control the distribution of anti-aircraft fires. The Soviets' types of communications include colored rockets, flags and radios. They practice redundancy to ensure receipt and routinely issue duplicate commands.

The battery commander normally receives information concerning an air threat via radio on the air defense net, which is established for use from battery commander to regimental air defense officer. Air threat data from the regimental level is relayed to the battery commander. When observation posts detect aircraft they fire one or two colored rockets in the direction of the inbound aircraft. The duplication of this signal is a short code word transmitted by the company commander. The code word most frequently used is "vozdukh" (air) followed by three digits (123) which change on a routine basis.

Soviet Air Defense Employment

The "defense-in-depth" concept of air defense in a

typical Soviet division begins with the air defense platoon assigned to the front companies. Three men are assigned to each platoon, and each battalion has nine platoons. Each man is equipped with an infrared heatseeking SA-7 missile. Higher priority divisions are equipped with additional protection in the form of a mobile SA-14 system. These air defense platoons will be the first units to engage inbound aircraft.

Air defense batteries provide the second layer of defense. These batteries support the regiments to which they are assigned. They are equipped with a platoon of four ZSU-4 anti-aircraft guns and a platoon of four SA-9/13 heat seeking surface-to-air missile systems.

Although the ZSU-23-4 (NATO code name Shilka) is based on technology from the mid 50s, it is very lethal to aircraft within its range. Its four water-cooled 23mm guns have a fire rate of 800 to 1,000 rounds per minute per barrel. Its maximum effective range is about 2,000 meters and its minimum engagement altitude is 200 feet. When operating in the optical mode, the Shilka poses a serious threat to aircraft performing a close air support mission — it has no electronic emissions and therefore does not warn the pilot he is being engaged.

Normally, the ZSU-23-4 systems are employed in pairs and kept within several hundred meters of one another. Additionally, they are usually within 400 meters of the regiments lead attack elements, provide quick response to threats and have high rates of fire and excellent mobility.

At the division level, the organic air defense system has either the SA-6/11 or SA-8 radar-controlled surface-to-air missile systems. This air defense regiment is designed as a gap-filling SAM system. It poses the main threat to inbound fighters, especially

weapon system: a missile launcher and a radar vehicle. Both vehicles have tracks rather than wheels.

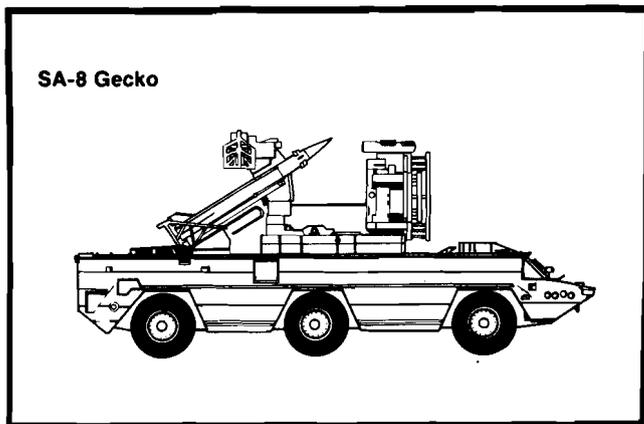
The SA-11 system, which replaces the SA-6, has a slight improvement in range and minimum altitude over the SA-6. However, its best feature is that each missile-carrying vehicle has its own on-board radar that can acquire, track and illuminate a target. This allows each SA-11 transporter erector launcher and radar (TELAR) to operate autonomously on the battlefield instead of being tied to a single radar as is the SA-6. These improvements give a battery with SA-11s the capability to track four targets per battery rather than the single target which could be tracked and fired upon by the SA-6.

The SA-6/11 missile systems are capable of slant ranges out to about 18 miles at lower altitudes and a minimum engagement altitude of 100 feet. Design features include high resistance to electronic counter-countermeasures which include an optical tracking device.

The SA-8 (Gecko) surface-to-air missile system is the world's first truly "mobile" radar system. It is self-contained and amphibious, and has the Land Roll radar for target acquisition and fire control. The six-wheeled vehicle has a boat-like appearance and carries either four or six missiles. The amphibious SA-8 provides some mobility and tactical advantages over the SA-6/11 tracked systems.

However, the SA-6/11 systems provide greater depth of coverage, giving them an advantage in operational maneuver group operations. The SA-8's ability to travel at higher speeds on prepared surfaces, combined with its amphibious capability, makes it more suitable for exploitation and pursuit operations.

The SA-8 is a short-range maneuverable missile designed to engage high performance fighters at low altitudes. The Gecko system can engage two separate targets and guide two missiles to each engaged target. The maximum range is estimated at 7.5 miles and the minimum engagement altitude is thought to be near 130 feet.



Soviet Air Defense Weaknesses

One of the potential weaknesses of Soviet air defense is the high level of centralization they use. These command and control networks could fail under the intense pressures of battle. Coordination between ground air defense units, air-to-air defense fighters and frontal aviation offensive air units is essential to prevent the fratricide of friendly air assets.

Also, Soviet air defense units might fail to maintain pace with ground units while trying to "leap-frog" defense assets. "Leapfrogging" allows the air defense commander to maintain two batteries in preparation for firing, while the other three batteries move forward with the organic troops. The air defense "umbrella" may lag behind the fighting units and expose them to ground attacks by aircraft and

aircraft on interdiction missions. Regiments equipped with the SA-6 (Gainful) have five batteries consisting of four transporter erector launchers (TELS) and a Straight Flush radar. A minimum of two vehicles are necessary to operate the SA-6

helicopters. The ground commander's only alternative is to slow the pace of advance, which would considerably reduce the chance for success.

Another problem for the air defense systems is their proximity to the forward edge of the battle area. Here they are very vulnerable to ground fire, especially artillery and rocket fire. These vehicles are heavily armored and the radar antenna's sensitivity to shell fragments could remove it from service. This makes all air defense systems especially vulnerable. During river-crossing operations or in chokepoints, these vehicles become grouped together and defense of the ground forces becomes critical. The lack of amphibious capability on all systems except the SA-8, as well as resupply, equipment and ammunition for the fast moving air defense forces, may be a problem during combat.

Each Soviet air defense system has individual weaknesses. One article written on the ZSU-23-4 mentions several problems. These include variation in ammunition character, rapid gun barrel deterioration and electrical problems associated with the radar-controlled firing of the guns (which include the possibility of a runaway or uncontrolled firing). Another drawback to the ZSU-23-4 is its limited ammunition supply.

The basic load of 2,000 rounds can be fired in only 25 seconds. If unable to follow economy of fire rules (bursts of fire of about 200 rounds per target) the ZSU-23-4 will require frequent resupply, therefore increasing its vulnerability. A ZSU-23-4 under artillery fire or attack by aircraft must retract its radar antenna to prevent fragmentation damage. Additionally, the crew must close up all hatches, making it impossible to detect aircraft either visually or with radar. Finally, attack helicopters armed with TOW (tube-launched, optically-tracked, wire guided) anti-tank missiles can destroy the ZSU-23-4 by attacking from a maximum range of 3,750 meters—outside the ZSU-23-4's range.

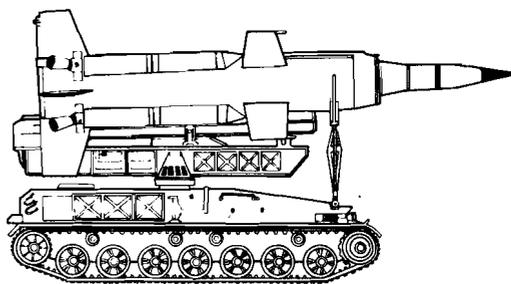
The SA-6 missile system destroyed large numbers of Israeli aircraft during the first two hours of the 1973 war; this was, however, due largely to technological surprise. Once the element of surprise was lost, the effectiveness of the SA-6 declined. By the end

of the war, its overall accuracy rate was only about 1.8 percent. The Egyptians fired over 55 missiles for each kill scored. Obviously, the SA-6 is not a wonder weapon, but the initial threat it provided prevented the Israelis from striking targets which otherwise might have been attacked.

The Soviets' use of vacuum tubes in their systems increases the fragility and bulk of these items. However, miniaturization has never been a concern of the Soviet Army or the Soviet society as a whole. While the Soviets are far behind Western countries in transistor and computer technology, their vacuum tube technology places them ahead of Western technology by 10 to 15 years. The disadvantage of tube technology was evidenced during the 1973 Arab-Israeli War, when temperatures inside radar vans approached 160 degrees Fahrenheit.

The initial effectiveness expected of any system is considerably higher at the start of a conflict, and

SA-4 GaneI



declines as countermeasures are developed for the threat system. This "wizard war" will continue on both sides, with each searching for a countermeasure and a counter to the countermeasure.

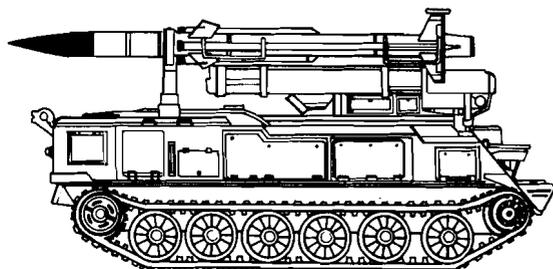
Trends in Soviet Air Defense

Overall, the Soviets are numerically superior in air defense weapons to any military force in the world. In addition, they currently have the air defense organizations and equipment to react quickly to a threat.

The Soviets recently reorganized the PVO STRANY air defense structure to improve control over its 10,000 surface-to-air missiles and 2,500 fighter interceptors. The threat had evolved from a high flying strategic bombing force to a very low-altitude tactical force.

In the new reorganization, the air forces receive control of several air interceptor units. This allows ground commanders to take increased responsibility for air defense and gives air commanders more flexibility to conduct offensive or defensive opera-

SA-6 Gainful



The Soviet Pilot

by Capt. John Sabatello

It's the middle of the night. You stare at the radarscope and wonder if you've checked everything. Deep inside your heart pounds, and you begin to feel the mix of exhilaration and fear so common just before combat.

You know that you've been trained well and that your soldiers are ready. But something else nags at you. Some other factor that you know will affect your performance, but that you cannot control. That other factor is the enemy. The Soviet pilot who is your primary adversary. He's out there and he's coming for you. Only the best trained will survive.

Fortunately part of your training at the basic course included classes on the Soviet pilot, and you

feel that you know your enemy. With that knowledge you can anticipate his tactics, know how he thinks and defeat the best that the enemy can throw at you.

Early in the course the instructor told you how the Soviet Union chooses its officers. Many high school students take competitive exams to try and enter one of the 140 officer candidate schools in the Soviet military. These schools are branch specific and train officers to become specialists in their particular field.

In each case the various OCS courses last four years. For the Soviet pilot the first year consists of basic military training followed by 10 months of intensive academic study. These two programs

weed out those candidates that don't have the potential to be top notch pilots.

Flight training doesn't begin until the second year and consists of about 250 hours per year. Although this is an average amount of flight time, the Soviet pilot repeats and improves upon his flight training for three years until he graduates and is awarded his wings and baccalaureate degree. Graduation from OCS also incurs a 25-year military obligation. Although 25 years may seem rather severe for an initial obligation, it is not without its perks for the Soviet pilot. Soviet pilots are compensated with higher pay, increased monthly credit toward retirement, extra yearly leave and

tions. Another apparent reason for the reorganization is to decrease command and control problems. This allows land force commanders to destroy aircraft and cruise missiles at lower altitudes where the surface-to-air defense assets are more effective than interceptors.

Another trend seen recently in Soviet air defense systems is the increase in size of the engagement envelope and lethality of the weapon. The modified SA-8 can carry six missiles in canisters rather than the four carried by the original. New weapon systems have redundant missile guidance systems, providing an enhanced ability to conduct a successful engagement.

SA-4 units, which normally protect headquarters' facilities and high value assets, are being replaced by the SA-10 and SA-12 systems. These new systems use a phased-array radar for multiple target capability and reportedly have the capability to intercept cruise missiles. The SA-10 has a maximum range of about 57 miles, while that of the SA-12 is in excess of 60 miles. The minimum altitude of 300 feet for the SA-12 is higher than the 100 feet assumed for the SA-10. This higher engagement altitude is due to the primary strategic role designed for the SA-12.

The ZSU-30-2 was placed in service in 1983. This system is a follow-on to the ZSU-23-4 and has over-

come many of its predecessor's problems. It is armed with two 30mm guns thought to have a range out to 3,800 meters. The vehicle's hull is believed to be based on that of the T-72 tank. The new system is expected to have an improved target tracking capability which includes low-light TV, electro-optical, infrared, acoustic and radar systems.

Improvements in recent years in microcomputer and transistor technology approach state-of-the-art. It is reported that the latest Soviet radar and surface-to-air missile systems now use transistors and printed integrated circuits.

Summary

In conclusion, the Soviet ground-based tactical air defense systems present a formidable threat to any type of aircraft. The quality of Soviet air defense systems appears to be near that of the Western nations, and they are unmatched in quantity. They have the ability to continue improving air defense assets, and presently display the capability for a quick and effective response to any foreign threat.

Maj. Robert H. Haseloff graduated from the Command and General Staff College, Fort Leavenworth, Kan., in June 1988. He has since been reassigned to Langley Air Force Base, Va.

better government living and vacation facilities. The Soviet military clearly recognizes the increased emphasis it is placing on its pilots and chooses to make life in the military reflect this trust and responsibility.

The fresh young pilot is now assigned to a flying unit, where he will be trained in a particular aircraft type. Training here begins in advanced aircraft handling characteristics, followed by combat tactics. The new pilot begins by filling the position of wingman for several years, learning his trade and perfecting those skills that will earn him the position of flight leader. Promotion also relies on membership and strong participation in the Communist Party.

In the recent past the American military has looked upon the Soviet pilot with little regard for his combat skills. We have seen him as a highly controlled "driver" whose every action in flight is either preprogrammed during the mission brief or directed in flight by ground controllers.

Many examples of this have been seen in the past, especially from intelligence monitoring of Soviet war games and live-fire range exercises. Several U.S. "How to Fight" manuals have been written depicting rigidly standard Soviet flight and attack profiles that we could expect to

intercept without exception. This is no longer the case.

Over the past 10 years two major developments have influenced Soviet pilot training and tactics. Those are the war in Afghanistan and the major leap in Soviet aircraft technology. Together they have sparked an intense revitalization of tactics and initiative.

Soviet pilots are systematically being given the "freedom" to use more personal initiative in choosing attack options without the interference of ground or airborne controllers. These options, revolutionary as they are in Soviet military thought, are still limited to a list or menu of preselected variations that are applied to an assessment of the tactical situation prior to the flight. The Soviets now realize that the pilot is the key to their aviation combat victories.

Recently we have seen Soviet air wargames include changes that allow for pilot decisions in tactical situations that do not reflect any input from ground controllers. Realism is replacing the carefully scripted exercises of the past.

In the area of unit training the Soviets are now mixing different types and units of aircraft in combined air-arms exercises. These operations are an expansion of the Soviet two- and four-ship formations that we've come to recognize in the past. Although they have

not expanded these air exercises to the scale used by NATO air forces, they are moving up quickly.

In Afghanistan they quickly modified their two- and four-aircraft formations to provide flare ships to distract Stingers. This proved to be somewhat successful after heavy initial losses to the missile.

One area in which the Soviets have been slow to follow NATO tactics is their attack altitudes. NATO pilots consistently operate between 100 and 1,000 feet above ground level while the Soviets, perhaps because of their SHORAD phobia acquired in Afghanistan, prefer to operate between 300 and 3,000 feet during ground attack operations. This reluctance to get down and mix it up with the SHORAD warriors may make them earlier targets for Hawk and Patriot teams. In any case the game is changing. Only the best trained and the most informed will have the edge.

As you end your duty shift and turn the FCC over to the next officer you walk back to your vehicle feeling better about that "unknown" factor that had been bothering you earlier. You know you've got the edge.

Capt.(P) John Sabatello (AV) is a team chief with the Personnel Proponent Division, OCADA, U.S. Army Air Defense Artillery School, Fort Bliss, Texas.

Laser System Destroys Missile

For the first time, a high energy laser system successfully engaged and destroyed a missile. The Vandall target missile was flying a low and fast cruise missile profile.

In February the Navy's Mid Infrared Advanced Chemical Laser/Sea Lite Beam Directory (MIRACL/SLBD) experimental high energy laser system, located at White Sands Missile Range, N.M., destroyed a supersonic missile in a test designed to show that a laser system could acquire, track and deposit enough energy on a supersonic target to destroy it.

The test validated laser lethality of models deve-

veloped from years of static tests. But until now these lasers had never been proven in a realistic dynamic test. The range to the target was representative of real tactical scenarios. The test was conducted under the Balanced Technology Initiative program as the concluding part of a two-year effort to validate the lethality of a high energy laser system against targets in flight.

Tests against subsonic targets were successfully completed in the fall of 1987. This test demonstrates that the technology has matured to the point that high energy lasers can be a real option for tactical warfare missions.

Education and Professional Development

This issue we will focus on education, both military and civilian. Each day, assignment officers routinely answer many questions concerning education requirements and opportunities. In the subsequent articles, structured to address education at each grade level, your assignment officer will discuss both the education requirements and opportunities available to you as you progress through the ranks.

The two questions that you should ask yourself are: "What is required of me at my grade?" and "Do I have time to participate in an education opportunity such as advanced civilian schooling?"

The first question is of primary importance in these days of manpower ceilings and reduced promotion rates. Education requirements impact on both company and field grade populations. For example, company grade officers whose year groups are 79 and higher must attend CAS³ in addition to OBC and OAC. This requirement will be a factor during the next major's board in October 1989.

One factor that directly affects our field grade population is earning credit for Command and Staff College (MEL 4). The first element involved here is that a DA selection board decides which officers will attend resident schooling. If, however, you do not attend a resident course, you still must meet the requirement by completing the non-resident correspondence course. Officers who have not earned MEL 4 will not be selected for promotion to lieutenant colonel.

You should read all of our articles. Not only will you better understand what is required of you as an individual, you will also know the requirements placed on, and opportunities available to, the officers who work for you. The management of careers, from OBC students' attendance at the

Junior Officer Maintenance Course through lieutenant colonels' selection to the Army War College, involves planning and understanding by both the assignment branch and the individual officer. A better understanding of these factors will enable both you and I to better manage your career.

— Lt. Col. James F. Barber

Senior Service Colleges

Senior service colleges (SSCs) are at the apex of the professional military training system. SSCs prepare officers for senior command and staff positions with the Army and DoD. These colleges include those listed in the box below, or any one of more than 30 civilian and military fellowship programs. Officers also may apply for participation in the Army War College corresponding studies course (AWCCSC). Officers receive the highest MEL code (MEL 1) upon completion of any of these courses.

Army War College
National War College
Industrial College of the Armed Forces
Naval War College
Air War College
Inter-American Defense College
Canadian National Defense College
Italian Center for Higher Defense Studies
India National Defense College
Japanese National Institute of Defense

To be eligible, officers —

- must be serving in the grade of lieutenant colonel or colonel as of the board convene date;
- must have completed a minimum of 16, but not more than 23, years of active federal commissioned service (AFCS) as of Oct. 1 of the year of entry into the college;
- must have graduated or have credit for completing a command and staff college (MEL 4);
- must not have attended, received credit for attending or declined attendance to a SSC.

Although approximately 6,000 officers are eligible for resident SSC each year, only about 260 new

selectees and approximately 80 deferred officers (selected in previous years and not able to attend) are validated annually for resident SSC. The board selects the best qualified of the eligible officers without regard to grade, sex, component or source of commission. The board considers branch and functional area floors, based on Army needs, during the SSC selection cycle.

I will answer four commonly asked questions regarding SSC.

The primary question is a result of the fierce competition for resident SSC seats: "Just what does it take to get selected?" There's no easy answer to this question, but I *can* tell you that 95 percent of the selectees have had two or more successful battalion command or program manager officer efficiency reports.

Not all battalion commanders and program managers get selected. Based on Army requirements at the O-6 level, selected branches and functional areas that don't have a lot of battalion command or program manager opportunities are provided minimum floors which take away a small proportion of each year's seats.

The second most frequently asked question is: "What correlation is there between SSC selection and O-6 selection?" Simply answered, 70 percent of all O-5s(P) and O-6s on active duty have MEL 1, MEL 2 (selected for resident SSC) or MEL 3 (selected for, or in the first year of, non-resident SSC). The numbers speak for themselves.

The third question regards board dates and slating. The annual SSC board meets annually, normally in October. Around March each year a worldwide message explains eligibility criteria and any special instructions for the upcoming board.

Once selected, officers will receive a preference sheet that outlines their options. Generally speaking they can request attendance at the Army War College, the Air War College, the Naval War College, the National Defense University (National War College or the Industrial College

of the Armed Forces) or a SSC fellowship.

The preference sheet includes descriptions and specific qualifications for each college and fellowship. The criteria used to decide where to slate these officers are Army requirements, professional development considerations, professional and academic qualifications, and preferences. Slating announcements are made by worldwide message, normally in December or January.

The fourth most popular question is: "How do I 'sign up' for the non-resident course?" The non-resident course, properly called the AWCCSC, provides an alternate means of attaining senior service level schooling. However, officers can't just "sign up" for this non-resident course — they have to apply and be selected.

The same SSC board that selects principals for resident SSC selects, in OML order, approximately 1,000 additional officers who may fill approximately 200 seats in the non-resident course; therefore, an officer must be on this OML to be selected. Any eligible officer may apply by sending a letter to his branch saying that he wants to be considered for the non-resident course. Chain of command endorsements are not required.

The two-year non-resident course has two 2-week residency phases at the end of each year. The AWCCSC closely parallels the content of the resident course. AWCCSC is a very demanding program with reading and writing requirements equal to that of graduate courses. You should evaluate current and projected assignment workloads to determine if you can devote sufficient time to successfully complete each sub-course on schedule: officers who have been academically disenrolled from AWCCSC will not be allowed to re-enroll.

Beginning with class 1987-1989, participation in AWCCSC precludes future eligibility for SSC residency. This policy makes it extremely important that you discuss its impact on your future with either myself or Lt. Col. Barber,

ADA Branch Chief, before making your final decision.

I've been discussing professional military education for lieutenant colonels. Let me switch gears and discuss civilian education opportunities available through the Cooperative Degree Program (CDP) at the U.S. Army War College (USAWC).

SSC selectees without master's degrees, upon determining that they will be assigned to the USAWC, should contact me to discuss CDP. During their student year at Carlisle Barracks, the CDP provides USAWC resident students the opportunity to obtain an initial master's degree in fields where there is an identified need. The program normally requires 12 months to complete. Typically, CDP students arrive at Carlisle Barracks in early June or July, one or two months before the opening exercise at the USAWC. Those arriving in early July must remain approximately one month after the resident.

While the academic requirements of the USAWC curriculum combined with those of a master's degree program constitute a respectable workload, earning a master's degree is a reasonable and obtainable goal. USAWC students may participate in the CDP by enrolling at Shippensburg University (SU) located 20 miles south of Carlisle or at Pennsylvania State University at Harrisburg/Capital College (PSU) located 30 miles east of Carlisle.

Although degree programs exist in many disciplines (including history, American studies, business administration, mathematics, behavioral sciences, engineering science, counseling and communications), requirements for some programs cannot be met during the time generally available to the USAWC student. Most students pursue a Master's in Public Administration (MPA) degree. The SU program requires 30 credits and the PSU program 36 credits. Both schools accept nine transfer credits as part of the program requirements for the student's successful completion of the War

College curriculum. Other transfer credits also are available. The majority, but not all, of the SU and PSU MPA courses are taught at Carlisle Barracks.

Graduate degree programs are also available at the National Defense University (George Washington University, Public Administration), Naval War College (Newport College, Political Science and International Relations; Salve Regina College) and the Air War College (Troy State University, Guidance and Counseling; Auburn University at Montgomery, Political Science). Don't confuse graduate degree programs with CDP — CDP is only available at the USAWC.

I have tried to lay out the “nuts and bolts” of the SSC selection process and explain its criticality to your continued professional development. Please contact me if you have any questions on SSC, career management or professional development.

— Lt. Col. Ray Miller

Professional Development for Majors

Majors have a number of professional development opportunities. They include Command and Staff College (CSC), the opportunity to achieve an advanced degree, the experience of a Joint Professional Military Education (JPME) and participation in the Personnel Exchange Program (PEP).

Most important to your development and future promotion potential is completion of CSC, which you can accomplish as either a resident or non-resident. The centralized board that selects officers for resident attendance also selects those officers who will attend a foreign military command and staff school. If you desire to attend one of these schools, you should convey this request to the board in writing prior to the selection process. The schools available for attendance change from year to year and are too numerous for me to list.

Another option available to you if selected for resident CSC is to attend a sister service school. The Navy, Air Force and Marine CSCs

allocate a number of seats in each of their classes for Army officers, partly to expose their students to officers who can discuss how the Army operates or views common issues. Therefore, the officers selected to represent the Army and our branch need to be well rounded in their profession. Traditionally, this reflects the need for a branch-qualified major who has served as a battalion or brigade XO or S-3. This is an excellent program that can ideally precede a joint assignment.

The Armed Forces Staff College (AFSC) is a CSC option that will be phased out over the next year. Presently it is a six-month resident MEL 4 school program designed to prepare officers for service in a joint command. Most attendees are branch-qualified majors capable of serving follow-on joint tours. In the future, this school will become a nine-week TDY course for officers en route to joint assignments.

Several options exist for those officers completing CSC by non-residence. The most common is to complete the entire six-phase program by correspondence.

Another option is to combine the correspondence studies with attendance at a U.S. Army component service school. You enroll in one or more of the six phases and take two-week training blocks at centralized school locations. You also attend several night or weekend sessions at decentralized locations. The program consists of outside classroom work followed by in-class discussions, presentations and examinations. One advantage to this approach is interaction with fellow students, which the pure correspondence course lacks.

A third option is to take the entire course program through the U.S. Army school system as previously described. The only disadvantage to you is the time involved and possible conflict with other obligations.

You need to complete MEL 4 schooling as soon as possible. Each year group is considered four times, but only about 50 percent of a year group is eventually selected

for resident schooling. If you have not been selected by the second consideration, I recommend you immediately enroll in one of the non-resident options: should you later be selected, you can disenroll without prejudice or continue with CSC to completion. This gives you the option to attend a sister service school or consider declining resident attendance. I do not recommend you decline resident attendance because the experience will add immeasurably to your professional development.

Let's turn to advanced civilian schooling. COOP is an excellent program that leads to an advanced degree in conjunction with the Leavenworth experience. Available at and managed by the CSC in Fort Leavenworth, COOP is designed to enroll interested officers in a master's program that complements their functional areas.

Under the COOP program, you accrue academic credit at a civilian institution concurrent with your CSC course load. After graduating from Fort Leavenworth, you take a second year of academic study on the institution campus. As a result, you complete a master's degree and are eligible for reassignment to the field. Since you incur an AERB obligation, your assignment will be to a functional area job unless you are deferred in favor of staff with troops for branch qualification. You can avoid the AERB obligation if your on-campus phase is 20 weeks or less.

If you attend CSC but do not desire COOP, the Advanced Military Studies Program (AMSP) at Fort Leavenworth affords an opportunity to gain a master's in Military Arts and Science and to receive advanced operational art training for use at echelons above corps. Officers are selected to attend this outstanding program directly from the CSC class. After completion, you will be assigned to a division or corps staff to complete an internship. You will normally follow your internship with a battalion- or brigade-level assignment.

Another way to achieve an ad-

vanced civilian degree is to pursue it on your own time at your own expense. Most overseas and CONUS duty locations have education centers that offer master's programs in conjunction with accredited colleges or universities.

Do not pursue a master's at the expense of your duty performance! A master's will not improve your prospects for promotion to lieutenant colonel or for selection for battalion command. It can affect your assignments or prospects beyond battalion command, but your present performance level will dictate your potential for advancement in the near future. Direct your immediate schooling efforts toward completing CSC.

Some officers will follow their CSC experience with a joint assignment. The majority of these will enroll in a JPME phase at the resident MEL 4 school. JPME, a specialized curriculum track conducted during the second and third terms at CSC, exposes officers to planning and operational criteria in preparation for joint service. This further prepares officers for future consideration as a joint specialty officer (JSO). JSOs are nominated and selected for future joint critical assignments at the rank of lieutenant colonel and beyond. JPME, while not a prerequisite for joint service, is required for JSO selection.

Most of our field grade officers are eligible to experience the schools or education opportunities I've mentioned, but only a lucky few get the opportunity to serve in the PEP. The PEP assignments are varied and located worldwide. Some afford the opportunity to serve as a member of an allied combat arms organization; for example, the United States-United Kingdom PEP provides for an ADA major to command a British Rapier battery.

Other programs provide for the exchange of instructors at allied service schools, such as the U.S. Exchange Officer to the Australian School of Artillery. Selection for these positions is nominative, but it affords you and your family the unique opportunity to live and work with our allies.

In summary, ADA majors have numerous professional development opportunities which open the doors to challenging assignments. These military and civilian schooling opportunities enhance your professional background and better prepare you for the challenges of the future in our Army.

— Maj. Jeff Pinasco

Advanced Civilian Schooling

Advanced civilian schooling (ACS) for combat arms officers is a highly competitive program governed by AR 621-1. The Air Defense Artillery Branch traditionally receives 10 to 15 slots each fiscal year. The allocations are broken down by functional area, academic discipline and, in several cases, specific institution attended.

Air Defense Artillery received 18 slots for FY 89 broken down into seven functional areas: FA 45-2, FA 46-1, FA 49-4, FA 51-4, FA 52-1, FA 53-5 and FA 54-1. As you can see, "soft" functional areas, such as FAs 41, 46, 50 and 54, do not share much of the ACS pie.

What kind of officers are selected for ACS? Obviously, very good ones! Those selected must have consistently above-average performance, strong battery commands and academic credentials appropriate to the discipline they are pursuing. For comptroller, that means a degree in accounting and or finance; for Public Affairs, a degree in journalism and or communications; and for all others, hard science and math! All FA 49, 51, 52, 53 and 54 degrees require at least two semesters of undergraduate calculus with C+ grades (Bs are better) and an overall GPA of about 2.8 or better on a 4.0 scale. For FA 49, some engineering classes would help, as would physics for FA 51.

FY 89 quotas are being filled now! FY 90 quotas will be available around September or October 1989, but you should apply early. If you want to apply for ACS, get a copy of AR 621-1. The application, DA Form 1618-R, is in the back. Mail the DA 1618-R, transcripts, GRE/GMAT scores and a recent

(less than three years old) DA photo direct to your assignment officer. I encourage you to include a letter of recommendation from your senior rater.

Timing is critical to officers attending ACS, as they are expected to serve 24 months in school, three years in utilization and then, very likely, 12 months at CSC. Obviously, not all captains have time to do all that and still serve with troops as a major. 1982 is the "target" year group for FY 89; 1983 will be the target year group for FY 90. We can normally "flex" about two years (i.e., YG 80 for FY 89 ACS), but we will not approve an officer if the timing won't work.

Officers who are highly talented and motivated, but who majored in "party" in their younger days, will probably never be competitive for ACS. Those with "semi-soft" degrees (Biology, Anthropology, etc.) can be considered for ACS, but need to do all they can to improve their academic credentials.

We recommend that officers try to take a couple of calculus courses on their own. Also, take a GRE-prep class prior to the actual test (it helps a lot). Finally, try to get a letter of acceptance from one of the schools on the approved schools list. If you are a borderline candidate, a letter of acceptance can truly help your case. A word of caution, however: we cannot guarantee approval, so please discuss your file and chances for approval with your assignment officer before you commit your own money on classes or tests.

Another way for air defenders to earn advanced degrees is through service at the U.S. Military Academy (USMA). The three primary types of assignments an officer can be selected for are instructor, tactical officer and Department of Military Instruction (DMI) duty.

Instructor duty is easily the most diverse of the three ways to get to USMA. You coordinate directly with the department you wish to be assigned to, and the department will track you until you are eligible for assignment consideration. PERSCOM, when notified, evaluates your file for

performance and availability. If approved, you are placed on orders to get your master's in a discipline your department requires, and then on to work.

A significant advantage of instructor duty is that "soft" degrees are needed on an equal footing with hard science degrees, as all departments need instructors. Expect a 24-month ACS program, and a three-year utilization, for a total five-year experience.

"Tacs" are created through USMA's newest advanced degree program: the Leader Development Fellowship. The annual USMA board usually makes selections each April. Selected officers go through a one-year ACS taught at USMA, followed by a one-year "practical" as a tactical officer, ending in the receipt of a Master of Arts in Leader Development degree. They then serve two additional years as tactical officers, for a total four-year experience.

DMI duty may or may not require you to attend ACS en route. If selected for an ACS slot, DMI becomes a five-year experience very similar to instructor duty. The specific degree you would pursue (determined by the department) is generally a behavioral science, counseling or related discipline.

If you are in a non-ACS slot, you are not restricted by AERB utilization requirements, so you may depart after 36 to 48 months for good reasons (i.e., on CSC list). DMI's focus is on training, and officers assigned there become heavily involved with military skills, marksmanship and summer training requirements. Airborne rangers are desired, but all are welcome to apply.

PERSCOM's point of contact for USMA is Maj. Somers, AV 221-5165. At USMA, call Maj. Finch (branch representative) at AV 688-2110.

— Capt. Mike Locke

Non-Branch Qualified Assignments

Many opportunities exist for company-grade officers to participate in military and civilian schooling. Timing is critical in

selecting the right school at the right time in your career. Your S-3 has a list of all military schools and can request them through your division or post. In this article I will address what the branch can do for you.

I'll begin with Ranger, Airborne, Pathfinder and the Junior Officer Maintenance Course (JOMC). Of the many schools available, these are the most popular.

All of these schools are available upon request, and I will schedule you for them after OBC, OAC or en route to your next duty station. Understand that PERSCOM can only send you TDY en route. In some cases there are special qualifications needed to attend some of these schools (AR 350-2).

To date we have scheduled more than 80 air defenders to attend Ranger school in this fiscal year. There are currently 15 courses scheduled this fiscal year. Ranger fills quickly so I must reserve seats well in advance.

Airborne, currently scheduled for 48 courses this fiscal year, starts approximately every week. We can easily schedule you for airborne school at any time — there are 533 seats for each course.

JOMC, on the other hand, only has 14 courses during the fiscal year, with a seat allocation of 48 per course. These seats fill fast and I have to schedule about four months out.

Pathfinder is a new adventure for air defenders. Until recently we were on standby for this course. We now have the ability to schedule well in advance. Pathfinder, conducted 12 times a fiscal year, has seat allocations averaging 48 per course.

You may attend *any* OAC as part of branch qualification (see DA Pamphlet 600-3). You need to call well in advance to schedule other than the air defense OAC.

OACs are scheduled at different times during the year. We encourage you to attend a combat arms OAC. This will allow an interchange of ideas and experiences between other combat arms officers.

Another OAC opportunity exists at the Marine Amphibious Warfare School located at Quantico, Va. This nine-month course starts in August every year.

The air defense OAC is held four times a year (January, April, June and October). Once again, you will be scheduled for the next OAC after your DEROS (OCONUS) or for the next OAC after your 37th month on station (CONUS). Requests for orders (RFOs) are processed approximately 120 days prior to the course start date.

You will normally pursue advanced civilian educational opportunities (master's degrees, TWI, etc.) after becoming branch qualified. For more information regarding civilian education refer to AR 621-1 and the other articles in this issue. If you have any questions, please don't hesitate to call.

— Capt. Kurt G. Lambert

Enlisted

ANCOC Attendance

During FY 88 the five ANCOC classes for air defenders had a maximum class size of 60 soldiers. In FY 89, ANCOC expanded to six classes with a maximum class size of 75 soldiers. While the expansion is good news for soldiers who have been selected for ANCOC, this means that units will potentially see more NCOs going to ANCOC on TDY assignments rather than en route to their next duty station.

Normally the message notifying soldiers that they have been scheduled for a particular class goes out 90 to 120 days prior to the class start date. We make every attempt to schedule soldiers for ANCOC TDY en route to minimize disruption to unit training and readiness, which sometimes results when NCOs are scheduled for TDY and return. The fact remains that some NCOs will continue to be scheduled for ANCOC on a TDY and return basis.

Once a soldier has been scheduled to attend, the unit should make every effort to allow the soldier to go to that class. Make deferment requests the exception!

There is one problem units need to address: soldiers continue to show up at ANCOG who are not in compliance with AR 600-9. Overweight soldiers will be returned to their units without even starting ANCOG.

E-5/E-6 Promotion Update

During the past several months we have received many inquiries about E-5 and E-6 promotions. Specifically, soldiers and commanders alike have expressed frustration over cutoff scores that seem to constantly remain around 998. While promotions have indeed slowed primarily due to budgetary constraints, some soldiers have been promoted to E-5 and E-6 within CMF 16 and CMF 23 during the last 12 months.

What can individual soldiers and their commanders do to increase chances for promotion to E-5 and E-6? What are we doing for air defense soldiers?

Obviously soldiers can help themselves through superior performance. Commanders recommend superior soldiers for promotion. Soldiers and commanders should try to maximize the number of promotion points a soldier can earn. Conduct a re-evaluation if a soldier has earned additional points since the board last met. These points could enhance the soldier's chances for promotion. AR 600-200, Chapter 7, covers enlisted promotions in detail. You could use portions of this chapter as the subject of an NCO PD or OPD class in your unit.

In a nutshell, outstanding performance, actively seeking to maximize administrative points and doing well when actually appearing before the promotion board will go a long way toward getting a good soldier promoted.

NCO promotions directly link to vacancies or operating strength versus authorizations. When operating strength exceeds authorizations for any of our MOSs at grades E-5 or E-6 for a given month, the cutoff score for that MOS and grade will be 998 for that month.

An ongoing force moderniza-

tion program within air defense is impacting on authorizations within most of our MOSs, which in turn impacts on promotions. Where units are being fielded in larger numbers, such as with Patriot, authorization increases will create additional promotion opportunities for 16Ts and 24Ts. In MOSs where there is no growth or, in fact, a reduction in Army-wide authorizations (such as with 24U), promotion opportunity is not as great.

Each month we scrub E-5 and E-6 authorizations for all air defense MOSs to ensure that the correct authorizations are compared with operating strength. For promotions to be possible in any given month, authorizations must exceed operating strength, so it is important to use the correct authorizations.

Recently the Army has not been promoting to 100 percent of authorizations for grades E-5 and E-6. The target has been around 93 percent. This means that if a given MOS at grade E-5 is authorized 100 positions Armywide, and there are 93 or more soldiers operating in that MOS and grade, then the cutoff score will be 998 that month for that particular MOS at grade E-5. Using the same case, if the operating strength were less than 93, the cutoff score established would allow enough soldiers to be promoted to bring that MOS back up to 93 percent at grade E-5.

In situations where an MOS is grossly overstrength, leading to promotions stagnation, we will allow soldiers to voluntarily (or in some cases involuntarily) reclassify out of that MOS into one where they have better promotion opportunities. One way we effect this action is by changing the Reenlistment/Reclassification In/Out calls (updated monthly through MILPER message).

Promotions to E-5 and E-6 will probably remain slower than both soldiers and commanders would like in the near future; however, we all must work to improve a soldier's potential for promotion. We will do everything possible from a force alignment perspective to maximize E-5 and E-6 pro-

motions, but competition will be tough.

16P40 Update

The decision to cap MOS 16P at the E-7 level became effective on Oct. 1, 1987. At the same time, Chaparral units began moving out of our heavy divisional battalions and into newly forming corps Chaparral battalions. We now have two corps Chaparral battalions: one at Fort Hood, Texas, and one at Fort Lewis, Wash. A third battalion will soon activate at Fort Stewart, Ga. The more distant future will see additional corps Chaparral battalions activating in Europe. The creation of new authorizations at the E-7 level, plus the force modernization involving Chaparral units in general, has presented a challenge.

Normally the annual promotion board selects E-7s from the eligible E-6s in an MOS. Using this method, the board promotes enough soldiers to fill projected vacancies. Since the approval of 16P40s, we have created 16P40s using two methods: the promotion board process and selective reclassification of 16R40s to 16P40s. Beginning with the 1989 E-7 board, we will use only the promotion board process.

The reclassification effort is almost complete. We still have some 16R40 soldiers who progressed through the 16P MOS to their present grade. If you are a 16R40 soldier with a strong 16P background and you wish to be considered for reclassification to 16P40, immediately submit a DA Form 4187.

16H Update

Phasing out of MOS 16H is now in the execution portion of the operation. The response from 16H soldiers has been good; however, some soldiers still need to contact us.

As of December 1988 we received reclassification requests from 56 percent of the eligible mid-term and career 16H soldiers. This figure is up from 42 percent in August 1988, but some of you have yet to contact us requesting reclassification.

We will not reclassify first-term soldiers — they can migrate out of 16H by re-enlisting for option 3 (training). If you are affected by this reclassification and have not contacted us, immediately submit a DA Form 4187 requesting reclassification. List at least five MOSs for which you qualify (at least one of the MOSs must be an ADA MOS). Including a Form 2-1, Form 2A, and any supporting documentation with the DA Form 4187 (such as a certificate of training for previously held MOS) will help us process your request.

Once we receive your request we will process it for the MOS requested. Through December 1988 we approved reclassifications for 83 soldiers. Sixty of those remained in the Army Air Defense Artillery.

Although some soldiers, primarily in Europe, have already submitted their reclassification requests, we will not process them until approximately six months prior to their DEROS. We usually process requests of CONUS-based soldiers in conjunction with their next PCS. We will normally not reclassify 16H soldiers with more than 18 years of service and soldiers who will have 18 years of service on Oct. 1, 1991.

Currently 16Ts constitute the greatest single need within ADA MOSs. 16H soldiers who want to be Patriot crew members stand an excellent chance of becoming 16Ts should they request this MOS.

Effective Feb. 1, 1989, MOS 16T was enrolled in the BEAR program. MOS 16T is open to soldiers in CMF 16 and CMF 23. To be eligible, soldiers must be in grade E-4, E-4(P) or E-5. MOS 16T has an SRB of 3A.

Virtually every day we get at least one phone call from a 16H soldier. Obviously we cannot answer all of these questions in one short article. If you have questions call AV 221-8052/8053. Your point of contact is SFC(P) Robert A. Shelton.

If you have not yet submitted your reclassification request do so now — we will reclassify all eligible 16H soldiers whether or not we have received their requests.

Appealing an Evaluation Report

When we receive an evaluation report for inclusion in a soldier's official military personnel file (OMPF), we assume that it is administratively correct, has been prepared by the proper rating officials and represents an objective judgment and considered opinion of the rated soldier. The appeals system exists to protect the interests of the Army and ensure fairness to the soldier whenever administrative errors occur or a soldier's potential and or manner in which he or she has performed his or her duties is inaccurate. At the same time, the appeals system avoids casting doubt about the integrity and judgment of the rating officials unless sufficient cause exists.

If you disagree with an evaluation, and you can support your position with legitimate and substantiating evidence, read Chapter 4 of AR 623-205. Read Chapter 4 in its entirety prior to preparing your packet! A complete understanding of the appeals system can save you time, effort and, of course, the anxiety created by having an appeal returned without action.

Submit your appeals in a timely manner, as preparation of a successful appeal packet becomes increasingly difficult as time passes. A complete appeal packet is a must — it will not be forwarded nor considered unless you include all supporting documentation.

Remember, your career is your responsibility. Monitor your OMPF!

Transferring Article 15s

Clearly one of the most significant setbacks to an NCO's promotion potential is an Article 15 in the performance portion of his OMPF. If you are one of these NCOs, take action to remove the Article 15 well before you enter the zone of consideration for promotion. Removing an Article 15 from the performance portion and transferring it to the restricted file will in no way guarantee your selection for promotion, nor will it

cause reconsideration of previous nonselection.

Soldiers with an Article 15 in their records should seek assistance from their personnel staff NCO and legal clerk in preparing and submitting a petition. Staff sergeants and above may request transferal of Article 15s from the performance to the restricted portion of their OMPF by petitioning the DA Suitability Evaluation Board (DASEB). Soldiers should refer to AR 27-10 for detailed information about how to file a petition. Sergeants and below may request the transfer under the provisions of AR 15-185. In either case, a board will consider the petition and make a decision.

DA Photos

When was the last time you took a DA photo? What did it look like? Did your NCO channels inspect you, in uniform, prior to having the photo taken?

As you progress through the ranks, competition for the next stripe becomes even more intense than the last. The promotion boards for pay grade E-7 and above are centralized or, in other words, conducted by a DA selection board at Fort Benjamin Harrison. Since you cannot bodily appear before the selection board, your official photograph portrays you.

If you want to look good and remain competitive, ensure that your uniform complies with AR 670-1 and that your photograph complies with AR 640-30. Though you only need to update your DA photo once every three years after your initial photo upon promotion to staff sergeant, take a picture each year in which you fall into a zone of consideration for promotion or higher military schooling.

Go the extra step to prepare yourself: make sure someone other than the promotion board does the initial critique. Soldiers who take the extra step are easily recognized.

The Enlisted portion of Career News was compiled by **Capt. Harry D. Bloomer**, CMF 16 and CMF 23 assignment officer, PERS-COM; and **MSG Gregory W. Diehl**, NCOIC, ADA Enlisted Assignments Branch.



Orchestrating EW Assets

by Lt. Col. Carl H. Puels Jr.

Fifteen hours prior to a major battlefield air interdiction (BAI) mission supporting a U.S. Army counterattack, Air Force RF-4C TEREC and RC-135 Rivet Joint aircraft, and Army RC-12D Guardrail aircraft take off to locate critical enemy air defense communications links and threat locations in the proposed area of operations. Upon their return, intelligence interpreters and strike planners work into the early morning hours.

The next day, commanders use sensors to confirm target locations. Several minutes before the strike package crosses the forward line of own troops (FLOT), an EC-130H Compass Call, a UH-60 Quickfix and ground-based systems begin jamming enemy air defense voice communications and other command, control and communications (C³) data links. At the same time, EF-111A Ravens jam acquisition, early warning, targeting and ground control intercept radars.

Simultaneously, Army field artillery units commence firing as a part of the joint suppression of enemy air defense effort. Cannon

units lay a smoke corridor across the forward area of friendly troops to screen strike aircraft, and assist MLRS in suppressing known air defense sites along the route. In addition, cannon units engage command posts and other C³ facilities.

Stripped of their early warning radars and command and control, enemy air defense units become autonomous and frantically search for intruders with their organic narrow beam radars. Waiting F-4G Wild Weasels suddenly appear and launch numerous high-speed anti-radiation missiles at these emitting threat radars while friendly escort fighters under control of airborne early warning aircraft overwhelm disorganized enemy fighters. During the ensuing enemy confusion, U.S. strike aircraft cross the FLOT and destroy assigned air interdiction targets. Thirty-five fighter bombers plus supporting aircraft return safely to home base. Only one aircraft is missing. As a result of this joint action, enemy second echelon forces are stalled and the ensuing U.S. Army counterattack is successful.

The previous scenario illustrates how electronic warfare (EW) support assets in combination with lethal assets can significantly contribute to the success of joint operations. On the surface this appears relatively simple. Dig a little deeper, and it rapidly becomes apparent that it is very difficult for commanders to plan for and orchestrate limited EW assets, particularly in joint operations. This is obviously a significant point since many future force compositions will be joint configurations. Until recently, no clear-cut procedures existed for the Air Force to request Army EW assets (or, for that matter, vice versa).

This article examines considerations for coordinating and planning EW support of military operations in joint Army/Air Force operations or, more clearly, coordinating and planning EW support for a C³CM strategy and for SEAD operations. But what exactly are EW, C³CM and SEAD?

Definitions

EW, electronic warfare, is any military action that involves the use of electromagnetic energy to determine, exploit, reduce or prevent hostile use of the electromagnetic spectrum while retaining its friendly use. Command, control and communications countermeasures (C³CM), on the other hand, refers to the integrated use of operations security (OPSEC), military deception, jamming and physical destruction, supported by intelligence, to deny information to, influence, degrade or destroy adversary C³ capabilities. At the same time, C³CM must protect friendly C³ assets against similar enemy actions. The next term, suppression of enemy air defenses (SEAD), are those activities which neutralize, destroy or temporarily degrade enemy air defenses in a specific area by physical attack and/or EW. Joint SEAD is the portion of SEAD that uses the assets of more than one military service to suppress enemy air defenses. C³CM and SEAD in support of joint military operations will help U.S. forces gain air superiority which, in turn, will increase the effectiveness of the AirLand Battle.

Responsibilities for EW support of C³CM strategy and SEAD operations must be addressed from the very inception of a combat operation. To ease the integration of all available EW resources, the lowest possible command level should accomplish the detailed planning and coordination. EW planning must include expertise from operations (ground and air), intelligence, logistics and communications. Also, C³CM strategy must be carefully balanced to achieve a synergism of all the elements. The judicious use of deception, OPSEC, jamming and destruction should result in maximum enemy confusion and disorganization, fewer friendly losses and, hopefully, mission success.

Service Doctrine

The importance of EW coordination between the Army and Air Force is recognized, but at present, written doctrine and procedures for joint

coordination of EW are still in a state of evolutionary development. Joint C³CM, as discussed in Tactical Pamphlet 525-7, serves as a baseline for joint C³CM planning and execution. This excellent planning document explains the relationship of the air support operation center to an Army Corps and Air Force tactical air control center. The pamphlet provides timelines and explains responsibilities for coordination of theater and ground-based ECM assets.

The Army's FM 100-5, *Operations*, describes how the Army will fight and support itself across a vast spectrum of conflicts. The manual addresses EW as a major functional area and rates it as a very effective force multiplier. FM 100-5 even addresses standardization between the services and our allies. It does not, however, address joint force tactics, procedural issues or techniques.

The latest FM 34-1, *Intelligence and Electronic Warfare (IEW) Operations*, expands on Army EW doctrine and includes a short chapter on joint staffs and operations. Under Army doctrine, the G-3 (operations officer) is responsible for offensive EW and the communications-electronics officer (CEO) is responsible for the defensive EW battle and frequency management.

Air Force Manual 1-1, *Functions and Basic Doctrine of the United States Air Force*, forms the foundation for electronic combat or EC (the Air Force term EC combines the term EW with most C³CM and SEAD). The Air Force considers EC a specialized task to enhance Air Force missions. According to Air Force doctrine, the air commander retains operational control and tasking authority over all EC resources. The manual recognizes joint combat operations involving use of the electromagnetic spectrum, but like the Army publication mentioned above, it does not spell out specific integration procedures.

Considering that the Air Force is more than 40 years old, one might wonder why Army-Air Force EW operations are still plagued by a lack of standardization and coordination. The numerous problems range from time-honored warfighting doctrines and organizational design for specific missions to differences in geographical scope and speed of operation. Another problem worth mentioning is divergence of EW definitions among the services, such as the Air Force's use of the term "electronic combat." EC is not incompatible with other service definitions, but the term has not yet been adopted by the rest of the Department of Defense.

Despite this divergence in terms and other joint type problems, there is, compared to other areas of military thought, a remarkable degree of congruence of thought among the services on EW concepts and doctrine. Though uniformity might help discussion at the staff officer level, the varying service terminology is a less significant impediment to understanding EW than the complexity of the topic itself. EW and C³CM are dynamic concepts and spheres of activity tied to the military's dependence on the fast changing technology of electronic dependent weapons and command and control. Thus, the very

complexity of EW is a major obstruction to cross-service standardization.

Battlefield Coordination Element

The TRADOC tactical publication, "Electronic Warfare Procedures for Employment in Joint Operations," defines the EW coordination staff at the Joint Headquarters. NATO AF Cent, AF North and AF South have joint EW coordinating staffs. COM-NORTHAG, a combined headquarters consisting of III Corps (United States) 1 Corps (Germany), 1 Corps (United Kingdom) and 1 Corps (Netherlands) has a joint EW center in the G-3. Although the above staffs basically provide the same functions as a BCE, at present there are only two formalized BCEs. These are located in XVIII Airborne Corps and in the Combined Forces Command in Korea. The Army BCE normally assists the tactical air control center (TACC) in the detailed planning and information flow, while the air support operations center coordinates mission planning schedules and general support requirements. The mission of the TACC is to control today's air battle while planning tomorrow's war. As part of the TACC, the BCE provides for exchange of current intelligence and operational data between air and land forces. The Army air ground system, consisting of the air support operations center at corps and tactical air control parties at battalion through division, handles information exchange. The BCE has drastically improved the services' ability to coordinate requirements for close air support and target nominations.

With proper manning, the BCE could also be the ideal place to coordinate joint EW operations; in fact, this is being attempted. In recent Blue Flag command post exercises, the intelligence representative in the BCE has attempted to coordinate cross-service EW requests. Lack of knowledge and training, however, sometimes resulted in less than optimum success. To make this concept work, the BCE requires at least one and maybe two additional personnel. The first is a CEO to manage frequency deconfliction. He would ensure that friendly jamming systems do not adversely affect critical friendly communications or collection operations. The other, and probably more critical BCE requirement, is for an electronic warfare officer (EWO) to make EW management decisions, coordinate planning efforts, and ensure that scarce EW resources are not competing for the same target.

This last statement brings up a major point. The targeting process is where the services can make money in implementing EW support for C³CM strategy and SEAD operations. Executing a C³CM strategy does not require overhaul of the traditional targeting process; targets supporting the C³CM strategy are an enrichment of, not an alternative to, other target types. Two actions are necessary to keep EW targeting in the mainstream of operations as opposed to an isolated activity in a parallel channel: adding an EWO and CEO to the BCE. An even better solution may be to make the EWO organic to the fire support element.

Planning Considerations

So what does this mean to a Joint Force Commander (JFC) as he prepares for combat operations? As previously stated, procedures for joint coordination of EW are still evolving, but practically speaking, JFCs and their EW staffs must consider, as a minimum, the following general planning factors:

- Incorporation of a C³CM strategy in theater plans, including development of target priorities and intelligence collections requirements. The JFC should designate a joint commander's EW staff (JCEWS) to advise and assist the JFC in the planning, coordinating and employment of EW systems to support joint military operations. He should include procedures for multiservice support requirements.

- EW mission assignment. The JFC tasks EW resources to most effectively accomplish his mission. He generally assigns highly specialized assets either to a geographic area or to a specific force package.

- EW task assignment. Although the JFC has operational control of all assigned forces, including EW assets, he normally exercises control through service component commanders. Each component commander makes excess EW assets available to the JFC for tasking in support of other components or the joint force as a whole.

- Apportionment of EW capable systems which are not organic to Service tactical forces.

- Establishment of component responsibilities for execution of EW operations.

- Establishment of procedures for coordination of jamming platforms, including frequency management, airspace management and other items requiring deconfliction.

In addition to considering these general planning factors, the commander and his staff must also plan specifics to effectively use all available EW assets. Two JCS documents are available to assist planners with this task: JCS Pub. 3-51.1, *Electronic Warfare Procedures for Joint Tactical Operations*, and JCS Pub. 3-13, *C³CM in Joint Military Operations*. Both publications provide additional guidance for planning and executing electronic warfare and C³CM strategies in joint operations.

In addition to the above JCS documents, the Joint Electronic Warfare Center (JEWEC), located at Kelly Air Force Base, has published four documents to assist planning staffs. The first, JEWEC JDD 1-84, *Joint Exercise Manual for Employment of EW*, comes in two volumes. Volume I is a planning and execution guide and Volume II is comprised of lessons learned from past exercises. The second document, JEWEC JDD 1-86, is entitled *Joint Task Force Electronic Warfare Planning Manual*. This publication helps commanders and staffs achieve compatibility, interoperability and operational effectiveness in EW. JEWEC JDD 2-87, *EW Frequency Deconfliction in Joint Operations*, gives recommended deconfliction procedures based on lessons learned from past exercises. The fourth document, JDD 1-87, *Joint Task*

Force C³CM Planning Manual, provides basic guidance and considerations for U.S. forces for developing and executing a joint C³CM strategy. Also, in the near future, the JEWC will publish JDD 1-88, *Electronic Jamming in Joint Operations*.

One other document worth mentioning is TAC/TRADOC's *Joint Suppression of Enemy Air Defenses (J-SEAD)*. It covers the J-SEAD concept and planning, coordination and requesting procedures.

The conduct of EW involves considerations of system capabilities, limitations, employment modes, synergistic effects, the threat environment and, most importantly, the objectives and priorities of the military operation. Each EW system has the capability to degrade specific hostile threats. Consequently, EW systems achieve optimum effectiveness when they are used in concert with each other at a time and place that results in maximum support for execution of the operation. To better illustrate this point, we'll next examine some of the actions and planning considerations that resulted in effective EW support for this article's opening scenario. Please note that in this scenario, Army assets accomplished SEAD in support of an Air Force mission. The Air Force could as easily have been supporting an Army mission.

Scenario Revisited

To start with, exploitation is the key to planning and execution. Commanders must coordinate operational intelligence needs with reconnaissance and intelligence collection systems such as Rivet Joint, Comfy Levi, TR-1, Guardrail, Quicklook and Sentry. This equipment must detect, identify and locate enemy air defense systems and C³ nodes in time for commanders to take appropriate action against critical targets. Once obtained, real time threat intelligence significantly aids in the planning process. Primarily, it shows EW assets where to focus their efforts during the mission. In addition, strike aircraft can avoid known threat concentrations and exploit terrain masking and weaknesses in enemy defenses.

The TACC, with its BCE, uses this recently interpreted intelligence to coordinate operations with the fire support elements, thereby optimizing each lethal jam acquisition, early warning, targeting and ground-controlled intercept radar to reduce the quantity and quality of enemy detection systems. In addition, Compass Call, Quickfix and surface-based systems jam air defense voice communications and other data links to degrade enemy C³. To accomplish their mission, EW platforms can either jam in a standoff mode or escort penetrating attack forces. At the same time, lethal systems such as artillery and attack aircraft suppress or destroy known, fixed ADA and C³ facilities.

The combined actions of all these systems force hostile firing batteries and airborne interceptors into less effective autonomous modes. Enemy surface-to-air defenses must then rely more on organic narrow beam radars for target acquisition and tracking and thus become more vulnerable to ARMs carried by aircraft such as the F-4G Wild Weasel. The same is

true of enemy fighters trying to find strike aircraft without close control vectoring. The task suddenly becomes much harder and they become easier prey for friendly fighter escorts under AWACS control. In addition, self-defense measures of individual friendly aircraft (chaff, flares and jamming) become more effective during the confusion generated by SEAD operations, resulting in less friendly losses and more accurate weapons delivery.

Conclusions

Lethal and non-lethal EW support can and has contributed to successful air operations while limiting friendly losses. In several recent, real world contingency actions, JFCs successfully coordinated joint EW resources and successfully accomplished their missions. Even in limited, short-term actions such as these, commanders need coordination procedures. In larger scale joint operations, however, EW coordination between the Air Force and Army is essential and will have to be specific, relatively simple and easily repeated.

EW targeting is a key issue and must be centralized into the mainstream of operations and not channeled into a separate process. The BCE, with augmentation, could be the place for the Army and Air Force to make this happen. Normal everyday coordination between electronic warfare officers and fire support elements is critical. In any case, wherever this coordination takes place, procedures must be practiced and verified now.

Joint force commanders may not have the luxury of developing procedures during a large, fast-paced war; they must be ready to act when required. As enemy air defense and command and control systems become both more lethal and more sophisticated, cross-service EW support of friendly joint military operations becomes more critical. To help minimize losses during future combat operations, JFCs must be knowledgeable of and prepared to effectively use all the EW assets at their disposal.

Lt. Col. Carl H. Puels Jr., a 1972 graduate of the USAF Academy, is presently Chief of the Tactical Air Operations Branch, Joint Electronic Warfare Center, San Antonio, Texas. He is a fighter pilot and a graduate of the Army Command and General Staff College.



NCO to NCO

What is an NCO?

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

Selecting the NCO as the Army theme this year is a great tribute to the Noncommissioned Officer Corps, and I am proud to be a part of it. Army leadership has expressed its most sincere appreciation for contributions made by the Noncommissioned Officer Corps and every NCO should take great pride in this most special form of recognition. But while we rejoice and celebrate the significance of this observance, let us also reflect on what it means to be a noncommissioned officer.

On your certificate of promotion it says in part: "Soldiers of lesser rank are required to obey your lawful orders. Accordingly you accept responsibility for their actions. As a noncommissioned officer you are charged to observe and follow the orders and directions given by superiors acting according to the laws, articles and rules governing the discipline of the Army, and to correct conditions detrimental to the readiness thereof. In so doing, you fulfill your greatest obligation as a leader and thereby confirm your status as a

Noncommissioned Officer of the United States Army." Being an NCO means this and more.

It means that in no other position can a soldier affect so many others. NCO positions carry with them a tremendous opportunity and challenge to mold junior soldiers.

It means that it isn't enough simply to know how to read a map, fire an M-16 or lay out a field site. Today's NCO must also understand that the young soldier has been weaned on television, videos and fast cars. NCOs must further understand that young soldiers consider these important and sometimes value them above being "all they can be" in the Army. We must positively motivate our subordinates to overcome these value conflicts and turn their desires to growth within the Army structure.

It means we are involved in every aspect of soldiers' lives. We are there to help their family members resolve problems, to help our soldiers with personnel and pay actions, to get vehicles operational, and to make sure the right

equipment has been issued. We are there when no one else seems to be able to help. Don't forget the youngsters living in the barracks. Make their job a little bit easier. Above all, we are the trainers who lead and drive mission accomplishment at the fighting levels of the Army.

It means that soldiers who wear NCO chevrons on their sleeves are role models. Courage, candor, commitment and competence aren't just words: they must be our way of life. Today's high-quality recruits are shrewd; they watch the performance of their NCOs very carefully. They note our every action, our appearance and our attitudes. They want us to show them by our actions that we are professionals. They expect us to present ourselves as leaders. Even in civilian clothes they expect us to carry ourselves as NCOs. By setting the example or the standard in every way, we can do much toward turning today's recruits into tomorrow's leaders.

It means being a mentor: tough when you need to be, but never failing to make every moment with your men a lesson in soldiering. The classroom is wherever you find it — the steps of the barracks, a motor pool or even the end of a bunk.

It means counseling all members of your platoon. (Counseling your platoon leader takes the form of guidance and suggestions, but it is counseling all the same.)

It means keeping abreast of such uncommon issues as budget cycles, family support matters, off-duty education and how current and future technologies are driving today's Army.

It also means we must understand our role and relationship with our officer leaders. We are the eyes and ears of our commanders. Everything is a team effort between officers and NCOs. We are responsible for training and developing individual soldiers skills and for working with officers to link individual and collective training.

It means we are safety experts. We have to know whether the sectors of fire are safe, whether sol-

diers should be riding in vehicles without restraint devices and whether there are weak swimmers in the platoon. We must make sure our soldiers know the proper misfire procedure for weapons and demolitions.

It means an NCO's responsibilities are legion. NCOs are responsible for practically everything the Army does. From providing day-to-day leadership to soldiers to ensuring that individual soldiers attain and maintain the required standards of proficiency that link soldiers' performance to unit missions. It is the NCO who must be certain of the soldier's ability to succeed in combat.

Being an NCO means we must train the way we will fight. We

must continue to instill discipline and we must grow the NCOs that will take our places: grow them to understand the great satisfaction of earning and holding the respect of soldiers, integrity, physical and moral courage and the ability to motivate by example.

This year's Army theme gives us the opportunity to assess where we are headed and where the NCO corps is strongest or needs work. It provides a chance to give soldiers a rare look at NCOs and how we fit into the Army of today.

Let us join forces and rededicate ourselves to the values that so many others who came before us established as the standards for the Noncommissioned Officers Corps.



Airborne Stinger

by 1st Lt.(P) Larry F. Forti III

The 82nd Airborne Division is the only division in the U.S. Army that can execute a forced entry parachute assault onto an airfield or port anywhere in the world. This forced entry mission is quick, violent and deadly, as the paratroopers of the 82nd Airborne Division are expected to seize major objectives within 30 minutes of landing.

The mission of the 3rd Battalion (Airborne), 4th Air Defense Artillery, is to provide timely low-altitude air defense for 82nd Airborne Division elements immediately following the forced entry parachute assault. To perform this mission the Stinger teams of 3-4th ADA must possess a system that shoots, moves and communicates at all times on the battlefield. The 3-4th ADA's problem of shoot, move and

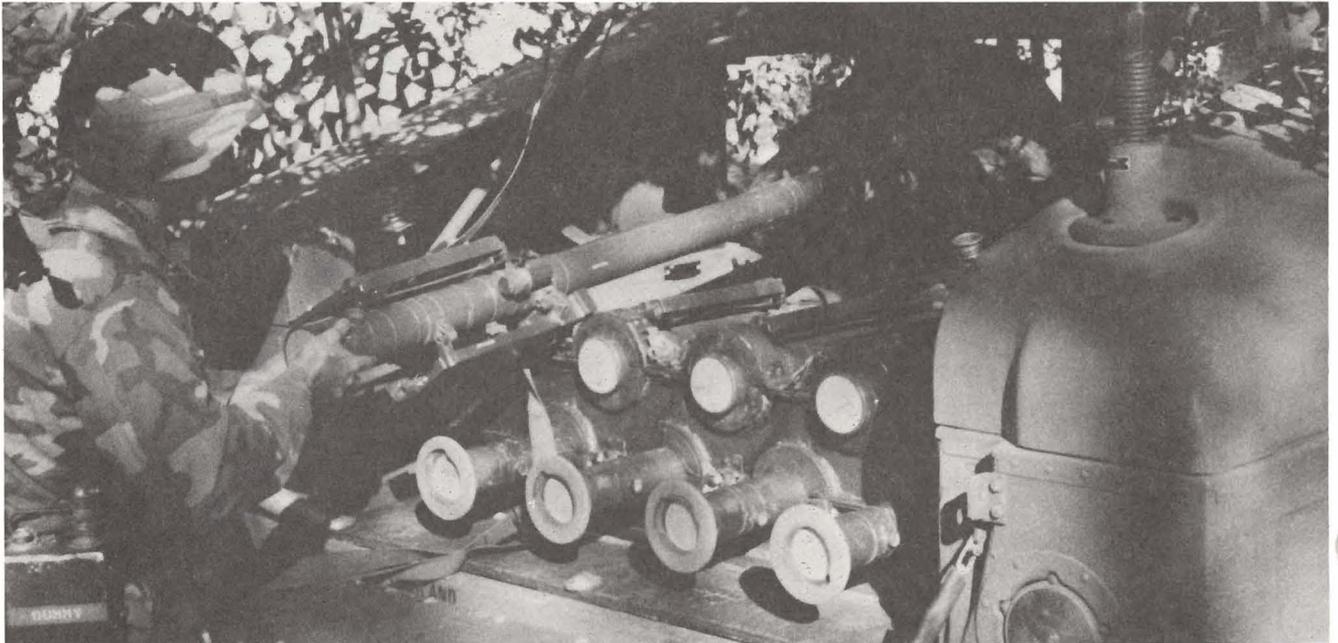
communicate was answered in late November 1987 by the introduction of the M-1025 Kevlar armored high mobility multipurpose wheeled vehicle (HMMWV).

The M-1025 armament carrier, combined with body armor and ballistic helmet, increases survivability by protecting the crew against low-velocity shrapnel or projectiles. The ballistic armor also protects the weapon systems inside the M-1025 against low-velocity projectiles. The M-1025 carries two AN/GRC-160 FM radios, one of which is secured by a TSEC/KY-57 cryptographic device. The M-1025 is a rugged, highly mobile and powerful vehicle capable of carrying up to 2,500 pounds of cargo and crew for a range of 325 miles.

Stinger missiles secured in the 3-

4th ADA "Stinger rack." The Stinger rack, made of high grade steel and aluminum, fastens to the bed of the M-1025. The rack holds four missile rounds on the bottom and four weapon rounds on the top tier. The Stinger missiles, once removed from their shipping and storage containers, are secured in the rack by quick release collars padded with a space-age foam for shock absorption and safety. During route or convoy defense, a Stinger ready-round rack is affixed to the front of the cupola of the M-1025.

The durable M-1025 HMMWV has proved to be much more of an asset to the 3-4th ADA than the M-998 HMMWV in several ways. An M-998 rigged for an airdrop with a basic load of six missiles was a nightmare on a drop zone,



because the cargo bed was not designed to effectively secure the bulky shipping and storage containers. Once the team secured their vehicle, they had to de-rig it and then reconfigure the entire load in a secure area to perform their mission. This time-consuming operation involved downloading and then uploading the cargo bed to provide access to the missiles. The M-998 also provided the enemy with a large silhouette on the battlefield. Its high profile gave it the appearance of a supply or command vehicle.

The M-1025 armament carrier provides operations security (OPSEC) for the Stinger team. The hardtop hides the Stinger missiles from the enemy and increases the survivability of the Stinger team. The Stinger team under armor can no longer be identified as a lucrative air defense asset, and will not be a prime target for artillery or ground forces due to the OPSEC advantage. Another key advantage is that the M-1025 has a much lower profile than the M-998. Both the lower profile and the armor protection greatly enhance the team's combat survivability rate.

One problem encountered with the M-998 was that the gunner could not secure his missile and ready it for firing in an ample

The Stinger rack... durable and combat effective

amount of time — exiting the vehicle, securing the “coffin” and drawing the round took too long.

The M-1025 not only solved this problem, it also increased the ratio of first-shot kills. For example, a gunner in the cupola has a ready-round in his possession at all times. As a hostile aircraft flies within range, the gunner only has to prepare the missile for firing and engage the target. Both the gunner and the team chief can then drive to a secure position. This engagement can be made without either team member leaving his vehicle. This deadly process also eliminates the quick reaction drill from a vehicle.

The Stinger rack proved its durability and combat effectiveness during the 82nd Airborne Division's Market Square II operation. Elements of the 3rd Brigade, 505th Parachute Infantry Regiment, deployed to Petersburg, Va., to conduct simultaneous seizures of two

airfields. Elements of C/3-4th ADA Stinger section deployed with the 3rd Brigade to seize the airfields.

The heavy equipment airdrop was sent in at 2350Z. Unfortunately, the M-1025 carrying the eight Stinger field handling trainers and tracking head trainers landed in a ravine about 300 meters from the drop zone.

After initial inspection of the vehicle and its cargo, the Stinger section removed the M-1025 from the platform and noted that there was no damage to the FHTs, the sensitive THTs or the Stinger racks. The Stinger section carried on their mission of protecting the skies for the 3rd Brigade.

The M-1025 HMMWV has accompanied the Stinger teams of 3-4th ADA on several field training exercises at Fort Bragg, N.C., and on deployments to Fort Drum, N.Y.; Fort Stewart, Ga.; the National Training Center at Fort Irwin, Calif.; and the Joint Readiness Training Center in Arkansas. Its reliability and combat survivability have greatly increased the capabilities of the Stinger teams of the 82nd Airborne Division.

Currently, all of our M-1025 Stinger vehicles are being fitted with Stinger racks. With a rapid deployment mission such as ours, we must be able to shoot, move and communicate at all times. The introduction of the M-1025 armored HMMWV and the Stinger rack's speed and ease of handling increase our chances of first-shot kills and combat survivability on today's lethal battlefield.

Upon final testing by the Army's Airborne Testing Board, the Stinger rack system will be deploying anywhere, anytime as part of the rapid deployment force with Stinger representing the air defense community as the “First to Fire.”

1st Lt. (P) Larry F. Forti was with 3rd Battalion, 4th Air Defense Artillery, when he wrote this article. He is presently assigned to the U.S. Army Air Defense Artillery School, Fort Bliss, Texas.



Sensors



Despite amazing technological advances, the soldier is still the decisive factor

The Human Element of FAAD

by Capt. Ruben Pena

The forward area air defense (FAAD) concept puts in the hands of air defenders an array of technologically advanced systems with which they can do their job superbly.

However, these state-of-the-art systems do not resolve an old dilemma: the shortage of resources to protect all assets from an increasing air threat.

A FAAD unit commander must protect the assets of the supported force that the enemy is most likely

to attack. To do this, the ADA officer must put the right number and types of ADA systems at the right place to protect the right assets. At the same time, he must keep in mind the counterair plan of the echelon above him to prevent lack of synchronization and to ensure unity of effort.

The air defender must make the decision on his own. No devices or software exist that can substitute for this human prerogative. The technology at hand can support

him, but cannot do the task for him. He must base his decision on two main factors: determination of air defense priorities and the defense planning process.

AD Priorities

If the end product of the process, the priorities, are wrong, you will defend an asset that the enemy will never attack, and you will leave the real threat objective without protection. When this happens it won't make any difference if you have concocted a superb defense planning process, picked out the best positions for the weapons, accurately analyzed the terrain and found the best air avenues of approach — the enemy will never come.

There is no doubt that the defense planning process is very sensitive; nor can there be any doubt of the importance of its end product. But what about the responsibility to accomplish the task? Either the air defense officer or the supported force commander (with the advice of the air defense officer) must accomplish this task. Experience indicates that this task is carried out by the air defender and approved by the force commander.

The most important factor in determining priorities is criticality. Criticality is the concept clos-



est to the force mission and, for this reason, to the force commander's intent. Who is the person closest to the commander's thinking? Who is the person who worked with the commander when he chose the course of action to be executed? His S-3.

The S-3 knows better than the air defender which asset is most critical to the success of the operation. The air defender can get valuable advice from the S-3 about which assets are most critical. On the other hand, the S-1 and the S-4 know the level and availability of supplies and personnel replacement. So from them the ADA officer can obtain data to analyze recuperability.

The air defender undoubtedly has the best information about the air threat. He knows enemy aircraft performance, tactical use and the doctrine of target selection. Knowledge of the air threat must be a specific requirement for air defense officers, especially those working with the supported force. This knowledge should include types of aircraft capable of carrying out missions inside the area of interest and influence of the supported force. It must include an awareness of the ordnance and armament carried by these aircraft and their doctrine of employment. For example, is the Su-25 employed for CAS mis-

sions? Is the MiG-27 employed to accomplish interdiction? The most important feature of the air threat is, perhaps, the reverse target value analysis.

As stated by the U.S. Army Counterair Operations Group Study Project, this step means that every friendly asset should be analyzed as a lucrative target for the air threat. In other words, the air defender should think as an enemy tactical air command center (TACC) target analyst. Of course, more data about enemy air is important to the air defender, but these other characteristics are more useful at the planning process.

I think the more important factors (not the most) in this process are criticality and the reverse target value analysis. The importance of the end product of this air defense planning process makes thorough staff work a battlefield imperative. The problem is to get across to the force commander and his staff how important the staff work is to the protection of the force.

Force commanders have a tendency (not all of them, of course) to lessen the air defense role in the AirLand Battle: the S-3 may have more important tasks than to discuss the criticality of each asset with the air defender. This trend must be reversed, and combat

arms officers must be convinced of the importance of the determination of ADA priorities to the success of the operation. The more the air defender knows about the air threat, the better his conclusion on what type of aircraft may attack each asset. In the same way, the more the air defender knows about how the combined-arms team fights, the better he can understand the commander's intent.

Defense Planning Process

Once priorities are determined they must be assigned ADA assets for their protection. The whole process is essential, but the key step is the analysis phase. A good analysis leads to a good allocation of resources. At this point appear mission, enemy, terrain, troops and time available (METT-T) factors. These are the variables which make each situation different.

No two situations are identical, and the only way to get a realistic picture of the situation is by analyzing the METT-T factors. With an accurate analysis the air defender can figure out all the requirements implied in the mission and how the supported force will fight the battle. He also can get a wide scope of the enemy's capabilities, how and with what aircraft

he will attack, and where he is likely to deliver each type of ordnance. The air defender must evaluate the terrain, how it will affect his operations and the air threat, and how weather will influence the operation. He also analyzes the availability of weapons, ammunition, fuel, repair parts and the unit strength and their morale. All this data is needed to carry out the next step, the design phase.

The more accurate the data gotten from the analysis phase, the better the design. In other words, a poor METT-T analysis leads to a poor and unsound design. The most dangerous mistake one can make at this phase is to adapt an unchanging mechanical process governed by habitual association and guided by a simplistic application of ADA employment guidelines and principles. Keep in mind that the best solution might not adhere to all the principles of the guidelines of employment. The key point is the protection of the force or the asset.

Commonly the ADA officer works out two likely solutions and then decides on one of them. During the evaluation phase he can analyze and then compare each solution against the enemy's capabilities. FM 101-5 states that the

best solution must fulfill the criteria of suitability, feasibility and acceptability. These are subjective terms. How do you know which solution is more suitable or more feasible? For example, compare the alternative solutions. There are a lot of tangible factors under which the courses of action can be compared. Some of these factors are:

- simplicity, principles and guidelines;
- protection of the force or contribution to achieve air superiority;
- defense design requirements; and
- enemy capabilities.

Each air defense commander can choose the factors he wants, but the one I believe should always be considered is how each course of action fits the protection of the air defense priorities.

In this day of amazing technological advances, the soldier is still the decisive factor. The determination of air defense priorities and the defense planning process are typical human brain-made products. The machine can obtain, compute and deliver data, but the decision is an exclusively human task. Many perceptions arise from consideration of the mission, the enemy, the terrain and own troops. These must be

evaluated within the entire context of the situation. Perception and context cannot be tactically defined and programmed into a computer. How a person perceives context is governed by experience acquired through training.

In the sensitive task of protecting those assets which will be attacked — and not others — with the best allocation of resources, two steps lead the way to the success or failure: the determination of priorities and the analysis phase. The ADA officer achieves the necessary level of proficiency both in the determination of priorities and defense planning process by training. The important point is not to know what factors to analyze; the key point is to know how to analyze those factors — either through combat experience or training.

The new FAAD system cannot do the task alone. It needs men with a high level of tactical proficiency to supply the best cost-efficiency ratio.

Capt. Ruben Pena, an officer in the Army of Uruguay, attended the ADA Officer Advanced Course at Fort Bliss, Texas.

FAAD System Fielding Schedule

Component	Contract Award	Hardware to Troops	First Unit Equipped
LOS-F-H	FEB 88	MAY 89	FY 92
NLOS	DEC 88	AUG 89	FY 93
LOS-R	AUG 87	NOV 88	APR 89
C ³ I	SEP 86	OCT 91	FY 93

FIRST ★ TO ★ FIRE NEWS

OBC Training

Officer Basic Course Class 11-88 at Fort Bliss, Texas, recently underwent a three-day field training exercise designed as an intense physical and mental challenge as well as an evaluation of leadership skills.

The three days of training consisted of four phases with operations conducted around the clock. The exercise included combat qualification with the M-16 rifle, NBC training, MANPAD skills, rappelling, land navigation, dismounted patrolling and offensive and defensive operations.

The 4th "Guardians" Platoon, under the guidance of group leader Capt. Hans Kruse, accomplished all assigned missions while maintaining a very high state of morale even in weather cold enough to freeze the water in canteens.

The "Guardians," eleven National Guard second lieutenants from seven states, are training in the SHORAD systems. These guardsmen represent a cumulative total of 77 years of reserve and active duty-service. They are proud of their National Guard membership and honored to serve as part of the U.S. Army's total force.

— 2nd Lt. Syd Isaacs

Knowledge is Power

The 2nd Battalion, 2nd Air Defense Artillery, 31st ADA Brigade's Officer Professional Development program emphasizes development of technical expertise in its company grade officers.

As the old saying goes, "knowledge is power." To provide more "power" to the platoon leaders of the 2-2nd ADA, a recent OPD was conducted on semiannual services of the Chaparral (M-730) carriers. During this OPD, the platoon leaders performed the actual 46 stages required to perform a semiannual service on an M-730 carrier. Torquing the final drives, lubricating the road wheels, checking engine fluids and replacing filters were just some of the tasks the young lieutenants accomplished.

"Reading about doing services is one thing, but actually performing the services provides young officers with a greater understanding of what their crews are supposed to be doing when they perform a service," said WO 1 Clifford Hicks, motor maintenance technician for 2-2nd ADA and instructor for the OPD class. 2nd Lt. James Hennessy, newly assigned as C Battery platoon leader, said, "By doing the actual service, I now know what to check and I feel more confident that the service has been

done correctly when the battalion conducts the QA/QC at the end of the service period."

With the platoon leaders acting as Chaparral crews, the OPD class took most of the day and was as informative as it was challenging.

"The intent of our OPD program is to grow our lieutenants technically and tactically," said Lt. Col. Howard J. Withycombe, 2-2nd ADA battalion commander.

"We've also had OPD classes on preventive maintenance checks and services on a combat utility cargo vehicle, a two-and-a-half ton truck and an M-113A2 armored personnel carrier. The payoff is in the confidence gained by our lieutenants that their systems can keep pace with the fast-paced training of the battalion."

Tacit Rainbow

The first air-launched U.S. Air Force/Navy Tacit Rainbow anti-radar missile launched from a B-52 aircraft completed a test flight Jan. 10 over the Naval Weapons Center test range at China Lake, Calif. The missile successfully homed in and attacked a radar emitter.

Another "first" was the use of a new rotary launcher built by Boeing Military Airplanes in Wichita. The rotary launcher is specifically designed to carry Tacit Rainbow tactical missiles inside the B-52.

The Tacit Rainbow program is managed by Aeronautical Systems Division (ASD) at Wright-Patterson Air Force Base, Ohio, a major product division of Air Force Systems Command, Andrews Air Force Base, Md.

Under full-scale development by Northrop Corp., Tacit Rainbow is one of a new breed of so-called smart weapons. The missile is designed to clear a safer path for tactical aircraft into land or sea combat areas by automatically attacking and disabling air defense radar warning and tracking systems ahead of the main strike force.

New Commands Designated

The Total Army Personnel Agency (TAPA) has been redesignated the Total Army Personnel Command (PERSCOM). It remains a field operating agency of the Deputy Chief of Staff for Personnel. In another change, the Army Publications and Printing Agency is now the Army Publications and Printing

FIRST ★ TO ★ FIRE NEWS

Command headquartered in Alexandria, Va. It is a major subordinate command of the Army Information Systems Command, Fort Huachuca, Ariz.

Hawk PIPs

The Hawk Phase III Product Improvement Program (PIP) is on schedule. The addition of digital technology, common microcomputers and BITE within major system components is expected to ease maintenance headaches, reduce repair time, replace data cables between radars and platoon command posts with field wire and make operations more reliable.

The Hawk Mobility PIP will incorporate digital electronics into launcher operations. Hawk crew members will be able to move launchers with missiles on board. Missile manipulator and crane integration will allow them to transfer one, two or three missiles at a time.

Stinger Sight

A forward-looking infrared sensor has been configured as a night sight for a variety of U.S. military weapons. The Hughes-built thermal weapon sight (TWS) has been adapted for use with Stinger missiles, machine guns, grenade launchers and all crew-served weapon systems.

The TWS, a development passive infrared sensor, uses a thermoelectrically cooled focal plane array that allows soldiers to locate targets and see at significant distances in battlefield conditions. It has a standard NATO weapons mount, and its telescope and reticle are easily changed to perform various duties.

Command, Control and Intelligence

Senior Army officials involved in the forward area air defense (FAAD) program have held several meetings to ensure the system's command, control and intelligence (C²I) components are deployed on time and will effectively coordinate the service's future air defense weaponry.

TRW's Defense Systems Group, Redondo Beach, Calif., is developing computer software that will process battlefield sensor data and distribute the information to the appropriate weapon systems for airborne target attack. The computer system is to be deployed in 1992. TRW has completed design of the operational software and has started writing the computer code for the system.

The program is one of five elements of the Army

Tactical Command and Control System (ATCCS), a multibillion-dollar program to develop command and control equipment ranging from air defense to fire control for forces at the corps level and below.

Sergeant York Goes Navy

The U.S. Navy is testing the rejected Sergeant York anti-aircraft system as a mobile radar tracking system. The Navy might acquire it as a surveillance system for other anti-aircraft weapons.

ADA National Guard

The U.S. Army National Guard continues to increase its air defense muscle with the activation of the following units:

- 6th Battalion (Chaparral)
200th ADA
Springer, N.M.
- 2nd Battalion (Hawk)
174th ADA
Athens, Ohio
- 2nd Battalion (Hawk)
265th ADA
Orlando, Fla.
- 2nd Battalion (Hawk)
263rd ADA
Anderson, S. C.
- 1st Battalion (V/S)
188th ADA
Grand Forks, N.D.
- 1st Battalion (MANPAD)
138th ADA
Lafayette, Ind.
- 1st Battalion (MANPAD)
202nd ADA
Kewanee, Ill.

The New Mexico battalion is the Guard's fifth corps Chaparral battalion. Arkansas is scheduled to activate a sixth in FY 91. The Ohio, Florida and South Carolina activations bring the total of National Guard Hawk battalions to four. The North Dakota unit is the only Guard unit to support an active component division. The Indiana and Illinois Stinger units are being activated as pure Stinger battalions as an interim measure until gun systems are available.

Lessons Learned

Prior planning and training at the home station plays a major role in overcoming potential obstacles — a tenet proven during recent rotations at the National Training Center (NTC), Fort Irwin, Calif. Four subject areas continue to play a large part in the success or failure of ADA units deployed to the NTC: multiple integrated laser engagement system (MILES) training, battlefield survivability, intelligence preparation of the battlefield (IPB) and synchronization. Each of these areas can make or break a unit at the NTC.

MILES Training

If you ask NTC opposing forces (OPFOR) units why they do so well in force-on-force engagements, they will point out three things: knowledge of the terrain, continuous field training and MILES equipment that works. While the first two advantages are gained by operations at the NTC, the last is not. MILES training is a must at the home station.

To be effective, MILES equipment must be properly installed, boresighted and checked out. Recheck the boresight whenever possible. The better the boresight, the more effective your system.

Successful units develop home station training plans that include aggressive MILES train-up programs. Waiting until a few weeks before deployment to the NTC or, worse yet, waiting until your arrival at the NTC, can only lead to failure. As one platoon leader stated recently in his NTC after-action review, "MILES equipment posed a problem for my personnel due mainly to unfamiliarity with the system." The references in the box below contain information on MILES training and installation.

TC 25-6	How to Plan, Prepare, and Conduct MILES Training
TC 25-6-4	Air Defense, Field Controller's Guide
GTA 25-6-13	Instructors' MILES Training Guide, Chaparral System
GTA 25-6-14	Instructors' MILES Training Guide, Vulcan (Towed)
GTA 25-6-15	Instructors' MILES Training Guide, Vulcan (Self-Propelled)
GTA 25-6-16	Instructors' MILES Training Guide, Stinger
TM 9-1265-201-10	Operators Manual, Simulator System, Firing, Laser: M-75, Vulcan Weapon System, SP
TM 9-1265-207-10	Operators Manual, Simulator System, Firing Laser: M-66, Vulcan Weapon System, Towed

Employ reverse slopes as much as possible and camouflage frontal parapets for individual and or crew positions. This avoids the obvious bunker positions easily seen and destroyed by direct fire. Vulcan squads and Stinger teams may find that this technique not only extends their lives on the battlefield, but also often provides a much more effective firing position.

Practice digging in at the home station — it's better to learn from your mistakes here than on the battlefield. This includes the use of heavy equipment. Learn how the task force and engineers work, who sets priorities and how to get included in them. The task of building fighting positions lends itself to excellent NCOPTD, OPD or concurrent training.

... and therefore I say, "Know the enemy, Know yourself; Your victory will never be endangered. Know the ground, Know the weather; Your victory will then be total."

— Sun Tzu, The Art of War

Battlefield Survivability

One phrase summarizes the key factor in battlefield survivability: "Dig In — What is seen is killed." Today's battlefield is too lethal for unprotected vehicles or personnel to survive. This becomes a critical task for lightly armored Vulcans and unprotected Stinger teams. Recent NTC experiences show that, while the average task force is able to dig in 56 vehicles, only 14 battle positions are effective.

One of the most immediate tasks when occupying a position is to dig in. Consider the guidelines below when constructing fighting positions with overhead cover.

Time Required

4 to 6 hours to dig hole — based on soil conditions
2 to 4 hours to construct overhead cover
6 to 10 hours total time required

Material Required

250 sandbags
19 to 20 engineer pickets
Mattock, pick, shovel and axe

Use natural terrain features to your advantage. Aggressively fight for a share of engineer assets. Use of engineer bulldozer support or tank blade support is a must. A hull defilade position can dramatically improve survival from attacks by direct and indirect fire weapons.

Get out in front of your fighting position and observe it from the enemy's perspective — the farther out the better.

Successful squad leaders fight from fighting positions, not buttoned up inside the track. Their advice includes comments such as, "Keep the ramp up" and "Be ready to move." Remember, squad leaders can see the battle better from a fighting position.

Intelligence Preparation of the Battlefield

Today's family of air defense weapons has fundamental strengths and weaknesses. Success on the battlefield depends on capitalizing on these strengths and minimizing the effects of the weaknesses. IPB is the key to success. While the task force S-2 is the lead player in IPB, the ADA leader must be involved in the process.

Know the task force commander's intent. The cornerstone for ADA planning is to know the commander's intent for the mission. This drives the entire planning process.

Develop air avenues of approach. Evaluate potential enemy avenues of approach by considering air space requirements and concealment from ground observation. The size of an air avenue of approach will vary based on the potential threat. Develop avenues of approach based on types (fixed-wing, rotary-wing) and number of aircraft.

Review avenues of approach from the pilot's perspective. How would they attack to minimize their exposure to ADA defenses?

Pilots need recognizable terrain features when navigating at low altitudes. This is especially true at the NTC. Terrain corridors, passes and key landmarks become invaluable aids in planning defenses.

Use event templates. Identify probable enemy courses of action, both air and ground. Then compare friendly courses of action.

Using the commander's intent, air avenues of approach and event templates, wargame your air defense plan. Discard courses of action that fail to completely support the commander's intent. Then select the air defense plan that best meets his intent and

provides him with the necessary freedom of action. Don't get caught in a "one plan fits all" situation.

"to git thar fust with the most men"

— Nathan B. Forrest, Lt. Gen., C.S.A.

Synchronization

FM 100-5, *Operations*, lists "concentrate combat power against enemy vulnerabilities" as a basic AirLand Battle imperative. Perhaps no other item plays such a critical role in the success of an ADA unit at the NTC. Experience shows that the unit that can place the bulk of its combat power into the battle is the unit that succeeds. This means that successful air defense leaders have three responsibilities.

Eliminate or reduce maintenance failures. Having two of four Vulcans and three of four Chaparrals operational reduces opportunities to influence the battle.

Use IPB techniques to ensure all air defense assets are brought to bear. In the offense, ensure ADA coverage is there during critical events. Successful units know where and when the fight will be, and are there with ADA support. Unsuccessful units find their systems destroyed piecemeal, or out of position and unable to support the main effort. In the defense, dig in and be prepared for flank attacks.

Defeat the enemy and return. Battlefield survivability is critical. Each battle is an event and, like actual combat, when you're dead you're dead. Limited air defense assets must be employed so that they provide the ground commander with the necessary freedom of action for today's and tomorrow's battle.

If you would like to share your unit's NTC or JRTC experiences, tips or lessons learned, contact Maj. Ted Jongbloed, AV 978-5721/3895.

Mark XV IFF

The Towson Division of Allied-Signal Aerospace Company of Baltimore, Md., was awarded a multibillion dollar contract for production of the military's Mark XV equipment to identify "friend or foe" aircraft. The Allied-Signal plant, also referred to as the Bendix Communications Division, will team with Raytheon Company of Lexington, Mass., on the contract.

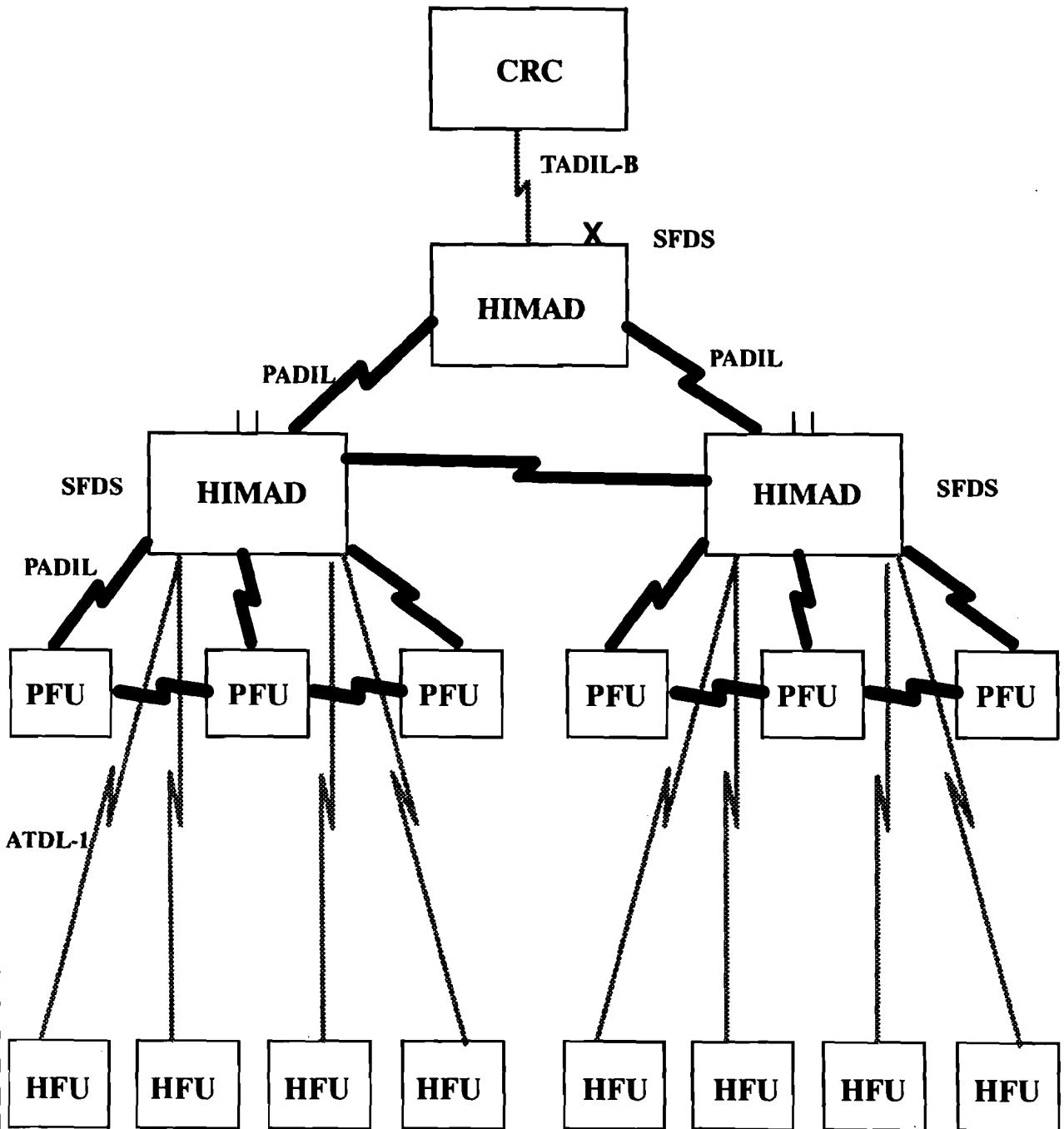
The aircraft identification system now used in NATO is the Mark XII identification, friend or foe (IFF) question and answer (Q&A) system. An interrogator sends a radio signal to the aircraft being "questioned" and a Mark XII-equipped aircraft "answers" with the correct reply. This information is then correlated with data from a radar.

The Mark XII IFF system has not kept up with recent changes in weapons and radars. As radars become more accurate at longer ranges, the accuracy and range of Mark XII IFF become limiting factors. Consequently, the chances of incorrectly identifying aircraft increase.

A careful study identified the need for an identification system that would provide a secure, autonomous capability for identification of friendly platforms in the air or on the ground in both benign and electronic countermeasures (ECM) environments. The system chosen must be compatible with the Mark XII IFF currently in use as well as with the future Mode S, the Air Traffic Control Radar Beacon System (ATCRBS) and military air traffic control (MATC) functions. It also must provide both positive friend identification and military and civil air traffic control (ATC) capabilities. Most importantly, it must be able to identify friendly targets with an extremely low probability of the enemy exploiting either the interrogation to or the reply received from a friendly aircraft or ship. The Mark XV IFF met the need.

Mark XV IFF operates in D-Band using a spread-spectrum waveform that is inherently jam resistant. By changing the operating frequency, the Mark XV system can avoid large concentration ECM. All branches of the U.S. military will use the Mark XV IFF, which is compatible with the aircraft of NATO nations.

BATTALION LEVEL HIMAD MIX



 TADIL-B or ATDL-1

 PADIL

AADCOM, we have formulated an EAC communications modernization plan which, when programmed, will keep ADA in step with the rest of our Army. With a little luck, we will field a command control center for both Patriot and Hawk to support Europe's "cluster" concept in about 1992. A prototype of the automated command post has been wrung out at Fort Bliss and will be fielded and field-tested by the 10th ADA Brigade this summer.

The ADA Modernization Plan is nearing completion. With its approval, we hope by early fall, our road map for the future will be solidly in place.

On the strategic force side, ADA will continue to be the Army's link to SDI and "Star Wars." The Army has received the anti-satellite (ASAT) mission and the project manager is an ADA brigadier general. If SDI continues to be funded at healthy bites, we in ADA will be at the table receiving and contributing our fair portions.

Formulation of Doctrine and Organizations

An absolutely essential part of keeping our branch vitality is doctrine that is in step with how our Army intends to fight the AirLand Battle. Our Army doctrine is changing. The thrust is on fighting deeper and increasing the role of the corps. Our ADA doctrine must keep pace — and it is.

Another key doctrinal area is supporting our new systems fielding. For example, PMS without some how-to-fight doctrinal base and association tactics, techniques and procedures will never realize its full potential.

What we have not been doing well is updating our fielded systems, especially in the HIMAD arena. For example, updated doctrine on fighting Patriot and Hawk together is long overdue. Much to their credit, the 32nd AADCOM has taken up the challenge and has done some super work in this area. The best excuse

is no excuse. Our doctrinal plate runs over.

On the organizational side, FAAD is basically sound. While we may field initially with fewer ADATS (24 vs. 36), FAAD will support our divisional force. At the corps level, we've made some progress with the decision to begin corps ADA brigade fielding in 1991 in both V and VII Corps. The exact build-up rate will be a function of budgets and modernization rates, but we are getting started. The 31st Brigade at Fort Hood is living proof that within two years a corps ADA brigade can be formed and make a substantial ALB contribution.

We have some way to go in integrating Patriot and Hawk, and integrating Patriot at the corps level. Composite Patriot and Hawk battalions are a must, and we must push hard in that direction. A composite Patriot/Hawk battalion as a part of the corps ADA brigade is essential. Work is ongoing at Fort Bliss to lay th

ADA PUBLICATIONS

EAC

ASAT
ADA Brigades
Composite HIMAD Bns

FM 44-80
Series
1990-1992

BRIGADE

Heavy
Light & Special
ACR & Separate Brigade

FM 44-50
Series
1991-1993

CORPS

Corps ADA Brigades
Composite HIMAD Bns

FM 44-70
Series
1989-1991

BATTALION

Heavy
Light & Special
ACR & Separate Brigade

FM 44-40
Series
1989-1990
1993

DIVISION

Heavy
Light & Special

FM 44-60
Series
1990-1993

COMPANY

Heavy
Light & Special
ACR & Separate Brigade

FM 44-30
Series
1989-1993

foundation for these composite organizations.

Development of Future Leaders

Your schoolhouse at Fort Bliss is truly the center for excellence. The gains made in recent years through such innovations as small group instruction have paid us big dividends, but the investment has been substantial. The "Leader Development" chart shows what "input" and "output" gains have been made.

My second biggest concern — the schoolhouse budget — has dropped by more than one-third over the past two years. The picture ahead promises even fewer resources. The challenge is retaining this center of excellence even in a time of decreasing resources. To do anything less is unacceptable as it mortgages our branch's future.

Your schoolhouse will continue to be the place where it's done and taught right. The challenge of the

field is to sustain this excellence which, by the way, is pretty much being done today!

Challenges for the Future

So what are the challenges we face? Let me tick them off in rapid fashion to ensure they hit home and are retained for focus:

- Retaining quality soldiers in an environment of reduced dollars. A challenge both from a training and soldier/family care perspective. A challenge that must be met. The one ingredient that above all else makes our Army and branch special.

- Providing a viable NCO career progression. Especially a challenge at grade E-7, but must be met if we are to retain quality NCOs.

- Fielding planned modernization systems. The next year with intensive testing is especially critical. Because ADATS is perceived as the Sergeant York successor (although, in fact, the FAAD system is), we will get a lot of "help" from agencies outside the Army.

- Making Patriot/Hawk composite battalions a reality. NATO is generally resistant to change, which is not all bad. We need to show our NATO brethren the value of composite battalions both at the EAC and corps levels.

- Fielding and using C³I improvements. A whole new world that our youngsters will relish. Field grades on up will have the hard adjustments. The potential is here for revolutionizing how we fight, and how efficiently and effectively we fight.

- Retaining our combined arms focus. As a branch, our focus now is ALB. As "Star Wars" and systems like ASAT gain momentum, their glamour may cause us to lose this focus. We must capitalize on these strategic gains but still remember that the Army, while a strategic asset, is a tactically-oriented force.

I have no doubt that with the quality force we have today these challenges will be met. But some perspiration will be required!

ADA MODERNIZATION AZIMUTH

CONTINUE TO PROCURE & FIELD CURRENT SYSTEMS

EMPHASIZE CURRENT SYSTEMS P³I

- Provide capability requirements to materiel developer — PEO
- Focus tech base to Year 2000+ threat & doctrine — LABS

MODERNIZE FORCE BY THIRDS (FORCE PACKAGES)

- Deployed
- Follow-on forces
- D + 30

TRADE OFF CAPABILITIES ASSUMING HISTORIC LEVEL FUNDING (No growth in ADA \$\$)

ENSURE CONSISTENCY WITH COMPETITIVE STRATEGY CONCEPT

- Leverage technology to counter Soviet air strengths

Vision for the Future

So where does this bring us as a branch through the year 2000? Yogi Berra stated: "Predicting the future is risky business as it changes." But that never stopped me before! My vision for ADA:

- A growing importance in heavy force ALB execution. The multi-mission role of FAAD components will expand. HIMAD composite battalions will be an integral part of the corps structure and link to other functional areas (e.g., counterfire). HIMAD units at EAC will form the basis for a substantial TBM defense which will support a

national strategy much more dependent on CONUS reinforcements.

- Increased reliance by light forces on ADA. The Afghan model, expanded, will dominate. MANPAD systems will continue to be a dominant force on the light force battlefield. However, because of our increased capability in the anti-tank arena, our multimission contribution will grow.

- A growing role as the Army's strategic link. The changing national strategy, with increased reliance on CONUS-based forces, will drive derivation of a credible ATBM. ASAT and the necessity to deny enemy access to our strategic

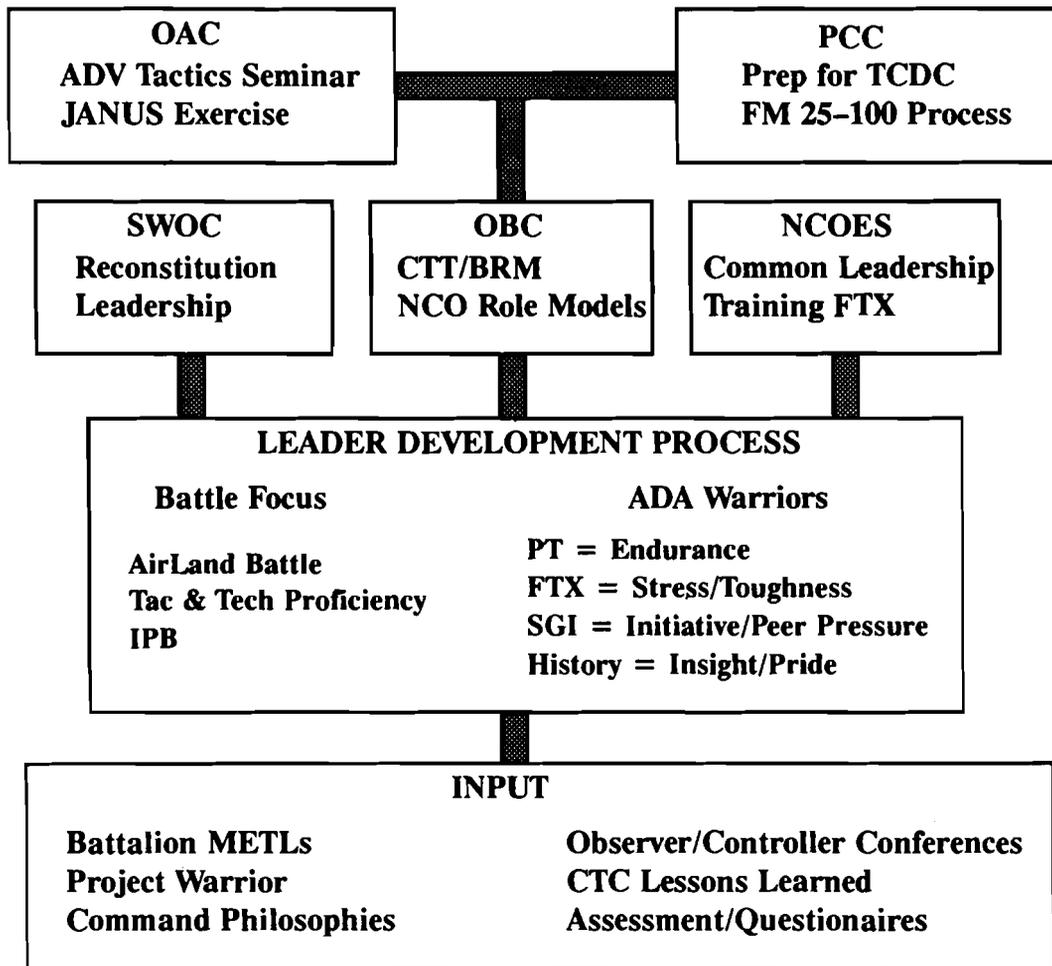
forces will drive ADA to become the Army's strategic link to SDI.

- The ADA warrior — more generalized and more specialized. Generalized in their ALB contribution and the role we will play. Specialized in the materiel acquisition process where we will be the masters of our own destiny. NCO promotion rates exceed Army averages! In all cases, the ADA warrior will be several cuts above!

A big honor being your branch chief. Thanks for your support. I have no doubt ADA will continue to grow in importance in our Army. The quality of our soldiers will ensure that to be the case.

First to Fire!

ADA LEADER DEVELOPMENT



Battle focus and small group instruction are producing tactically and technically proficient ADA leaders who possess the confidence to lead.

ADA Commanders' Conference

A dramatic roll-out of forward area air defense (FAAD) weapon systems highlighted the 1989 ADA Commanders Conference. "When you criticize the military procurement system," Maj. Gen. Donald R. Infante, chief of Air Defense Artillery, told assembled ADA commanders, remember that four years ago these weapon systems you see before you were nothing more than a vu-graph."

The June conference drew approximately 300 ADA commanders from units around the world to the U.S. Army Air Defense Artillery School, Fort Bliss, Texas.

In his keynote address, which kicked off the three-day conference, Infante credited quality recruits rather than innovative weapon systems as the branch's most important assets. "You know and I

know that the most important difference in the Army over the past 10 years has been in the quality of personnel." He predicted however, that demographic trends would soon force the Army to make due with lower quality recruits and urged commanders to launch aggressive re-enlistment programs designed to retain quality soldiers already in uniform.

During the hour-long address, which covered much of the same ground as his "Intercept Point" column in this issue of *Air Defense Artillery*, Infante, who is scheduled to step down as chief of branch later this summer, left his successor and air defense artillerymen with five challenges: retain quality soldiers, establish a viable NCO career progression, field planned modernization systems, field and use C³I im-

provements, make composite high-to medium-altitude battalions a reality, and retain and improve the branch's combined arms focus.

The ADA commanders, who awarded Infante with a prolonged standing ovation for his four years of achievements as branch chief, were clearly pleased with progress reported in training, doctrine, tactics and system fielding. They were just as clearly concerned with the personnel turbulence generated by MOS deletions and consolidations. Of particular concern was the plight of MOS 16H soldiers who stand to lose promotion points in their transition to MOS 16T. Infante pledged to search for "an equitable solution" to the 16H problem, but encouraged commanders to accept "turbulence" as a necessary and normal condition.



The non-line-of-sight component was one of five FAAD system components on display at the ADA Commanders' Conference. Also on view were the line-of-sight forward, line-of-sight rear and C³I components. An M-1 tank and a Bradley Fighting Vehicle represented the combined arms FAAD initiative.

COMING IN THE NEXT ISSUE . . .

**THE YEAR OF THE
ADA NCO**
