AIR DEFENSE ARTILLERY

ADA in the Middle East

SUMMER 1985

AIR DEFENSE ARTILLERY

U.S. ADA and the Tumultuous Middle East . . . 19

One of the world's most volatile regions, the U.S. Central Command's 19-nation area of responsibility offers unique challenges to U.S. forces. "U.S. ADA and the Tumultuous Middle East," a 13-page section beginning on Page 19, explores the training and readiness tasks facing air defense artillery units. *Air Defense Artillery* wishes to acknowledge Lt. Col. David H. Burpee, Public Affairs Office, U.S. Central Command, MacDill AFB, Fla.; Maj. James E. Paige, Office of the Deputy Chief of Staff for Personnel, Washington, D.C.; and the command and staff of the 11th Air Defense Artillery Brigade, Fort Bliss, Texas, whose assistance made the "ADA in the Middle East" section possible.

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Intercept Point

In my last "Intercept Point" before I retire from the Army, I want to present to you a candid overview of our branch. My perspective comes from 31 years of service, including nearly 10 years in the Pentagon and nearly 10 years in command of air defense artillery organizations from platoon through the U.S. Army Air Defense Artillery Center.

Modernization

The modernization of Air Defense Artillery is proceeding at a rate and a level of quality unequaled by any other branch.

- Patriot is fielded in Europe and is doing very well.
- Hawk's worldwide operational readiness is the best ever; Phase II improvements to Hawk are being fielded now, and Phase III improvements are about to be tested.
- Nike-Hercules is gone from our forces except for our continuing support of warhead detachments with allied units. The support mission will continue for many years in Greece and Italy, but will wind down in Germany as our allies there adopt Patriot.
- A single Roland battalion is now formed at Fort Bliss' McGregor Range. Manned by full-time active duty National Guardsmen, the battalion will be complete within a year and will then be fully ready for Rapid Deployment Force missions.
- Chaparral continues to be improved with the FLIR, and further improvements are coming to the missile.
- Sergeant York has done very well in the extensive operational testing just completed at the behest of the secretary of defense. The final numbers are not yet available, but I expect those analyses to result in the resumption of support for the Sergeant York program.
- Product improvements for the Vulcan Air Defense System (PIVADS) has undergone testing at Fort Bliss; the results are not yet available. In addition to the PIVADS modifications, the Army vice chief of staff has agreed to put Stinger on the Vulcan.
- Stinger continues in large-scale production with improvements to its guidance system firmly programmed.

This comprehensive roll call of modernization describes the sweeping changes which are occurring in Air Defense Artillery. To reinforce these changes, we have produced state-of-the-art training devices, buildings to house them and other instructional facilities at Fort Bliss. These support items were timed to be available when needed. Air Defense Artillery modernization, while not textbook perfect, has been the best managed in the Army. We can be very proud of our record in this complex area.

Major General James P. Maloney

Force Structure

Force structure continues to present significant challenges to our branch. For years we have not had enough ADA weapons to support the maneuver force and the Air Force. This shortfall will be somewhat alleviated as we create corps ADA units, but it is not programmed to be fully rectified. We will continue to need army-level ADA units which might be used for such missions as seaport defense, defense of important lines of communications and defense of airfields. The latter shortfall has been formally recognized by the Army and Air Force chiefs of staff, but, unfortunately, no new force structure or manpower authorization has been programmed to correct this problem.

A continuing challenge to ADA force structure will be presented by the light divisions whose concept of operation often mistakenly assumes a minimal or non-existent air threat. We must continue to point out to decision-makers the true proportion of the air threat, especially in Third World countries. We must resist the understandable urge to take ADA out of the light divisions.

The study of whether Patriot should be transferred to the Air Force is still underway. I believe Patriot should remain in the Army. I cannot imagine why taxpayers should spend hundreds of millions of dollars to transfer Patriot to the Air Force, who, after several years, could probably operate Patriot as well as, but not better than, the Army does now. In addition, it is foreign to the Air Force to move, shoot and communicate in the muddy-boots environment of the Army in the field. But I do not mean to suggest that the issue lacks merit. The issue is one whose study should yield many insights, and, it is hoped, put to bed a long-popular but, I believe, incorrect notion.

ADA Clout

This brings me to a concern abo ADA representation at several le within the Army. We are a small branc becoming well-equipped with high-technology weapon systems. This gives our manpower great leverage on the battlefield. We are efficient. But our small size has some drawbacks: our organization in our divisions is battalion-size. We do not have a full colonel in any division. This creates a built-in difficulty when it comes time to select assistant division commanders and division commanders. Selection boards are understandably reluctant to recommend brigadier general candidates who have not served in divisions as colonels. Because of this mindset, our influence with the Army's divisions is not as great as it ought to be. This is particulary distressing since our battalions are often best in the division. The answer? I don't have an answer to this vexing issue. A division ADA artillery organization would be the perfect solution but is not possible in these times of small divisions. I leave this one for my successors to solve.

We are also under-represented in Pentagon, and this undermines ou ability to influence actions there. There are no ADA general officers assigned

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On Track

Master Sergeant Conrad Hauser turned down a commission in 1971, the year he returned from his second tour in Vietnam. "They tell me that an officer's job is to impel others to take the risk so that the officer survives to take the blame in the event of total catastrophe. With all due respect, sir . . . if that's what an officer does, I don't want any part of it," he said.

Hauser, if you don't recognize the name, is the acting top kick of the "G.I. Joe Team," the series of toy soldiers that's been popular with children since World War II. I noticed recently that the olive-drab figurines are still best sellers in the PX toy department. There aren't any officers in Hauser's plastic Army. That's because the buying public prefers its heroes to wear stripes instead of bars. In American fiction, it's always been NCOs, from Sergeant Rock of the comic books to Cpl. "Radar" O'Riley of the irreverent television series *M*A*S*H*, who have been the ones who get things done, the ones who are really in charge.

The public's concept of the officer-NCO relationship might be a little unfair. Soldiers who have experienced real combat know that an officer's real job is to lead; not compel others to take risks, but NCOs, not officers, have always been the heroes of the working class. Knowing that is one of the good things about being an NCO.

So, I was happy to discover that NCOs are still in charge at the toy department because I'm not so sure that NCOs are still in charge at the barracks.

I often hear NCOs complain that they are no longer in charge because the Army has stripped today's NCOs of their authority. But that's a myth. NCOs have the same authority that NCOs had in the "Old Army." The rules are the same; it's only our perception of the rules that has changed.

We work with real soldiers instead of toy soldiers, and I'll grant you that makes our task considerably more difficult than Hauser's; but we have the authority we need to get the job done. The problem is that too many of today's NCOs have spent too much time listening to "barracks room lawyers." They're no longer sure of their authority. They've forgotten how to give an order and seem to feel they've been done a favor when an order is obeyed.

CSM Frederick T. Stafford Jr.

But the authority is still there. The NCO's authority comes directly from the Constitution, which is the same as saying it comes from the American people. Congress, realizing that discipline and order must be maintained amid the chaos of the battlefield, saw fit to further protect the authority of the NCO by enacting the Uniform Code of Military Justice. The UCMJ is a document written by civilians, not by soldiers, but it recognizes that the Army is a specialized environment in which soldiers must surrender many of their individual liberties and in which insubordination cannot be abided. The provisions of the UCMJ have been upheld by the U.S. Supreme Court, and they make it illegal for a subordinate to disobey a legal order from an NCO or show disrespect to an NCO.

What's a legal order? It's anything that you, as an NCO acting in the line of duty, tell a subordinate to do unless it's blatantly illegal, and to be illegal, it's got to be awfully blatant. The law is on your side. An order, to be legal, doesn't have to be accompanied by magic words the way the barracks room lawyers claim. For example, you don't have to say, "Private Jones, I'm giving you a legal order to go to the motor pool and pick up a truck." It's enough to say, "Private Jones, go to the motor pool and pick up a truck." In fact, it's a better order than the first because it doesn't perpetuate the myth that orders, to be legal, have to be issued in a certain fashion. It might be better to say, "Private Jones, go to the motor pool *now* and pick up a truck" because that's more precise.

Whatever you do, don't say, "Private Jones, would you mind dropping by the motor pool and picking up a truck," unless you're prepared to say, "Private Jones, would you mind picking up your rifle and assaulting that machine gun nest?" This type of order perpetuates the myth that a soldier is doing an NCO a favor when he obeys an order, and in combat you're going to have to tell soldiers to do things you wouldn't ask as a favor.

What is disrespect? It doesn't have to be name-calling. It can be an expression or a tone of voice, and you're not doing yourself, the soldier or the Army a favor if you put up with it.

Do you need a witness in order to bring charges against a soldier who disobeys an order or shows disrespect? The barracks room lawyers say you do, but the fact is that you don't. It's your rank, your reputation and your credibility against the soldier's rank, reputation and credibility. The officers and NCOs involved in an Article 15 or court-martial proceeding will use common sense in deciding who's telling the truth.

I'm not saying that I want to see more Article 15s and court-martial proceedings. In fact, too many Article 15s and courts-martial are a signal that too many NCOs have believed the barracks room lawyers when they said that NCOs have no authority to order corrective training for soldiers who get out of line. Corrective training must be related to the deficiency you are trying to correct, and it can't be designed to punish or humiliate a soldier, but it can be used to assert your authority, instill discipline and make a poor soldier a better soldier.

Our authority is drawn from the Constitution, it's embedded in the UCMJ and it's spelled out in AR 600-20, FM 27-1 and DA Pamphlet 27-18. It's time we reread them. It's time for us to reassert our full authority, take charge and lead this Army of ours to excellence. ✶

1/55 ADA Tastes Red Dawn

by PFC Dan Andrews

There's nothing like a breakfast of brown bread and water after cold, wet and grueling PT. Just ask the soldiers of D Battery, 1st Battalion, 55th Air Defense Artillery, Fort Polk, La., who recently participated in the battery's Opposing Forces (OPFOR) Day.

The battery's objective was to prepare for its upcoming rotation at the National Training Center (NTC) at Fort Irwin, Calif., according to 2nd Lt. Charlie Hester, 1st Platoon leader.

"We had classes on Soviet offensive operations, rear threat area and Soviet air power. Then, after lunch, we had weapons training. We learned to identify, repair and operate Soviet weapons. Finally, we visited a T-54 Soviet tank and pulled preoperation checks on it," he said.

"The idea is that if we were on a battlefield, we'd be able to use any weapons we might find," Hester said.

An OPFOR squad of intelligence analysts from the division support element platoon of the 105th Military Intelligence Battalion conducted the classes. The OPFOR mission, according to SSgt. Scott Bailey, OPFOR section NCOIC, is to provide the division units with realistic ideas about Soviet capabilities and limitations. "One of the ways we meet that mission is through OPFOR Days, which include Soviet-style PT, Soviet-style breakfast and lunch, classes and weapons instruction," he said.

PFC James Hollis takes a look at an RPG-7 Soviet anti-tank weapon. (Photo by PFC Dan Andrews)

Pvt. 2 Tim Maynard, left, an OPFOR instructor, shows SSgt. Michael Blair the intricacies of a Soviet PK machine gun. (Photo by PFC Dan Andrews)

"It's a pretty good resemblance of the typical Soviet schedule, except the Soviets train until 10 p.m.," Bailey said. "We get our ideas from the Defense Intelligence Agency manuals, Field Manual 30-102 and civilian publications."

Other ways the section meets the OPFOR mission are by showing slide presentations provided by Red Thrust, a detachment from Fort Hood, Texas, and by demonstrating live fire with Soviet weapons.

"Our Soviet weapons originally came from various conflicts. Our T-54 was captured during the 1973 Arab-Israeli War. One of our AK-47 rifles came from China. In 1981, Romania sold the U.S. a lot of weapons. All of our foreign weapons were first checked at Aberdeen Proving Ground, Md."

Ideally, the OPFOR team visits each battalion that is participating in the upcoming NTC rotations and teaches one company per battalion how to act as the OPFOR. This company then teaches the rest of the battalion, Bailey explained.

"At the NTC, a battalion of specially trained infantrymen acts as a Soviet motorized rifle regiment. We provide the awareness, and NTC provides the experience," Bailey said.

1/4 ADA Earns Annual World Readiness Award

by Capt. Robert B. Bowling

The Holgar N. Toftoy Award for the most improved missile equipment readiness unit in the world was presented, in April, to the 1st Battalion, 4th Air Defense Artillery, Fort Lewis, Wa.

The award was presented to Lt. Col. Robert L. Ford, battalion commander, who then passed it to CWO 3 Roland Mata, the electronic missile maintenance officer and the representative for the professionals of 1/4 ADA.

The award was brought from Redstone Arsenal, Ala., and was presented by Brig. Gen. John S. Drosdeck, deputy commanding general for Procurement and Readiness, U.S. Army Missile Command.

The presentation was followed by comments from the guest speaker, Lt. Gen. Joseph T. Palastra Jr., commanding general I Corps, Fort Lewis. He commented about the "trailblazing" of the 35th Air Defense Artillery Brigade and its designation as the first corps-level air defense brigade. The 1/4 ADA is the only active combat unit presently assigned to the 35th ADA Brigade and I Corps.

The 1/4 ADA was only a fraction of a point from being selected as the best missile maintenance readiness unit in the world and consistently remains operationally ready.

2/59 ADA Exercise Couriers Get Motorcycle Mounts

by Capt. Bruce Hupe

Tactics of the past often provide solutions for today's challenges. Borrowing an idea from their partnership unit, the 2nd Battalion, 59th Air Defense Artillery, 1st Armored Division, West Germany, leased five civilian motorcycles for couriers during a division exercise.

Each battery received one motorcycle, attached to the communication section, to work with the tactical operations center in the field. The couriers carried tactical and administrative reports within the battalion, and to the division tactical operations center and division airspace management element. Written orders were delivered in a timely manner in almost every case, improving communications while minimizing radio traffic. The information flow and data available to the commander were significantly better than during past field training exercises.

Soldiers of 2/59 ADA prepare to roll on their first mission as battalion couriers.

The soldiers, clad in protective clothing and riding red motorcycles with German license plates, attracted a great deal of attention from fellow soldiers, local citizens and *Polizei*.

This idea borrowed from the 4th Flugabwehrregiment of Regensburg had applications limited only by the imagination of the battlefield commander.

'What Does Daddy Do?'

by PFC Dan Andrews

"What does daddy do?" is a question that invariably pops out of a shiny face with bright round eyes. And Vulcaneers from Fort Polk, La., answered it soundly as they delighted an audience of families, civilians and soldiers alike by blasting a radio-controlled miniature aerial target (RCMAT) from the sky.

The highlight of a week-long annual service practice by the 1st Battalion, 55th Air Defense Artillery, was a Vulcan live fire and a display of the battalion's major weapons.

The demonstration began with introductory explanations to the audience. "Today's mission," explained Capt. Tony Parker, B Battery commander, "is to demonstrate to the division our capabilities as an air defense battalion and how we support the division."

One at a time, the Chaparral, Redeye, Forward Area Alerting Radar and the Vulcan systems were displayed before the audience with the features of each highlighted.

Keri Foote covers her ears while her sister, Kallee, and her mother watch the Vulcan demonstration with friend John Brabant. (Photo by PFC Dan Andrews)

Then, four Vulcans maintained a forward position as two more advanced and flanked them on both sides. "We wanted to simulate how a platoon would support a task force," said Parker.

The three-man RCMAT team from

Sgt. Miller Wallace, senior gunner for 2nd Squad, 3rd Platoon, B Battery, 1/55 ADA, fixes on his target. (Photo by PFC Dan Andrews)

the battalion operated the fated target that flew for a few minutes until Sgt. Miller Wallace, senior gunner, made the hit which tore it to pieces and triggered an exuberant applause from the audience.

It's one thing to be told "what daddy does," but for children of air defense artillerymen of the 1/55 ADA, it's much more exciting to be shown.

Class Introduces Weapons to New ADA Officers' Spouses

by Sp5 Craig Strawther

It was an unusual request to be sure, but the wives wanted to know what their husbands were doing. They knew the men were up to something; they just weren't sure what.

Recently, a group of junior officers' wives whose husbands are assigned to the Student Battalion, Fort Bliss, Texas, sat down to a class designed to shed light on the world of Air Defense Artillery.

Battalion Executive Officer Maj. Danny Inge organized and conducted the class to introduce the spouses to weapon systems that are unique to ADA; the systems that their husbands will be studying as Officer Basic Course students.

Using hand-drawn charts and some slides procured from the Director of Combat Developments, Inge explained the air defense mission and outlined the way that various systems interrelate to form the present system of air defense.

By the end of the evening, the women were acquainted with the Sergeant York Gun, Chaparral, Vulcan, Roland and Stinger, as well as the Hawk and Patriot missile systems.

What it means to be a lieutenant in the U.S. Army was explained by Lt. Col. Howard A. Murray, Student Battalion commander. He emphasized that lieutenants must be intimately familiar with the systems so that they may later be the leaders and planners for their platoons.

Summarizing the general sentiment about the class, spouse Celeste Relyea said, "I cannot be a partner without understanding what my husband is facing. The slide show enabled us to visualize what it physically is that they're studying, and now we can integrate that with the responsibilities we know they'll undertake as platoon leaders."

1/67 ADA Supports the Supporters

by Ross Bartley

Support battalions in a division are tasked to give logistics support to combat units. But in order for all to survive, these battalions must get return support from these units. Bravo Battery, 1st Battalion, 67th Air Defense Artillery, Fort Lewis, Wash., demonstrated this during field training exercise Octofoil Focus.

The 3rd Support Battalion, as it moved to support the 9th Infantry Division, was protected from air attack by Vulcan gunners from 1/67 ADA.

A simulated attack by two Soviet MiGs kept Vulcan crewman Sp4 Luis Cruz, B Battery, 1/67 ADA, alert. "It was foggy so they didn't see us until they were right on top of us," said Cruz. "They saw us just when they bro[ke] through the fog and pulled out ri[ght] away." The gun was a few hundre[d] meters from the tactical operations center.

The first order was given at 6 a.m., with the goal of having all personnel moved within six hours of the initial movement. The battalion moved in two columns along separate routes to the new position.

"So far things have gone really well," said Lt. Col. Larry Fulbright, 3rd Support Battalion commander. "We've had great support and if things continue the way they are going now, we should complete everything right on schedule."

The phrase, "supporting the supporters," rings true in this instance.

SSgt. Donald McKinney receives a report of enemy aircraft approaching the position of the support battalion his platoon is tasked to defend. (Photo by Ross Bartley)

While Sp4 Tim Taylor, B Battery, 1/67 ADA, relays information from a land line in support of the battalion, Sp4 Luis Cruz prepares to engage an aircraft. (Photo by Ross Bartley)

'mbersome Mail Sacks 'rry Promotion Points

by SFC Edward Deland

It's 11 a.m. and the battery mail clerk is dreading the thought of picking up the mail sack from the 1st Battalion, 55th Air Defense Artillery, mailroom. Why? Because the 27 soldiers of 1st Platoon, D Battery, at Fort Polk, La., are enrolled in the Air Defense Artillery Chaparral correspondence course. So when the clerk arrives at the mailroom, he finds not one mail sack but three, all loaded with yellow-covered manuals with individual soldier's names on them.

The idea of enrolling the entire platoon in the correspondence course program took off when 2nd Lt. Charlie Hester, platoon leader, wanted to help the soldiers prepare for their upcoming Skill Qualification Test (SQT). The courses' written tests are quite similar in format to the SQT.

Another reason for enrolling the platoon was to help the soldiers in their 'fforts to be promoted. Not only do the diers gain promotion points for suc- ssfully completing the course, but it is also no secret that promotion board members look favorably on soldiers trying to continue their military education.

This dedication to improvement was contagious in the unit, and soon 2nd Platoon and the Redeye Platoon had soldiers enrolled. Many of the soldiers' results from the subcourses have already arrived at the unit, one copy to the soldier and one to the commander, and all results as yet have been either satisfactory, excellent or superior.

It's now 11:05 a.m., and the mail clerk has his truck dispatched to pick up the battery mail.

ADA Defends Missile Sites

by Sp5 Craig Strawther

Field duty was nothing new to soldiers of the 1st Battalion, 43rd Air Defense Artillery, Fort Bliss, Texas, as they took to the desert recently for yet nother field training exercise. This ie the Patriot soldiers spent a week the field undergoing intensive instruction conducted by elements of Fort Bragg's 5th Special Forces Group.

Now that the soldiers knew the ins and outs of operating the Patriot missile system, they focused on learning how to effectively defend missile sites against attempted enemy infiltrations, according to Maj. William Harry, battalion S-3 officer.

This soldier gets a worm's eye view while practicing the art of properly lining up the trip wire on an early warning device. (Photo by Sp5 Craig Strawther)

Approximately 150 soldiers participated in classes that stressed security patrolling, light weapons identification and maintenance. They also learned raid and ambush techniques, and how to establish hostage sites and early warning devices (booby traps), such as trip wires and flares.

ADA Units Train With MILES

In an age of computer wizardry, training is still important on the road to success. And when training is combined with advanced technology, the results are positive.

Many air defense units are receiving and training with the Multiple Integrated Laser Engagement System (MILES). The new MILES equipment is used with the Vulcan, Chaparral and Stinger air defense weapons, and with the UH-1, OH-58 and AH-1 helicopters.

The unerring accuracy of the MILES laser "bullets" and sensors eliminates most of the element of chance and umpires' judgment calls on whether a round has scored a kill, hit or near miss.

The MILES equipment will bring units much closer to the technology in use at the National Training Center at Fort Irwin, Calif., according to Lt. Col. Brad Brown, chief of the FORSCOM New Equipment Training Team. "Its realism is causing changes in tactics because now there's no question of a

Soldiers of the 5/52 ADA carefully aim a MILES-equipped Stinger during recent testing.(Photo by Kim Day)

The new tactical engagement simulation system, MILES, allows 5/52 ADA Chaparrals to demonstrate their accuracy against the Cobra. (Photo by Kim Day)

kill. The weapons' operation and targets' effects are basically the same as the real weapon." For instance, he said, if a TOW missile or a rocket has a six- to eight-second flight time, the MILES computer will take that time to determine a hit or kill.

Soldiers of A and C batteries, 5th Battalion, 52nd Air Defense Artillery, Fort Stewart, Ga., tested the new equipment earlier this year. The training, conducted over a four-day period, consisted of short exercises lasting anywhere from a half hour to four hours depending on the battle sequence.

"The MILES helps training because it shows the soldiers an immediate effect by simulating the flash, bang and smoke," said SFC Benjamin Mucci, U.S. Army Integrated Systems Command, Fort Eustis, Va.

MILES for air defense artillery has been tested at Fort Bliss, Texas; Fort Knox, Ky.; Fort Riley, Kan.; the National Training Center and various other places in the United States since its recent development. It is now arriving at units in the Federal Republic of Germany.

Roland Unit Gets 'Thumbs Up'

by Maj. George Mendoza Jr.

A "thumbs up" was given to A Battery, 5th Battalion, 200th Air Defense Artillery, New Mexico National Guard, by the Fort Bliss Center Certification Team.

The Roland unit recently completed 10 weeks of intensive field training with a three-day tactical exercise. included a successful live fire of ni Roland missiles.

Alpha Battery completed its "killer" collective training program and rolled right through its certification without stopping to catch its breath.

The certification started with a visual aircraft recognition exam. The battery squads ripped through the exam, setting a record score of 98.2 percent group average. Crew drills were passed the same day, certifying the gunners on the Roland Institutional Trainer.

The field exercise began with an emergency deployment readiness exercise and fly-off in an unusual Southwest snow storm. In the field, the battery fought and defeated the enemy in a scenario paralleling a tactical evaluation of practically non-stop action. The live fire chalked up a score of eight for nine kills, and the miss was not attributed to the crew.

The 5/200 ADA, the only Roland battalion in the U.S. Army and the Army National Guard inventory, is assigned as part of the U.S. Central Command forces.

A Roland missile takes off during a live firing by A Battery, 5/200 ADA. The battery chalked up a score of eight for nine kills during the unit's certification exercise.

Airspace What?

by Capt. Allen F. Humphrey

I reported to 1st Battalion, 55th Air Defense Artillery, Fort Polk, La., early in June 1984. The commander promptly told me that I was the division airspace management officer and to be prepared to go on an ARTEP the following week. At the same time, I was to develop a plan for Reforger 84 deployment in August. Obviously, I was in trouble. I searched and found a copy of the latest FM 44-3, in draft form, that talked about tasks and functions and some new airspace control measures.

It was quickly evident to me that the functions of the division airspace management element (DAME) were overall planning and management and specifically:

- Coordination—establish the degree of authority necessary to achieve effective and flexible use of airspace.
- Integration—consolidate requirements for use of airspace.
- Regulation—supervise activities in the airspace to provide flight safety and define authority to ensure such safety.
- Identification—identify all friendly airspace users.

As I investigated what needed to be done, it became apparent I also must find out who was going to do it. The elements of the DAME include the air defense artillery officer, the aviation officer, the fire support coordinator, the Air Force liaison officer, the combat electronic warfare and intelligence officer and the air traffic control officer.

I found that as the air defense artillery officer in the DAME, I was specifically tasked to develop fire control procedures and disseminate typical air defense artillery "how to" elements, such as air defense warnings, states of alerts and hostile criteria, from corps to the firing units. I found the latter was easy to do, but the former was much harder because we had not worked in the European environment.

This is how we tackled the airspace management task, and how we prepared for and conducted exercise Certain Fury, Reforger 84. Highlighted are the functions and how they contributed to a solid airspace management plan.

It is important that the airspace management plan supports the commander's scheme of maneuver. The air defense artillery assets available in our case were the 32nd Army Air Defense Command's 3rd Battalion, 7th Air Defense Artillery (Hawk), in direct support of the division, and A Battery, 2nd Battalion, 59th Air Defense Artillery, of the 1st Armored Division (Fig. 1). Of course we identified those friendly aviation assets, both Army and Air Force, that were on the Blue side.

Regulations were critical as the scheme of maneuver was developed because we were operating under NATO rules. Suplan 35001M and FM 44-3 served as the doctrinal base for the coordination function of the DAME.

Very specific steps had to be undertaken to resolve conflicts among aviation, artillery and air defense. The result was fire control measures that became the basis for airspace management overlays—the workable outcome of airspace management. The overlays change periodically, based upon the airspace control orders (ACOs) that are in effect. Because the

corps' airspace management element (CAME) processes the ACO, which takes a finite period of time, it's important to restudy the scheme of maneuver to ensure that the ACOs are available to support the commander's plans. This takes a considerable amount of preplanning and, consequently, this is where the payoff is and where I really learned the ropes.

Some of the standard fire control measures we had were:

- low-level transit routes for high-performance aircraft crossing the battlefield (Fig. 2).
- standard Army air routes used to bring aircraft from the rear of the brigade area forward into the battalion area (Fig. 3).
- high-density airspace control zones (HIDACZ) used extensively in the exercise (Fig. 4).

The HIDACZs turned out to be one of the most flexible fire control measures. Figure 4 shows a typical overlay in which the maneuver box is divided into numbered grids. The grid lines typically follow prominent terrain or man-made features so they are easily definable from the air and from the ground.

As was mentioned, ACOs take several hours to process through the CAME. To give the division commander the flexibility he needs to turn his air defense on and off as needed, the scheme of maneuver was reviewed at least a day in advance. Depending on whether he was defending or attacking, HIDACZs were created to support that part of the battle area in which the heaviest concentration of air activity was expected. Figure 5 shows HIDACZs created for the 1st Brigad area where the main attack for th

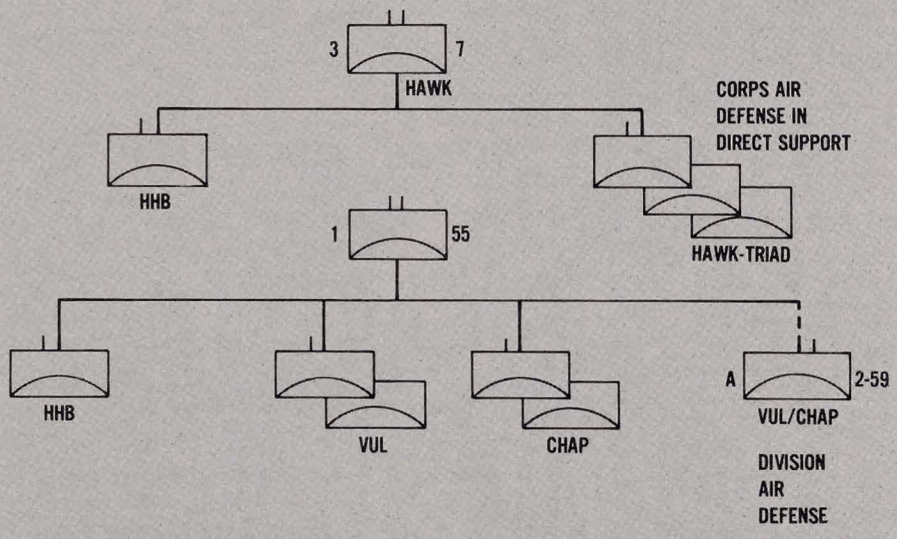


Figure 1 - FRIENDLY ADA ORGANIZATION

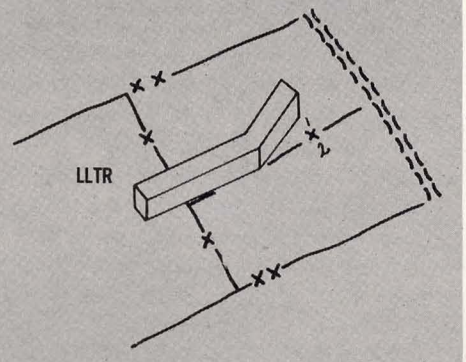


Figure 2 - LOW-LEVEL TRANSIT ROUTES (LLTR)

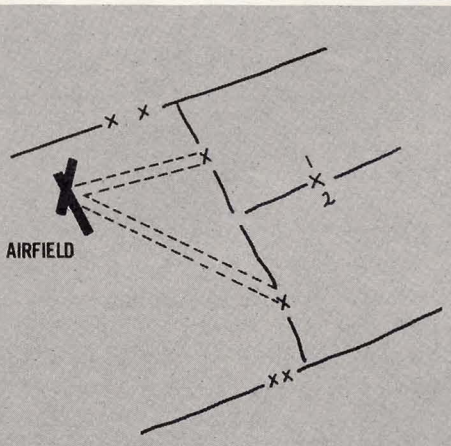


Figure 3 - STANDARD ARMY AIR ROUTES (SAAR)

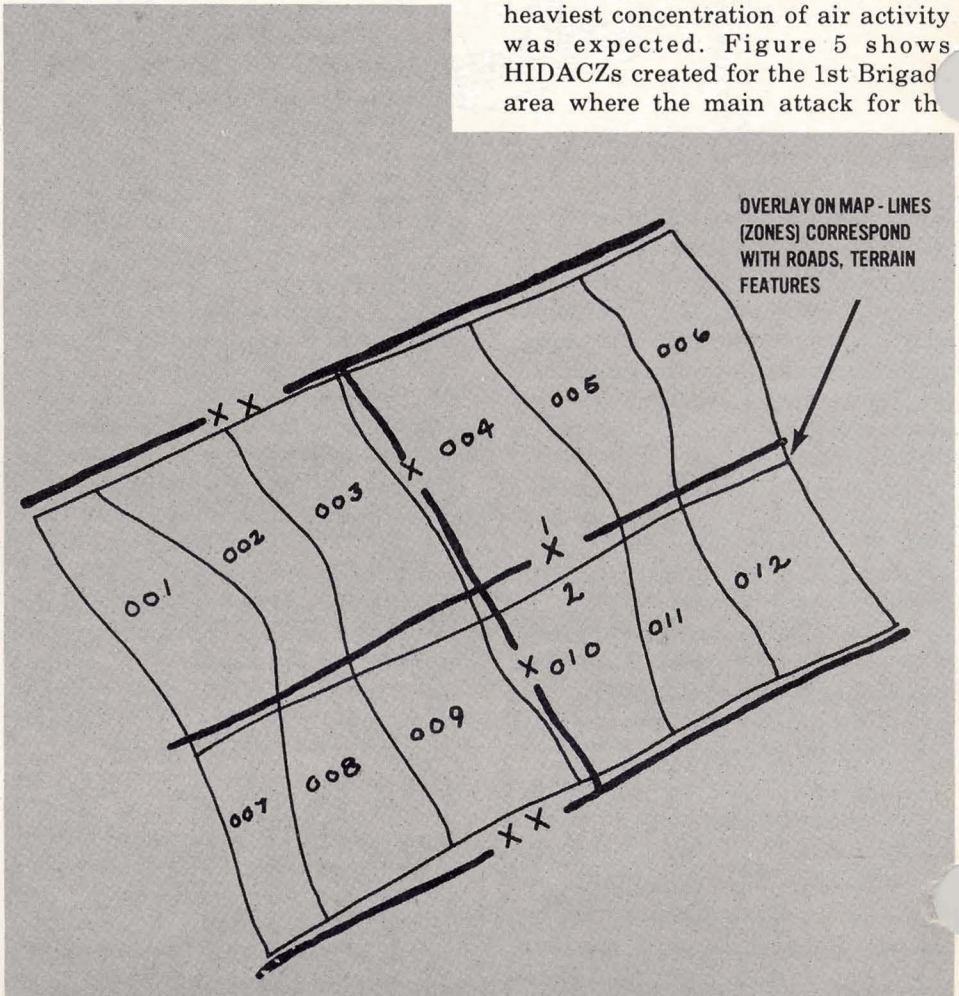


Figure 4 - HIGH-DENSITY AIRSPACE CONTROL ZONES (HIDACZ)

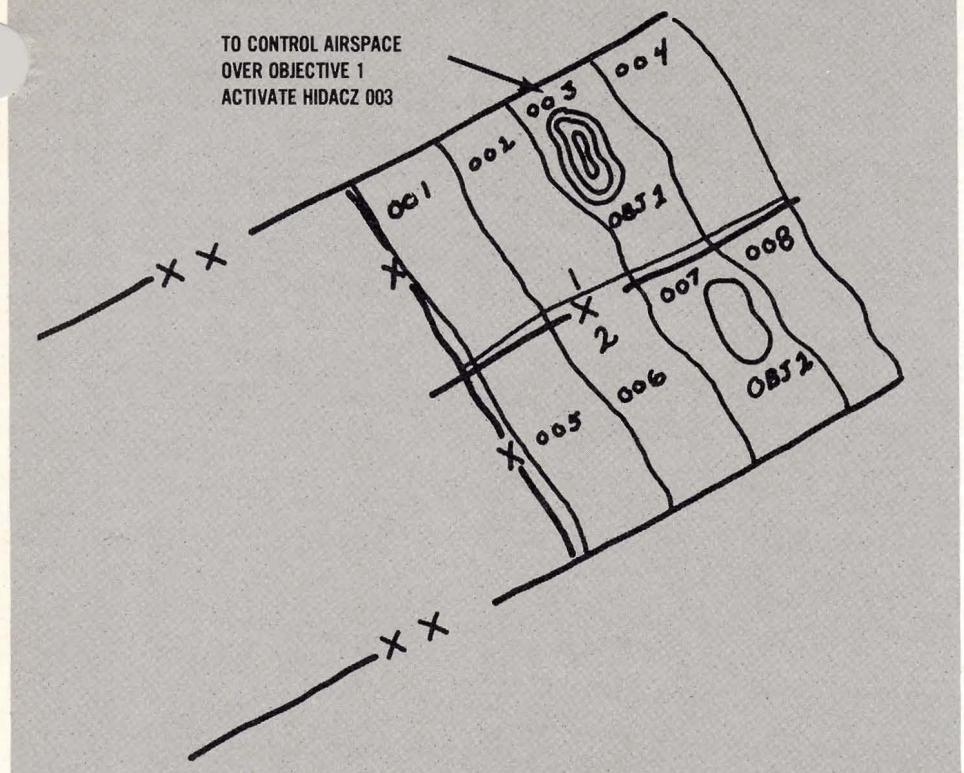


Figure 5 - HIDACZ OVER 1ST BDE, CORRESPONDING WITH OBJECTIVE 1 HIDACZ 003

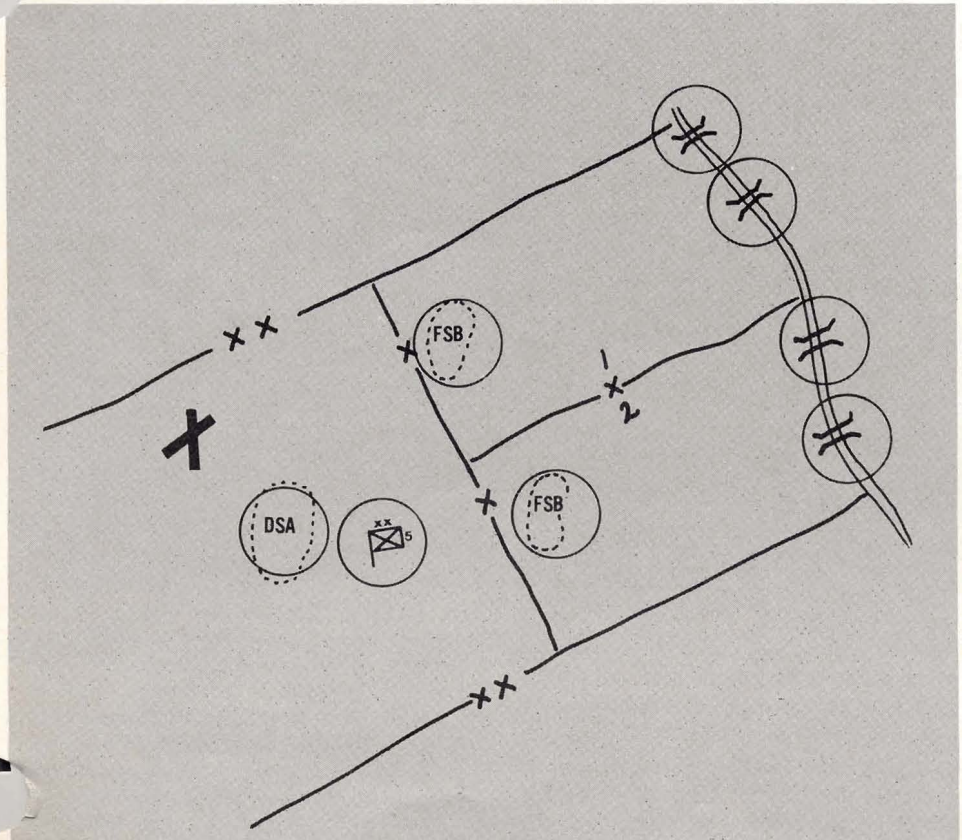


Figure 6 - WEAPONS-FREE ZONES

offensive operation occurred. The ability to request HIDACZs for ACOs for the next day, based on planned operations, was the key to the execution of the airspace management plan.

Also, after study of the scheme of maneuver, weapons-free zones were established to allow maximum flexibility to air defense artillery. These zones were based on the capabilities of the weapon systems in the zone. A five-kilometer radius was the standard used for all weapons-free zones. Figure 6 gives an example of how preplanned weapons-free zones were used in Certain Fury in the defensive and offensive phases. Static areas such as the division support area and airfields are excellent weapons-free zones in the defense. In the offense, tactical operations centers, key road junctions and, of course, bridge or crossing sites are common weapons-free zones.

Using standard identification, friend or foe (IFF), procedures coupled with standard rules of engagement added to the reduction of short-range air defense (SHORAD) identification problems. In Certain Fury, different aircraft types were used for Blue and Orange forces, making visual identification much easier. Standard NATO IFF procedures were also employed. A Hawk platoon command post was collocated with the SHORAD battalion tactical operations center to provide additional identification and early warning for the division area (Fig. 7).

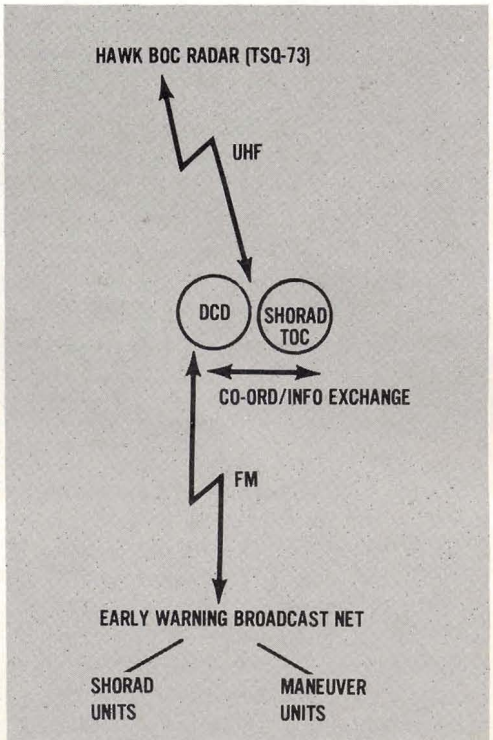


Figure 7 - PCP/SHORAD TOC LASH-UP

GREEN 4 (Airspace Management Reports)

PART 1: HIDACZ
LINE 1 BY HIDACZ ZONE
LINE 1a Zone # _____
LINE 1b WCS _____
LINE 1c From _____ TO _____ DTG

Line 2a, b, c Same Format. Use as many lines as necessary.

PART II: RESTRICTED OPERATIONS AREA
LINE 1 STANDARD CIRCLE
Line 1a Center at _____ Coordinates
Line 1b Radius _____ Km
Line 1c WCS _____
Line 1d Aircraft Restrictions _____
Line 1e From _____ TO _____ DTG

Line 2a, b, c, d, e, Same Format. Use as many lines as necessary.

PART III: RESTRICTED OPERATIONS AREA
LINE 1 AREA CONNECTING POINTS:
Line 1a _____ Coordinates
Line 1b _____
Line 1c _____
Line 1d _____
Line 1e _____
Line 1f WCS _____
Line 1g Aircraft Restrictions _____
Line 1h From _____ TO _____ DTG

Line 2a - h Same Format. Use as many lines as necessary.

PART IV: LLTR
LINE 1 CONNECTING POINTS:
Line 1a _____ Coordinates
Line 1b _____
Line 1c _____
Line 1d _____
Line 1e WCS _____
Line 1f From _____ TO _____ DTG

Line 2a - f Same Format. Use as many lines as necessary.

PART V: STANDARD ARMY AIR ROUTES (SAAR)
LINE 1 CONNECTING POINTS
Line 1a _____
Line 1b _____
Line 1c _____
Line 1d _____
Line 1e _____
Line 1f _____
Line 1g Corridor width _____ Km
Line 1h WCS _____
Line 1i From _____ TO _____ DTG

Line 2a - i Same Format. Use as many lines as necessary.

Figure 8 - ACO

The ACOs are really the fruit of the airspace management officer's work. They are what we have to work with in terms of fire control measures, hostile criteria or changes in rules of engagement for a defined period of time. Foresight and planning will provide what is needed to fight the air battle for the coming day. Figure 8 shows an example of an ACO.

Exercise Certain Fury was a great training device as I struggled with the airspace management plan. There are many facets of airspace management, not covered here, which affect the outcome and the ability to synchronize the air defense battle. However, understanding the scheme of the maneuver, planning for contingencies and using doctrinal techniques can do much in putting the management back into airspace management.

Capt. Allen F. Humphrey *is the commander of C Battery, 1/55 ADA, Fort Polk, La. He graduated from the University of South Florida, Tampa, Fla., with a bachelor's degree in industrial management. His assignments include fire control officer in the AN/TSQ-73 system and the DAME for the 5th Infantry Division, Fort Polk.*

So, You Want to Be a CAS³ Student

by Lt. Col. Joe Snow

Who are CAS³ students? Where do they come from? What do they do? Why would you want to be one?

A CAS³ (Combined Arms and Services Staff School) student is a dedicated professional officer who has between six and 10 years of commissioned service and who is learning to function better in a staff position with the Army in the field. These officers come from all over the world, wherever Army captains are stationed.

Advance course graduates may enroll in the first half of the program, the non-resident phase (Phase I), which consists of 14 self-paced modules. It takes about 136 hours to complete all modules.

As each lesson is completed, the officer takes the test and sends the answer sheet to the Extension Training Management Division at Fort Leavenworth, Kan., for grading. Upon completion of all modules, the student takes an open-book comprehensive exam. Once the officer passes the exam, he or she is then qualified for the resident (Phase II) portion of the CAS³ course at Fort Leavenworth.

Resident Phase

All Phase I qualified officers who are managed by the Office of Personnel Management/Development and who are in year group 1979 and beyond will be considered for Phase II attendance. However, the specialty branches may select less than 100 percent of their officers to attend.

Upon arrival at Fort Leavenworth, the officer receives billeting assignment in Truesdell Hall. Inprocessing is next at Bell Hall. Included in inprocessing is a weigh-in, English diagnostic test, physical readiness test and assignment to a 12-person staff group.

The staff group works with a senior field grade officer, normally a lieutenant colonel, who is a former battalion commander. This group stays together during the entire nine-week course.

During this period, students work together to accomplish the goals of CAS³: to improve their abilities to analyze and solve problems; to interact and coordinate as members of a staff; to communicate; and to understand Army organizations, operations and procedures.

These goals are achieved by working through 34 problem-solving lessons which are grouped into seven exercises threaded together by a common course-long scenario. The general scenario focuses on assignment to a mechanized infantry division stationed in Kansas.

Before students begin duties with a subordinate divisional unit, however, they must first participate at division headquarters in an accelerated eight-day training exercise which familiarizes them with problem solving, time management and basic staff techniques. The techniques include writing military and non-military letters, disposition forms, messages, fact sheets, memoranda and a staff study. They also include quantitative skills such as statistics, linear programming, decision trees, program evaluation and review technique diagrams, regression analysis, and calculator and computer operations. During this exercise, each student also prepares and presents a complete information briefing.

Upon completion of the first exercise, the scenario continues as the officers are assigned to a notional battalion within the division. Here, the students conduct a state-of-training analysis, prepare short- and long-range training programs; project funds and petroleum, oil and lubricants resources for the long-range plan; and plan for a battalion field training exercise.

The next exercise focuses on managing limited resources—money and manpower—to accomplish assigned missions. The students, as members of a directorate of industrial operations maintenance division, formulate a budget based on written and verbal guidance. As part of the training scenario, the world situation worsens and the division, which has two active brigades and a Reserve Component round-out brigade, must mobilize. Students develop selected portions of mobilization plans with the goal of developing an understanding of the basic staff considerations associated with the mobilization procedure. In this process, the students play the role of staff officers of the mobilizing brigade, or of staff officers on an installation staff. Both staffs plan for the support and reception of the mobilized units.

After mobilization, the students focus on planning combat operations in a NATO setting. Individual staff estimates and a division operations plan are prepared. In addition, the deployment plan and the logistics support plan for the division during the movement are formulated.

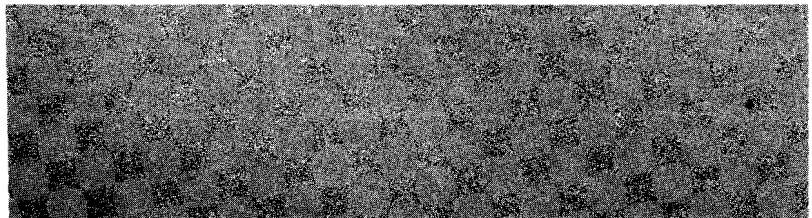
Finally, the student staff goes through the entire staff planning sequence and command post execution of two division-size operations.

Accomplishments

Upon completion of CAS³, the student will have analyzed, coordinated, solved, communicated and been evaluated on more than 60 complex individual and group problems. In addition, the student will have been given numerous additional informal performance reviews and will have received at least three detailed written evaluations.

Why would you want to be a CAS³ student? Because CAS³ graduates have learned how to analyze and solve problems, coordinate solutions and properly communicate those solutions—abilities which allow the graduates to perform better as staff officers.

Lt. Col. Joe Snow, *a staff leader in the Combined Arms and Services Staff School, Fort Leavenworth, Kan., is currently enrolled in the Army War College. An armor officer, he is a 1964 graduate of Boston College, Mass., and holds a master's in business from Babson College, Babson Park, Mass.*



AWACS Allows Hawk Silent Surveillance

by Capt. Thomas Flynn

When Capt. Ogarkov walked out of his bunker to the waiting truck, it had already started to rain. The raindrops gave at least some credibility to the intelligence briefing he had just received. By the time he reached the flight line, his plane had already been loaded with the two AS-X-9 anti-radiation missiles.

He got out of the truck and gave his now war-weary bird a quick look-over. It didn't matter what he found wrong because there were so few planes left and such an important mission ahead. His missiles were tuned to the Hawk band, in hope of detecting enemy continuous-wave acquisition radars. But it wouldn't be easy finding them. He didn't know where to start looking; he just hoped they would turn on a radar so he could let his 50 kilometer-range missile do all the work.

Ogarkov climbed into the cockpit of his Su-24 Fencer, gave the thumbs-up sign to his crew chief, then taxied down the runway for his takeoff. Leveling out at about 25,000 feet, he began his uneasy search for the Hawk sites. His intelligence information only told his that they were out there, somewhere.

Constantly he watched his instruments. His radar warning light illuminated, but it was just a flicker, nothing to worry about... probably just a stray detection. Forty seconds passed after that little flicker of light first caught his eye, and, all at once, a steady illumination began. He reached to arm his missiles, but a bright light on the ground startled him. He turned and saw—no, felt a hollow explosion behind him. The plane began to shudder uncontrollably, then an orange flash ....

* * *

Lieutenant Shied clutched the now tattered warning order. It commanded, "Move your Hawk assault fire unit Vic MF089234, EMCON silent, await further orders." It was getting dark and this was the fifth move today. He had lost count of the number of moves the unit had executed in the past week.

Shied's reconnaissance, selection and occupation of position (RSOP) team pulled up to a suitable location. After the RSOP team secured the area, the team commander's jeep was dispatched to alert the assault fire unit that the position was ready for occupation.

Within 30 minutes, the first vehicle arrived with a radar and was quickly guided into its predetermined position. And, just as quickly, power was applied to the radar. Within one and a half hours all the equipment was in position and power applied. The 16Es started alignment and system checks without bringing a single radar to radiate. The 16Ds, at the same time, began loading the launchers with their lethal cargo.

The tactical control officer, hoping for a dose of reassurance, looked up at his assistant in the platoon command post. He got it. The communications chief, on the floor by the tactical control officer, looked up to say he had good signal strength and that the automatic data link should be working soon. The last flashing light in the platoon command post went out and an Air Force AWACS-provided air picture was displayed on the scope.

The tactical control assistant turned on his tracking adjunct system (TAS) and began picking out targets. When one came into range, a quick challenge was registered and it was looked at with the TAS camera. Positive IFF, positive IFF, negative IFF, positive visual. An assignment came in from higher. The high-powered illuminator radar (HIPIR) locked on the target. The TAS camera acquired it. Quickly the HIPIR was shut off as the TAS silently tracked the target. Closer the target came, unaware that it was being drawn into a trap. An Su-24 was clearly visible and came just a little closer before the HIPIR was up, locked and the missile was away. It was too late for the target to perform evasive maneuvers. The battle was over in seconds and the

Loading a Hawk missile onto a launcher are soldiers from C Battery, 1/65 ADA. (Photo by MSgt. William Darrah)

Hawk site silently continued to scan for unsuspecting targets.

* * *

These are both sides of what could happen. The Hawk system with its product improvements, along with good concealment and effective emission control (EMCON), can stay silent and undetected beyond any low- to medium-altitude aircraft's ability to penetrate the defense and successfully perform its mission.

To help establish effective emission control standards, the 11th Air Defense Artillery Brigade, Fort Bliss, Texas, participated in a joint Army and Air Force exercise, Blazing Skies III. One of the major objectives of Blazing Skies III was to explore and implement new air defense doctrine that will increase the survivability of air defense artillery units by reducing radar emissions.

The goal was to limit the use of battery acquisition radars and instead use an AWACS aircraft as an external acquisition source to locate and identify potential targets and then pass the information to the brigade batteries.

In the past, a tactic employed primarily in Europe used what is called the blinking method of EMCON. Units were given schedules that outlined who, when and what radar would be brought to full radiate. The schedules also spelled out how long the radar would remain in radiate. These units provided the air picture for the defense.

This system, however, has serious drawbacks. Using it eventually will give away all aspects of the defense, such as where the units are located, how many emitters are on the battlefield and what type of systems the emitters represent. On the future battlefield, a vast multitude of sensors—from ground-based radio frequency and direction-finding equipment to airborne platforms and near real-time satellites—will locate, identify and target air defense systems. To any commander with limited resources, this information is too precious to just give away.

This prompted the development of a system requiring the maximum use of an external air picture through the use of AWACS, control and reporting centers, and brigade and battalion AN/TSQ-73 Missile Minders. By using alternate sensors, Hawk can detect, identify and prioritize engageable targets without bringing a single radar to radiate. The system can be controlled by any element within a fire unit's chain of command, making it a flexible and durable system.

During Blazing Skies III, Hawk units were required to operate with an entirely external air picture. The results of the test were analyzed and new EMCON standards and procedures were developed that will be written into doctrine and become standard operating procedures for air defense artillery units. The new standards and procedures will require units to:

- use the AWACS as much as possible.
- maintain the lowest emission posture possible while providing the most reliable air picture to the defense.
- ensure careful camouflage is maintained.
- move units regularly to increase the burden on enemy intelligence systems, thus increasing Hawk survivability.
- place emphasis on training that simulates an intense electronic countermeasure environment.

With these five ingredients and good training, the Hawk system will provide an environment for every unit under its protection to be able to effectively perform its mission.

"We were extremely successful in achieving the goals we had established," said Col. J. Morgan Jellet, 11th ADA Brigade's commander, at the conclusion of Blazing Skies III. "We proved we could maneuver and emplace units, integrate an entire brigade and track and lock on a target, all without radiating."

Looking ahead, Jellet said, "What must be done now is to look at in-house training so that we can duplicate the process of using one acquisition source for all batteries. The emission control procedures we have established here are to become air defense doctrine."

Capt. Thomas Flynn *is the plans officer with the 11th ADA Brigade, Fort Bliss, Texas. He is a graduate of the ADA Officer Advanced Course, and received his bachelor's degree in sociology from the University of Texas at El Paso.*

Chaparral at the NTC: A Tactical Imperative

by 1st Lt. Timothy R. Tritch

Chaparrals of the 1/55 ADA put NTC lessons learned to work during a recent Reforger exercise.

Air Defense Artillery's revised operational concept assigns Chaparral a new forward support mission that will take it closer than ever before to the forward edge of the battlefield. The "Chaparral Forward" concept projects Chaparral, relegated in the past to the defense of static assets, into battle alongside maneuver units where it can engage forward from the vanguard of attack.

Though revised field manuals, such as FM 44-3, Air Defense Artillery Employment, Chaparral/Vulcan/Stinger, have given Chaparral new doctrinal credentials, it's up to Chaparral crews to demonstrate that their weapon system can successfully perform its forward support mission. For Chapparal crews, this may mean battling convention as well as the opposing force on mock battlefields such as the National Training Center (NTC), Fort Irwin, Calif.

U.S. Forces Command Circular 350-84-10 does not list Chaparral as part of the NTC air defense artillery slice for two reasons. First, a rotation through the NTC is primarily a task force field exercise and many commanders feel Chaparral has no vital air defense role at the task force level. Second, funds to support an NTC rotation are limited so there is a reluctance to allocate the funds necessary to include Chaparral.

The welcome mat, in other words, isn't necessarily out for Chaparral at the NTC, despite previous successful performances. Both the 4th Battalion, 61st Air Defense Artillery, Fort Carson, Colo., and the 4th Battalion, 1st Air Defense Artillery, Fort Bliss, Texas, have put Chaparral through its paces at the NTC.

The following narrative relates the experience of Chaparral crews from the 1st Battalion, 55th Air Defense Artillery (C/V), Fort Polk, La., and compares the missions they were assigned during a recent NTC rotation to traditional Chaparral missions.

Desert Raider

The 5th Infantry Division (Mech), Fort Polk, La., carried Chaparrals to the NTC for the first time during FTX Desert Raider in 1984. Second Platoon, C Battery (C), 1/55 ADA was attached to A Battery (V), 1/55 ADA, to form a composite battery in support of the 1st Brigade, 5th Infantry Division.

Although the NTC used its own standard evaluation system with the Multiple Integrated Laser Engagement System Air-to-Ground Engagement System-Air Defense (AGES-AD) in conjunction with platoon level evaluators, none were provided by the center for the Chaparral platoon. Therefore, 1/55 ADA provided its own evaluator whose responsibilities included assigning platoon missions and evaluating performances through daily after-action reviews.

The Chaparral platoon leader was not a participant in after-action reviews given by the task force evaluators. This did not allow the Chaparral platoon leader to integrate his fire units into the supported unit commander's scheme. As such, most of the Chaparral missions assigned were independent of task force operations. The Chaparral platoon operated mainly in the southern portion of the Fort Irwin training area, either to the northwest of Fort Irwin proper or to the east into western portions of the Southern Corridor and the Valley of Death.

Traditional Mission—Offense

In conducting offensive operations, air defense priorities normally shift forward to the exposed battalion task force conducting the attack. Due to the emphasis on mobility and integration

during the offensive, Vulcan and Redeye are used primarily to provide air defense protection to maneuver forces most critical to the mission.

Chaparral, in keeping with the Chaparral Forward concept, can perform a general support-reinforcing (GS-R) mission to augment the coverage already provided by Vulcan and Redeye, thus providing increased kill probability, greater defense in depth and early engagement two to three kilometers in front of the forward line of own troops (FLOT).

Normally, however, Chaparral will be used in the offense in a general support role, providing static asset defense to assets such as command posts, combat trains, vital areas of advance, critical bridges or airfields and artillery units.

NTC Mission—Offense

During the first part of Desert Raider II, the 1/55 ADA Chaparrals departed from their traditional role of providing static air defense and assumed a GS-R mission in support of Task Force 1-61's attack, a mission the ADA unit had emphasized during its training for the rotation. Although the mission was not highly successful due to rugged terrain conditions northwest of Fort Irwin proper, Chaparrals of the "Red Devil" division, for the first time, played a significant role in support of a maneuver force. The 1/55 ADA took advantage of the lessons learned when it employed Chaparral the same way in the offense during a later Reforger exercise.

Other NTC missions assigned during the offensive phase included static asset defense of a 155mm field artillery battalion, materiel supply routes and critical road junctions. Although most of these missions were performed during the attack, they took place independently of the task force and could not be classified strictly as offensive missions.

Traditional Mission—Defense

In the conduct of defensive operations, maneuver forces occupy fortified, covered and concealed positions which provide good air defense. Therefore, air defense priorities normally shift from the forward maneuver units to more rearward critical assets. During the defense, the employment principles of mass and mix are emphasized more than mobility and integration. In the defense, Chaparral may be augmented by Vulcan or Redeye to provide adequate mass and mix in defense of static assets such as command post and logistics facilities.

NTC Mission—Defense

Chaparral defense missions at the NTC included static asset defense of the brigade support area, materiel supply routes and critical road junctions in a general support role. Most of the missions involved defense of the brigade support area. During this particular mission, the Chaparral squads engaged a large number of aircraft. While no objective method of evaluating the engagements existed, it is fair to say that Chaparral prevented a considerable number of enemy aircraft from accomplishing their mission. Because provisions were not made to fully integrate Chaparral into the tactical scenario, a mix of Chaparral with other short-range air defense weapons in defense of static assets did not exist.

Traditional Mission—Convoy Route Defense

Chaparral is commonly used to provide air defense for vehicles in convoy or for a designated materiel supply route. When Chaparral is used for this purpose, the employment guideline of overlapping fires rather than mutual support is preferable in order to provide maximum coverage over as much of the convoy route as possible.

Chaparral can also provide defense of critical points along march routes where convoys may be forced to halt or bottleneck, such as key intersections, bridges and other points along heavily

Figure 1.

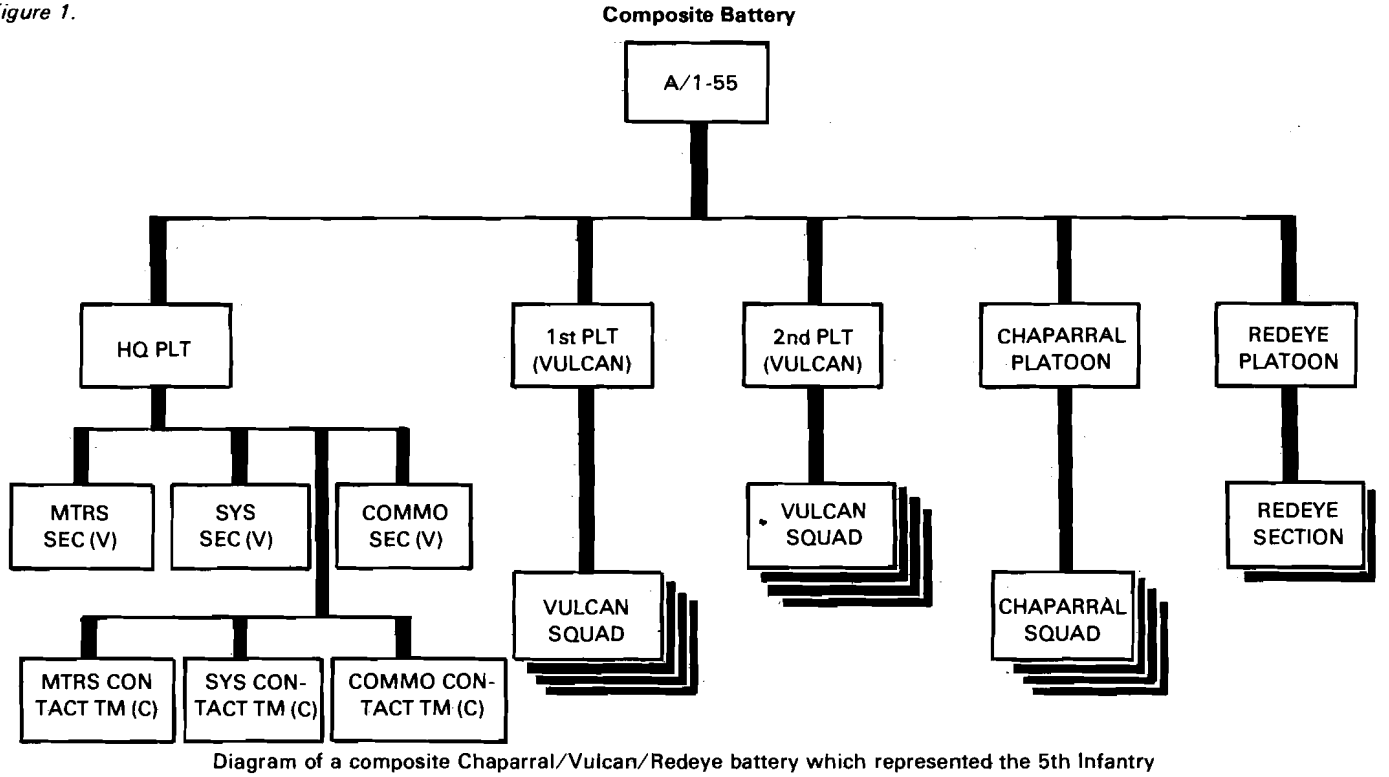


Diagram of a composite Chaparral/Vulcan/Redeye battery which represented the 5th Infantry Division (Mech) at the NTC.

traveled routes that may have been preplanned as targets by enemy air. When establishing the defense of critical points along a march route, the defense design is for early engagement along the long axis and for overlapping coverage.

NTC Mission—Convoy Route Defense

The Chaparral platoon provided route defense coverage during many of the supported unit's moves back to the assembly area. Had it been planned, the platoon could have performed the same mission as the unit convoyed to its initial tactical assembly area. Chaparral's extended range provides the best early engagement capability of any of the short-range air defense weapon systems, and one platoon could have covered up to 16 kilometers of straight road using overlapping fires.

Composite Air Defense Battery

Despite the lack of attention Chaparral generally receives at the NTC, realistic training opportunities exist. Chaparral can perform GS-R missions, as previously described. Two other concepts, first, the use of a composite air defense battery and, second, the tactical realism provided by AGES-AD, will further enhance training opportunities.

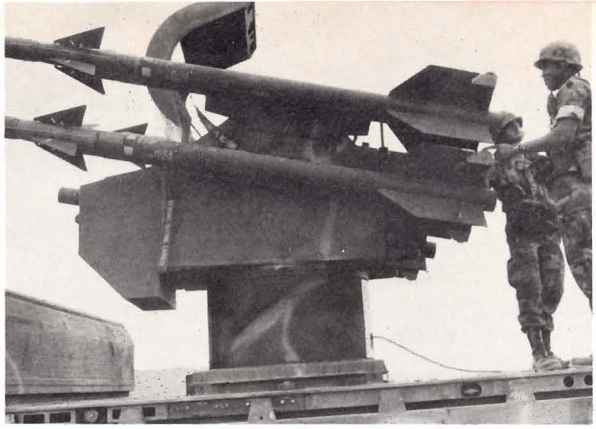
Although current air defense artillery doctrine is written for the more modern weapon systems, such as the Sergeant York Gun and Stinger, the 5th Infantry Division will still be using Vulcan and Redeye into the late 1980s. In its present configuration, the 1/55 ADA supports the 5th Infantry Division as depicted below:

A Battery	Vulcan/Redeye	1st Brigade
B Battery	Vulcan/Redeye	2nd Brigade
C Battery	Chaparral	DISCOM
D Battery	Chaparral/Redeye	DIVARTY

In this configuration, Chaparral and Vulcan are not integrated. In order for air defense artillery to be effective, an adequate gun-missile mix must be obtained. Air defense artillery battalions may, therefore, consider an alternative configuration.

The composite battery illustrated in Figure 1, with additional Redeye sections, is the most effective way to task organize. By forming three composite batteries and assigning one to each of the three maneuver brigades in a mechanized infantry division, an ADA battalion would be better able to support the division in actual combat. Several reasons for this exist.

First, by attaching a Chaparral platoon to a Vulcan/Redeye battery in support of a brigade, the brigade air defense commander (who is the Vulcan battery commander) can better support his air defense plan based on the brigade commander's priorities. It provides the Vulcan battery commander with a weapon system with a higher probable-kill factor than either the Vulcan or the Redeye and a more effective weapon against fast-moving targets. Combining these factors gives the commander greater flexibility to shift his assets in order to better support the mission.



Properly employed, Chaparral can engage aircraft two to three kilometers in front of the FLOT.

Second, Chaparral's five-kilometer range coupled with its head-on engagement capability—which Vulcan and Redeye don't have—will vastly improve the early engagement capability provided by short-range air defense artillery. In support of maneuver units in the offense, for example, this means properly employed Chaparral weapon systems can engage aircraft two to three kilometers in front of the FLOT, thus defeating enemy aircraft well before they have the chance to deliver ordnance.

In addition, the new forward-looking infared radar gives Chaparral the ability to acquire a target beyond the range of the gunner's vision. More importantly, it allows the gunner to track targets at night and during periods of limited visibility. Thus, Chaparral's ability to perform its mission during these times will impact substantially on the success of missions in which limited visibility is a factor.

Tactical Realism

The use of a planned evaluation system is paramount in the integration of a Chaparral platoon into the NTC scheme. The introduction of the AGES-AD provides the cornerstone for evaluating the effectiveness of Chaparral and other air defense weapon systems. It provides a realistic method for engaging and being engaged by aircraft and will make Air Defense Artillery an even more integral part of the mock battle in terms of battle damage assessment, both friendly and enemy. It will also provide commanders with a more accurate assessment of the capabilities and limitations of each air defense weapon.

The evaluation of tactical operations can be improved by including the Chaparral platoon leader and his evaluator in every after-action report. This will enable the evaluator to provide feedback based on battle damage assessments to the force commander as well as the Chaparral platoon leader on the Chaparral's effectiveness and the Chaparral platoon leader's ability to control his platoon in a field environment.

Logistics

Sending a Chaparral platoon to an NTC rotation implies including it in the planning and conduct of any task-force or brigade-level FTX, ARTEP and other NTC-related combined arm training. In order to provide an acc rate assessment of Chaparral's capabilities, the Chaparral platoon must be trained in the use of AGES-AD equipment. Provisions must be made for transportation of seven additional vehicles and at least 30 additional personnel from Fort Polk to Fort Irwin and back. The cost of sustainment items such as Class I, Class III and special PLL must also be considered.

The rewards of training in a realistic combat environment like the NTC far outweigh the costs involved. Training in such an environment is the key to the success of the Chaparral platoon in combat. Chaparral soldiers must train as they would fight in combat, using the composite battery concept to make them part of the combined arms team.

1st Lt. Timothy Tritch *is the Sergeant York Planning Staff assistant S-3, 4th Battalion, 1st Air Defense Artillery, Fort Bliss, Texas. Formerly assigned to the 1st Battalion, 55th Air Defense Artillery, Fort Polk, La., he served as brigade liaison officer for the 2nd Brigade, 5th Infantry Divisio (Mech). A graduate of Shippensburg State College, Shippensburg, Pa., he has attended the Air Defense Artillery Officer Basic Course and has served as a Chaparral platoon leader.*

U.S. ADA and the Tumultuous Middle East

ernesto martinez

U.S. CENTCOM

A Deterrent Force in the Volatile Middle East

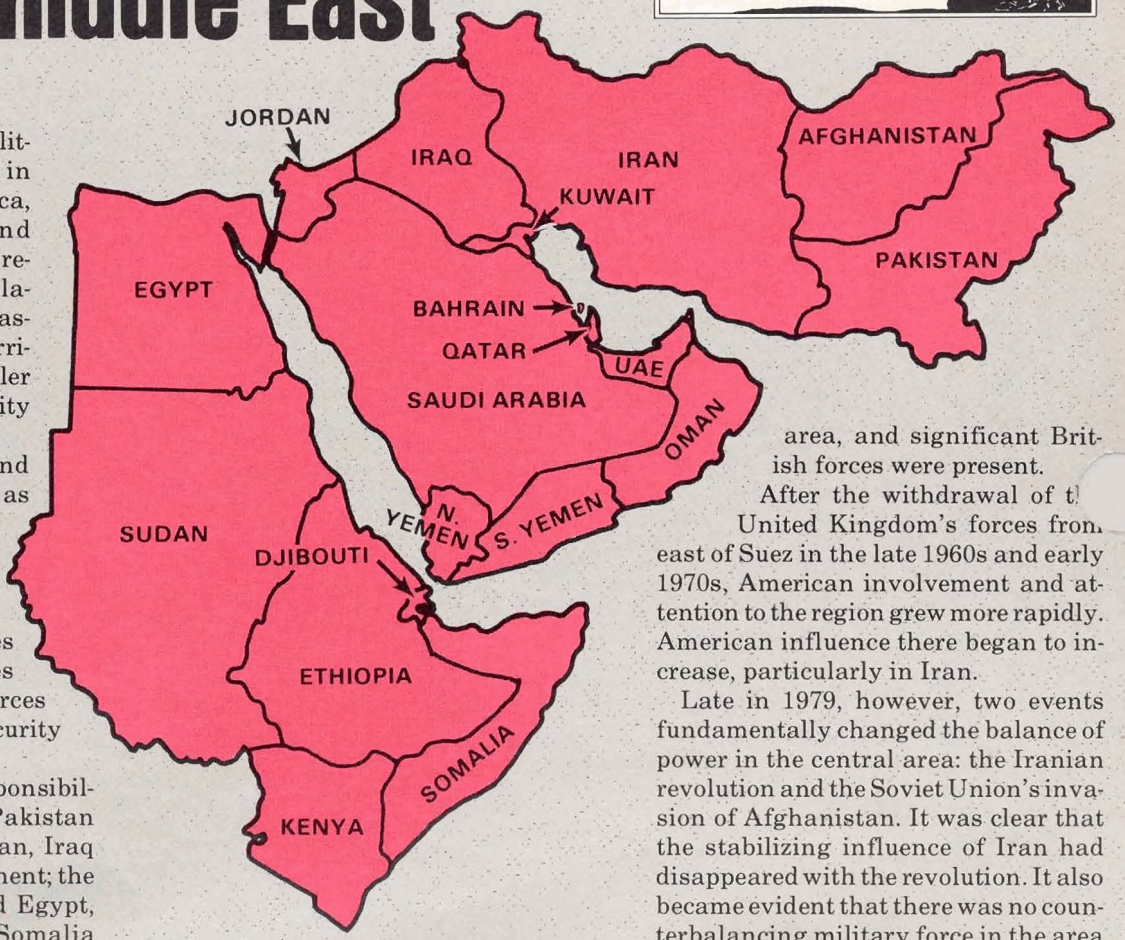
Military, religious and political turmoil rampant in the nations of Northeast Africa, the Arabian Peninsula and Southwest Asia makes this region one of the world's most volatile. World attention is increasingly focused on this critical territory as superpowers and smaller states alike weigh their security interests in the area.

The U.S. Central Command (CENTCOM) was established as the sixth unified command in January 1983 with responsibilities in this 19-nation area for military planning, operational command of U.S. forces in the theater, joint exercises involving U.S. and regional forces and administration of the security assistance program.

The command's area of responsibility begins in the east with Pakistan and includes Afghanistan, Iran, Iraq and Jordan on the Asian continent; the entire Arabian Peninsula and Egypt, Sudan, Ethiopia, Djibouti, Somalia and Kenya on the African continent. It includes the waters of the Red Sea and Persian Gulf.

A small forward headquarters element afloat was established in December 1983 with the Middle East Force in the Persian Gulf. This element serves as liaison with U.S. embassies and the nations of the region. It also aids in planning and coordinating joint exercises and performs other duties that benefit the command.

The command has been assigned, for planning purposes, a force list approaching 300,000 personnel representing all four services. The Army component of U.S. Forces Central Command is the recently established Third U.S. Army, headquartered at Fort McPherson, Ga.



One of the principal advantages of having a single unified command for the region is that all nations will have only one U.S. command to deal with on most security issues. The command ensures that all U.S. security activity in that area is fully coordinated.

To understand why the U.S. Central Command has been established, it is necessary to review the recent history of the region.

At the end of World War II, there was little U.S. military focus on the central area. This stemmed from the fact that the United Kingdom was capably representing Western interests in the area, and significant British forces were present.

After the withdrawal of t United Kingdom's forces from east of Suez in the late 1960s and early 1970s, American involvement and attention to the region grew more rapidly. American influence there began to increase, particularly in Iran.

Late in 1979, however, two events fundamentally changed the balance of power in the central area: the Iranian revolution and the Soviet Union's invasion of Afghanistan. It was clear that the stabilizing influence of Iran had disappeared with the revolution. It also became evident that there was no counterbalancing military force in the area to help maintain regional stability and safeguard Free World interests.

Moreover, the Soviet invasion of Afghanistan provided tangible evidence that the Soviet Union would not hesitate to use military force in the region if doing so contributed to long-standing Soviet ambitions, and if there were no serious potential for effective opposition.

Historically, the Soviet Union has demonstrated a serious desire to e pand into the region. Russia, for exa ple, invaded Persian territory five times during the past 300 years—twice in this century. The fact that Soviet military forces continue to occupy Afghanistan in considerable strength

makes the Soviet Union a formidable force in the central area. There is no military force in the region with more combat power.

One of the key reasons the United States needs a unified command is to provide a focus for combined efforts to meet any threat posed to the region. The establishment of the command provides a means to satisfy that responsibility.

It is obvious that the United States and its friends and allies have significant interests in the central region. In addressing those interests, there is a tendency to link the existence of the Central Command to oil as the absolute overriding consideration. In fact, the U.S. national interests in the central region go well beyond simply ensuring a continued flow of oil.

Formation of CENTCOM as a theater command provides recognition that the United States has strong diplomatic, economic and security interests and many close ties with nations of the region. The United States wants to strengthen those ties, and the Central Command is intended to help do that.

Establishment of a command that can respond to security issues underscores the importance of nations of the region to the United States. It also serves to reinforce the message that the United States is committed to help those nations deter and resist aggression.

United States security interests in the central area are inseparably tied to those of the region and are based on three dimensions of capability:

- what each friendly nation of the region can do with its military forces if threatened.
- what each nation can do when the military forces of its regional friends and allies are added.
- what assistance the United States could provide in concert with regional forces, if the United States were asked to assist.

Egyptian and U.S. military personnel operate together during the Bright Star exercise in Egypt, one of the 19 countries of the U.S. Central Command's area of responsibility.

Because of the command's association with the region, it is already attuned to a total regional approach, is sensitive to its host's political climate and is aware of U.S. military capabilities and limitations.

Although it would be useful for the command to place a limited number of headquarters personnel in the area, there is no desire or intention to station large numbers of U.S. forces there. Should it become necessary for the United States to assist its friends in the central area, the command will use forces primarily in the United States. Some military equipment and supplies, however, may be prepositioned in or near the region.

The genesis, purpose and role of CENTCOM may have elements which can be found in other military units but, in the final analysis, the Central Command is a unique entity.

First, it is a command that is not part of any formal alliance such as NATO, and there are no treaties governing its role. Nevertheless, the command expects considerable assistance from allies and friends inside as well as outside the region to support any contingency operations. Depending upon the circumstances, the support might range from political assistance through the granting of overflight rights to the commitment of military forces and combined operations.

Another unique feature of CENTCOM is that its headquarters and military forces are not located within the theater. Because it has no forward land-based forces, CENTCOM—working with the U.S. Army Readiness Command and the Joint Deployment Agency—can assemble forces and deploy them on short notice. In effect, the forces use an "over the horizon" projection and contingency concept. They would arrive only after being invited and depart as soon as possible after their job was done.

CENTCOM is also unique in that other unified commands generally have principal communications facilities, support facilities, supplies and equipment in place to sustain their forces. It is a fact of CENTCOM's existence that, if the command must deploy, it will have to move almost all of those assets thousands of miles to the theater of operations.

The things that make CENTCOM unique also make the role of air defense artillery unique in support of this command. Mobility, sustainment, communications and other issues must be addressed by supporting air defense artillery units in this context. The 11th Air Defense Artillery Brigade, Fort Bliss, Texas, is one of the air defense units with reaction responsibility to CENTCOM.

Official name: Democratic Republic of Afghanistan.
Population: 13.5 million (plus about 2.8 million refugees in Pakistan and 0.5 million in Iran).
Capital: Kabul.
Area: 260,000 sq. mi.; about the size of Texas.
Terrain: Mostly mountains and desert.
Climate: Cold winters and hot, dry summers.
Government: Afghanistan terms itself a "democratic republic."

AFGHANISTAN

Afghanistan is a land-locked Muslim country. Its ethnically and linguistically mixed population reflects the country's location astride historic trade and invasion routes. Religion prevades all aspects of life. Most people are engaged in agriculture and are divided into clans and tribal groups.

In the spring of 1979, Soviet military involvement began to escalate dramatically and, for the first time since the end of World War II, the Soviets used a large-scale military force outside Eastern Europe to try to impose their will.

The United States, strongly opposing the Soviet invasion and continuing occupation of Afghanistan, seeks the total withdrawal of Soviet troops from Afghanistan through a negotiated settlement. The United States does not conduct normal diplomatic relations with the Soviet-installed Babark Karmal regime.

Official name: State of Bahrain.
Population: 393,000.
Capital: Manama.
Area: 260 sq. mi.; an archipelago of islands about four times the size of Washington, D.C.
Terrain: Low interior plateau and hill on main island.
Climate: Hot and humid.
Government: Traditional emirate (cabinet-executive system).

BAHRAIN

Bahrain is a group of islands in the Persian Gulf midway between the tip of the Qatar Peninsula and mainland Saudi Arabia. Most of the population, 66 percent, came from the Arabian Peninsula and Persia. Islam is the major religion.

Bahrain is a constitutional monarchy. Petroleum and natural gas are the only significant natural resources. The Bahrain Defense Force numbers about 2,800 personnel. Because of Bahrain's small size and limited wealth, the nation has not taken a leading role in regional or international affairs.

Upon Bahrain's independence, the traditionally excellent U.S.-Bahrain relationship was formalized with the establishment of diplomatic relations. In 1977, the agreement establishing Bahrain as the home port for the U.S. Navy's Middle East Force was terminated, but the ships may call at Bahrain.

Official name: Republic of Djibouti.
Population: 500,000.
Capital: Djibouti.
Area: 9,000 sq. mi.; about the size of New Hampshire.
Terrain: Coastal desert.
Climate: Torrid and dry.
Government: Republic.

DJIBOUTI

The Republic of Djibouti is located in northeast Africa. The indigenous population is divided between the majority Somalis and the minority Afars or Danakils. Both are Hamitic peoples and nearly all are Muslim.

Djibouti, which gained its independence in 1977, is the successor to the French territory of the Afars and Issas. In 1981, the National Assembly passed nine articles of constitution and elected a president. Djibouti has its own armed forces, but the security of the country is also assured by the continued presence of French troops.

The first U.S. ambassador to the Republic of Djibouti arrived in October 1980. Djibouti has permitted the U.S. Navy access to its modern and well-located seaport and airport. The Djiboutian government has adopted positions on most international issues compatible with those of the United States.

Official name: Arab Republic of Egypt.
Population: 46 million.
Capital: Cairo.
Area: 366,000 sq. mi.; slightly smaller than California, Nevada and Arizona combined.
Terrain: Desert except Nile River valley and delta.
Climate: Dry, hot summers; moderate winters.
Government: Republic.

EGYPT

Egypt has a continuous recorded history of 5,000 years, the world's longest, and to Egypt is the most populous country in Arab world. Egyptians are of Hamitic origin, with some admixture in the north with Mediterranean and Arab peoples and in the south with the Nubian groups from black Africa. Egypt has long been a cultural center of the Middle East, and Egyptian films, television programs and books are available throughout the area.

The Egyptian constitution provides for a strong executive who appoints the vice president, the prime minister and the cabinet. Egypt's armed forces are the largest in the region, totaling roughly 450,000 personnel divided into four services. Military equipment is primarily Soviet.

The United States began providing military assistance in 1979 to begin replacing Egypt's large inventory of aging Soviet equipment. Recently Egypt has made new pacts with the Soviets for equipment also. The U.S.-Egyptian relationship has grown increasingly close during the past several years, based on shared goals and perceptions on Middle East peace, regional security and Egypt's development needs.

Official Name: Socialist Ethiopia.
Population: 32 million.
Capital: Addis Ababa.
Area: 472,400 sq. mi.; about the size of Texas, Oklahoma and New Mexico combined.
Terrain: High plateau, mountains and dry lowland plains.
Climate: Temperate in the highlands; hot in the lowlands.
Government: Provisional military government.

ETHIOPIA

Ethiopia's population is highly diverse. O the more than 40 different groups, the Amha Tigreans and Oromos make up more th three-fourths of the population. In general, most highlanders are Christian and lowlanders are Muslim and animist. English is the most widely spoken foreign language.

Ethiopia, located in the Horn of Africa, is the continent's oldest independent country. The Provisional Military Government of Socialist Ethiopia (PMGSE) dissolved the parliament and suspended the constitution in 1955. Ethiopia is governed by the PMGSE, composed of the military officers and enlisted men who overthrew the leader in 1974. Ethiopia is committed to a centralized, planned economy based on Socialist principles. The Ethiopian economy is based on agriculture. Coffee is its major export.

Ethiopia has one of the largest armed forces on the African continent with more than 250,000 troops. The United States was Ethiopia's major arms supplier until 1977, when it began receiving massive arms shipments from the Soviet Union. The United States has recently granted emergency aid to help feed the victims of this drought and famine ravaged country.

Official name: Islamic Republic of Iran.

IRAN

Two-thirds of Iran's people are of Ary origin. The other third is primarily Turk Iranian society is divided into urban, market-town, village and tribal groups. Most Iranians are Muslim. Ninety-three percent of the population belong to the Shi'a branch of Islam, the official state religion.

Population: 42.5 million.
Capital: Tehran.
Area: 636,000 sq. mi.; slightly larger than Alaska.
Terrain: Desert and mountains.
Climate: Semi-arid; subtropical along Caspian coast.
Government: Islamic republic.

Official name: Republic of Iraq.
Population: 14 million.
Capital: Baghdad.
Area: 167,924 sq. mi.; slightly larger than California.
Terrain: Alluvial plains, mountains and desert.
Climate: Mostly hot and dry.
Government: Ruling council.

JORDAN

Official name: Hashemite Kingdom of Jordan.
Population: 2.5 million.
Capital: Amman.
Area: 37,297 sq. mi; slightly larger than Indiana.
Terrain: Rocky desert, mountains and plains.
Climate: Arid.
Government: Constitutional monarchy.

Official name: Republic of Kenya.
Population: 18.9 million.
Capital: Nairobi.
Area: 224,960 sq. mi.; slightly smaller than Texas.

In 1978, domestic turmoil swept the country as a result of religious and political opposition to the Shah's rule and programs. In February 1979, exiled religious leader Ayatollah Kohmeini returned from France to direct a revolution.

On April 7, 1980, the United States broke diplomatic relations with Iran. In 1981, the Swiss government assumed representation of U.S. interests in Iran. Iranian interests in the United States are represented by the Algerian government.

IRAQ

Once known as Mesopotamia, Iraq has been the site of a number of flourishing civilizations and is the location of the legendary Garden of Eden. Today, Iraq's two largest ethnic groups are Arabs and Kurds.

In June 1982, President Saddam Hussein streamlined the Revolutionary Command Council to nine members who enact legislation by decree. Petroleum production accounts for almost all export earnings. Since 1980, the Iran-Iraq war has drained a large share of decreased petroleum revenues.

Iraq's relations with Western Europe and Japan are generally good, especially in commerce. At the time of the June 1967 Arab-Israeli conflict, Iraq broke diplomatic relations with the United States. In 1972, the United States established an interests section in Baghdad under the auspices of the Belgian Embassy, and, in 1981, President Hussein stated publicly that the U.S. interests section would be treated like a diplomatic mission.

JORDAN

Most Jordanians are Arab and the official language is Arabic, but English is used widely in commerce and government. About 60 percent of Jordan's population is urban. More than one million Palestinian Arabs, including more than 850,000 registered refugees and displaced persons, reside on the East Bank. All Palestinians living in Jordan have Jordanian citizenship.

Jordan is a constitutional monarchy. Executive authority is vested in the king and the council of ministers. Legislative power rests in the bicameral national assembly. King Hussein has been the central figure in Jordan since his reign began in 1953.

Jordan's role in the gulf and its opposition to terrorism parallel and indirectly assist wider U.S. interests. Accordingly, through economic and political cooperation, the United States has helped to maintain Jordan's freedom to take independent action.

KENYA

Traditional herders, Arab Muslims and cosmopolitan residents of Nairobi all contribute to Kenya's culture. Recent anthropological finds near Kenya's Lake Turkana indicate that the Homo genus of humans lived in the area 2.6 million years ago. Today, the standard of living in major cities is among the highest in sub-Saharan Africa.

Terrain: Varied.
Climate: Varies from tropical to arid.
Government: Republic.

KUWAIT

Official name: State of Kuwait.
Population: 1.75 million.
Capital: Kuwait.
Area: 6,880 sq. mi.; slightly smaller than New Jersey.
Terrain: Desert.
Climate: Intensely hot and dry in summer.
Government: Constitutional monarchy.

Official name: Sultanate of Oman.
Population: 1 million.
Capital: Muscat.
Area: 115,800 sq. mi.; about the size of New Mexico.
Terrain: Mountains, plains and arid plateau.
Climate: Humid along coast; hot and dry interior.
Government: Absolute monarchy.

Official name: Islamic Republic of Pakistan.
Population: 94 million.

Formerly a British colony, Kenya has maintained remarkable stability since gaining its independence, despite many changes within the democratic system. The form of government has changed from federal to republic. Kenya's major political challenge is to reinvigorate its economy. The uniformed services constitute a small, professional establishment of about 16,000 members.

The United States and Kenya enjoy cordial relations. More than 6,000 U.S. citizens reside in Kenya. A U.S. assistance program focuses on small farmers and the rural landless, which comprises four-fifths of Kenya's poorest citizens.

KUWAIT

The people of Kuwait are primarily Arab in origin, though only 40 percent are indigenous. Most native Kuwaitis are Sunni Muslims. The country has one of the highest literacy rates in the Arab world. Before the advent of tremendous oil reserves, Kuwaitis' lives were austere.

The State of Kuwait has been ruled by the Sabah family since about 1750. The constitution of 1962 contains detailed provisions on the powers and relationships of the branches of government and on the rights of citizens. Kuwait has experienced an unprecedented era of prosperity, and the country has been transformed into a highly developed welfare state with a free economy.

The United States supports Kuwait's independence and orderly development and has provided military and technical assistance to Kuwait that has been paid for in cash.

OMAN

Omani ethnic groups include Arab, Bulchi, Zanzibari and Indian. Seventy-five percent of the population is Ibadhi Muslim. Except for a brief period of Persian rule, the Omanis have remained independent since 1650.

Sultan Qaboos bin Said is an absolute monarch who rules with the aid of his ministers. His dynasty was founded about 250 years ago. Oman does not have the immense oil resources of some of its neighbors. Agriculture and fishing are the traditional ways of life in Oman.

The United States has maintained relations with the sultanate since the early years of American independence. The United States has been provided access to Omani military facilities by U.S. forces. A Joint Economic and Technical Cooperation was established in 1980 to provide American economic assistance to Oman.

PAKISTAN

Most Pakistanis live in Karachi, in the Indus Valley. Punjabis are the dominant majority. The official language is Urdu, but 65 percent speak Punjabi. Ninety-seven percent are Muslim.

With overwhelming unrest in the political system occurring, General Muhammed Zia-ul-Haq became chief martial-law administrator

Capital: Islamabad.
Area: 310,527 sq. mi.; excluding Jammu and Kashmir—disputed with India—about the size of California.
Terrain: Desert; mountains.
Climate: Hot near coast; cool near uplands.
Government: Martial-law regime established in 1977.

in 1977. He promised to hold new elections within 90 days. After canceling the elections Zia began to formalize his regime. Zia canceled the 1973 constitution when he assumed control of the country.

In November 1979, a false news report put out by the Kohmeini regime in Iran said that the United States' participation in the seizure of the Grand Mosque in Mecca led to a mob attack on the U.S. Embassy in Islamabad. The Embassy burned and four persons died; relations between the countries reached an all-time low. Following the Soviet invasion of Afghanistan, however, the United States restated its strong support for Pakistan's territorial integrity.

Official name: State of Qatar.
Population: 270,000.
Capital: Doha.
Area: 4,247 sq. mi.; about the size of Connecticut.
Terrain: Mostly desert, flat and barren.
Climate: Hot and dry.
Government: Traditional emirate.

QATAR

Most Qatar residents are not of Arab origin. Expatriates make up 80 percent of the population, mainly from Iran, India and Pakistan, and most are temporary residents seeking work for a better future outside the state. The Qataris are mainly Sunni Muslim. English is the common language because of a long British influence. The British treaty relationship terminated in 1971, and Qatar became fully independent.

Politically, Qatar is evolving from a traditional society under the guidance of an amir into a modern welfare state. Oil revenues since 1949 have transformed Qatar's society and economy. Qatar is pursuing a vigorous program of "Qatarization," under which Qatari nationals move into positions of greater authority in industry and government.

Close, bilateral relations have developed between the United States and Qatar over the past decade.

Official name: Kingdom of Saudi Arabia.
Population: 11 million.
Capital: Riyadh.
Area: 830,000 sq. mi.; about one-third the size of the continental U.S.
Terrain: Mainly desert.
Climate: Arid with great extremes of temperature.
Government: Monarchy with council of ministers.

SAUDI ARABIA

Saudi Arabia is best known as the birthplace of Islam, and to this day the Saudi government takes its stewardship of the holy places of Islam very seriously. Until a few years ago, most of the people were nomadic or seminomadic; however, under the impact of economic growth, urbanization has grown rapidly. Saudis are ethnically Arab.

The most important event in the modern history of Saudi Arabia was the discovery of oil in the 1930s. The central institution of Saudi Arabian government is the monarchy whose authority is based on Islamic law. Saudi Arabia led the Islamic world's condemnation of the Soviet invasion of Afghanistan and has no diplomatic relations with any communist state.

U.S.-Saudi Arabian relations, though strained at times by differences over the Arab-Israeli conflict, remain strong. The United States and Saudi Arabia share a common concern about regional security and orderly development.

Official name: Somali Democratic Republic.
Population: 6,200,000.
Capital: Mogadishu.
Area: 246,000 sq. mi.; slightly smaller than Texas.
Terrain: Flat; northern Somalia hilly.
Climate: Hot with seasonal monsoons.
Government: Independent republic.

SOMALIA

The Somalia people share a remarkably homogeneous culture and identity. As early as the seventh century A.D., indigenous Cushitic people mingled with Arab and Persian traders until, over the centuries, the interaction led to the emergence of a Somalia culture.

In 1961, after a history of British and Italian involvement, Somalia adopted its first national constitution which provided for a democratic state. Its economy is pastoral, and the country lacks natural resources. Since independence, Somalia has followed a foreign policy of non-alignment.

The Somalia National Army's equipment and weaponry is primarily Soviet. In recent years the government has turned more to Western countries to equip its armed forces. The U.S. government signed a military access agreement with Somalia that allows U.S. forces access to Somalia port and airfield facilities.

Official name: Democratic Republic of Sudan.
Population: 20 million.
Capital: Khartoum.
Area: 967,500 sq. mi.; almost one-fourth the size of the continental U.S.
Terrain: Flat with mountains in east and west.
Climate: Desert in north to tropical in south.
Government: New military regime.

SUDAN

Sudan's population is composed of two distinct cultures—Arab and black African—and achieving effective collaboration between them poses one of the nation's principal internal problems. Sudan is the largest country in Africa now, but was a collection of small independent states in its earliest history. Sudan's history includes both Egyptian and British control.

With the consent of the British and Egyptian governments, Sudan achieved independence in 1956. Sudan has a tradition of strong labor unions. Sudan's primary resources are agricultural. A large export crop is gum arabic with Sudan producing 80 percent of the world's supply.

The Sudanese People's Armed Forces is a 60,000-member defensive force. Following a recent coup, Sudan's new military regime has signaled intentions to maintain the country's pro-Western policies.

Official name: United Arab Emirates.
Population: 1.3 million.
Capital: Abu Dhabi.
Area: 32,000 sq. mi.; roughly the size of Maine.
Terrain: Desert.
Climate: Hot and dry.
Government: Federation of emirates.

UNITED ARAB EMIRATES

Indigenous Emiris are Arab, the rest of the population includes other Arabs, Iranians, Egyptians and Jordanians. Most of the indigenous people are Sunni Muslim.

When the British protective treaty with the Trucial Shaikhdoms ended in 1971, six of them entered into the union called the United Arab Emirates. The seventh, Ras al-Khaimah, joined in early 1972. Administratively, the U.A.E. is a loose federation of seven emirates, each with its own ruler. Under the 1971 constitution, each emirate reserves considerable powers. Petroleum dominates its economy.

For some years, the United States enjoyed friendly, informal relations with the Trucial Shaikhdoms, a relationship built on mutually advantageous private U.S. contracts in the area. Upon federation, the United States recognized the U.A.E. and agreed to establish formal diplomatic relations.

Official name: Yemen Arab Republic.
Population: 6 million.
Capital: Sanaa.

NORTH YEMEN

Yemenis are mainly of Semitic origin and, unlike other regional people, are almost entirely sedentary and live in small villages. North Yemen's territory was once part of the

Area: 77,200 sq. mi.; smaller than South Dakota.
Terrain: Mostly mountainous.
Climate: Interior moderate; hot and dry in the coastal plain.
Government: Republic.

ancient Kingdom of Sheba. The Turks maintained varying degrees of control over Yemen from the 16th century until the early 1960s.

Hostilities broke out in 1963 between republicans and royalists loyal to a ruler left in place when the Turks withdrew. Egypt came to the aid of the deposed leader. But, after the Arab summit conference in 1967, Egyptian troops were withdrawn. In 1971, nationwide elections took place.

Civil war and a prolonged drought dealt a severe blow to the country's previously prosperous agriculture. Saudi Arabia has become Yemen's principal aid donor in recent years.

In 1979, the United States, in cooperation with Saudi Arabia, provided over $400 million in military equipment to the Yemen Arab Republic during a border conflict with the People's Democratic Republic of Yemen. The United States is continuing to provide training and maintenance support for this military equipment.

Official name: People's Democratic Republic of Yemen.
Population: 2.2 million.
Capital: Aden.
Area: 130,000 sq. mi.; about the size of Nevada.
Terrain: Mountainous interior; flat and sandy coast.
Climate: Very hot with minimal rainfall.
Government: Republic.

SOUTH YEMEN

Almost all South Yemenis are Muslims of Arab origin. Since independence, virtually all resident minority groups have departed. Arabic is the official language, with English widely understood. Most of the people are farmers or nomadic herders.

With a rising tide of Arab nationalism, open opposition to British involvement in the area appeared in 1965, and by 1967 the British started pulling out their troops. During the early period of South Yemen's independence, it was ruled by a three-man council and a council of ministers. In 1978, South Yemen enacted a new consitution and amalgamated the three political parties.

The United States recognized the new republic in 1967. The South Yemen government, however, viewed the United States with antagonism, apparently because of the close U.S. relationship with Saudi Arabia and the U.S. policy toward Israel. South Yemen formally broke diplomatic relations with the United States in 1969.

Middle East Challenges ADA Defense Design

by Capt. Richard L. McCabe

Southwest Asia, the Persian Gulf and the Horn of Africa together comprise a massive land area. It is populated by many diverse cultures and, perhaps for as many reasons, is known for its instability. The West's long-established interests in this area of the world range from economic to strategic. When the U.S. Central Command (CENTCOM) was established to secure these interests and the welfare of friendly states therein, the 11th Air Defense Artillery Brigade, Fort Bliss, Texas, was tasked to provide air defense artillery for associated contingencies. For the 11th ADA Brigade, this volatile region was then given a new identity—the "area of responsibility" (AOR).

The challenge to planners was clear, if not awesome. Stated simply: "Provide low- to medium-altitude air defense of selected critical assets within the AOR." Exacting demands included problems in deployment, environment airspace management and maintaining command, control and communications in this exhaustive territory.

The 11th ADA Brigade would be task organized as an "echelon above corps" element and would receive its planning guidance from the commander, Third U.S. Army, Fort McPherson, Ga. At 11th ADA Brigade's disposal are three Hawk battalions (square configuration), one Chaparral/Vulcan battalion and one Roland battalion, all with associated command and control equipment. These assets, if deployed, would be spread over an area of more than 60,000 square miles.

Defense design makes use of all the basic air defense guidelines, not the least important of which is the threat. The threat is expected from any of a dozen specific directions and could be composed of state-of-the-art combat aircraft, including high-performance jets, fighter-bombers and the most serious helicopter threat in the world. In fact, in any area with valleys and mountains where low-altitude approach is facilitated by terrain, a high to medium-air defense (HIMAD) unit survivability is perhaps inversely proportional to the magnitude of the helicopter threat.

Deployment

Aside from maintaining command and control, probably the single most difficult task is deploying the force over a great distance and putting it in place in a timely and efficient manner. Unit tables of organization and equipment and load-planning guidance make it possible to identify, to the plane load, how many C-141 or C-5A aircraft are required to move the brigade anywhere. Unfortunately, such a simplistic approach is short lived. Air defense artillery comprises only a small part of CENTCOM's assets, and all

transportation assets must be spread over the entire force, or millions of short tons.

The initial effort of deploying the rce consists of establishing a time-ıased force deployment list (TPFDL) that allows for rapid deployment of limited air defense capability into the AOR. This package provides security for main points of entry that the balance of the force must rely on for introduction to the theater. The selection of which ports of debarkation (POD) will receive priority consideration is based on the depth of water in the port and turn basin as well as the quality and operability of port-handling equipment. Also, where large air bases and air fields are in close proximity to the post, additional air defense is warranted.

The design of this force package must accommodate these factors and require minimal use of airlift. The 11th ADA Brigade realized the need to reduce the size, in cubic feet, of all larger tactical equipment and weapon systems. A great deal of effort was expended on researching ways to "downsize" weapon systems like Hawk.

Standard procedures were developed that focused on an objective of lightening the airlift requirement. The "Get ıght" program was the natural title of these procedures, and the unit did, in fact, do as the name implies. Getting light entails demating radars from trailers and control vans from trucks as well as simply stacking trailers where possible.

The C-5A Galaxy aircraft makes airlifting Hawk equipment possible without getting light. However, the number of C-5As needed to move one battery is prohibitively large, considering the volume of high-priority large equipment that is equally high or higher on the TPFDL. With the brigade's get light procedure, it is able to airlift one Hawk battery with fewer C-5As or in varying combination with C-141Bs.

The same type of get light advantages exist in air deployment of the Chaparral/Vulcan battalions or the Roland units. Once the design of the "packages" has successfully been accomplished and reflected on the TPFDL, the balance of the air defense forces was organized by unit and ılanned destination or POD.

Rail would be used in the continental Jnited States to transport these elements to various sea ports where the equipment would be loaded aboard cargo ships for a lengthy trip to the AOR. Departure of rail loads would be done concurrently with equipment transport via aircraft. This would, in reality, be based on train availability. Required report time at the port or the availability of sea lift would also govern deployment of the main body.

Depending on the actual scenario, it may be possible to take advantage of agreements made with some countries in the AOR which allow staging areas within their borders. These "jumping off" points might be used to improve U.S. reaction capability and place more air defense assets farther forward than would otherwise be possible.

Figure 1.

Current Integrated Air Defense System with Message Processing Center (MPC) Required

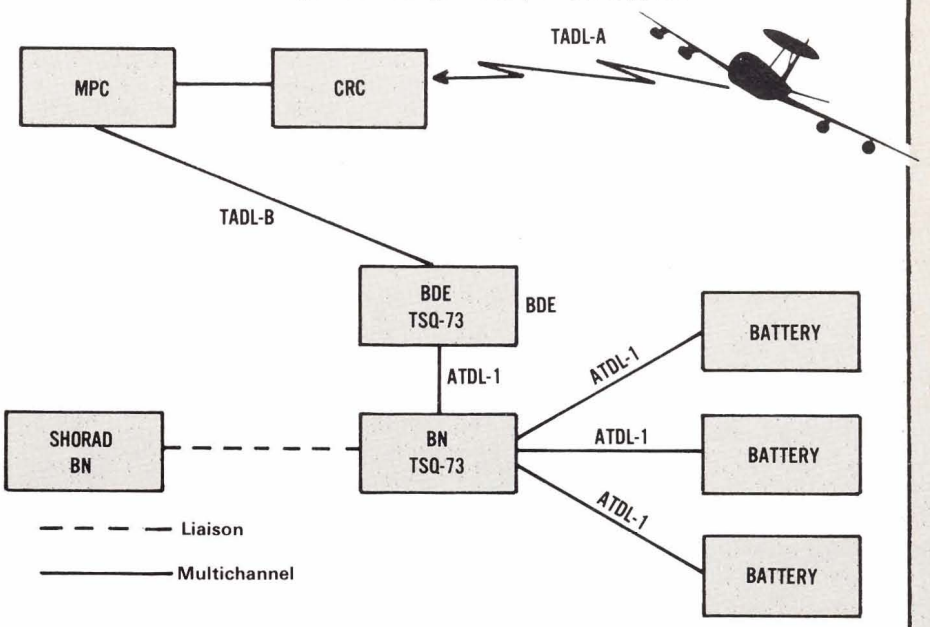
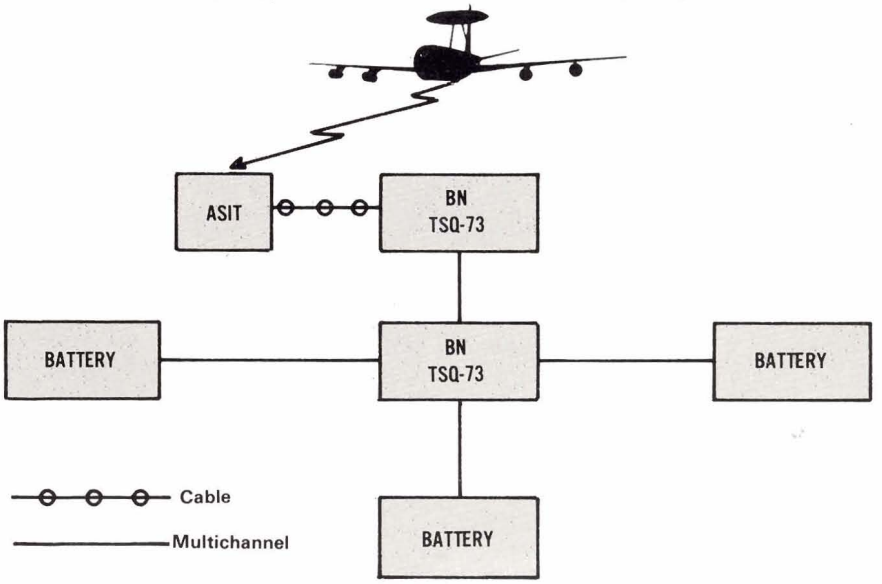


Figure 2.

Integrated Air Defense System with Adaptable Surface Interface Terminal (ASIT)



Employment in Harsh Climate

When employing sophisticated weaponry in one of the harshest climates on earth, environmental considerations automatically move to a high place on the list of priorities.

Sand and heat combine to decrease the life expectancy of many critical system components. Blower motors, generators, slip rings and many parts relying on bearings can obviously be expected to suffer substantially higher failure rates. The added complication of heat serves to exaggerate an already grim situation.

The 11th ADA Brigade's experience in the U.S. Desert Southwest has shown that camouflage may serve an additional purpose as a sun shield to a limited degree. To further forestall the

effects of heat on the communications equipment, small air conditioning units have been used in TRC-145 equipment (UHF multichannel).

Maintenance training is the final part of the equation. The environment will not change and, through emphasis on in-field maintenance at the organizational level, the brigade's units have sustained excellent operational readiness rates during prolonged exercises. From changing filters with greater frequency to the performance of periodic systems services, crews have learned to adapt procedures to a very hostile natural environment.

C³I Over Volume Real Estate

Command, control, communications and intelligence will have to be provided over a very large volume of real estate and airspace.

In all previous exercises and war plan development, planners have stressed the need for four "doctrinal" channels of communications between each node in the ADA command and control structures. The four channels allocated were for voice tactical operations, digital data information, radar reporting and maintenance.

In the AOR, this particular requirement is not always necessary. The differences between a NATO European theater and the AOR clearly begin to reveal themselves at this point. The NATO European theater typically uses a greater concentration of air defense artillery assets within a given battle management area (BMA). This allows a European air defense brigade to act as a controlling authority at various times for all of its assigned units. The range display capabilities of the TSQ-73 Missile Minder, coupled with a tighter concentration of units, ensure viable control of air defense fires by a single C^2 node, in this case the brigade TSQ-73.

In contrast, operations in the AOR will be conducted by one air defense brigade as opposed to three or more. Due to the constraint of greatly reduced assets spread over thousands of square miles in point defense of critical assets, battalions are separated by BMA boundaries. Within each BMA, a control and reporting center (CRC), either United States or host nation owned and operated, will exercise control of air defense fires. It is likely that some battalions will operate at distances from the 11th ADA Brigade's TSQ-73 facility that are in excess of system display and control capabilities. Under these conditions, effective fire control cannot be maintained within the brigade. The CRCs within each BMA will be forced to assume direct tactical control of HIMAD battalions with no brigade interface. Fortunately, there is no hardware problem involved in this procedure as the TSQ-73 modems allow for such direct link situations.

Communication requirements, however, change between brigade and remote battalion modes. The ensuing reduction in the communication support burden will result in additional channels of communications being available to theater commanders for other purposes.

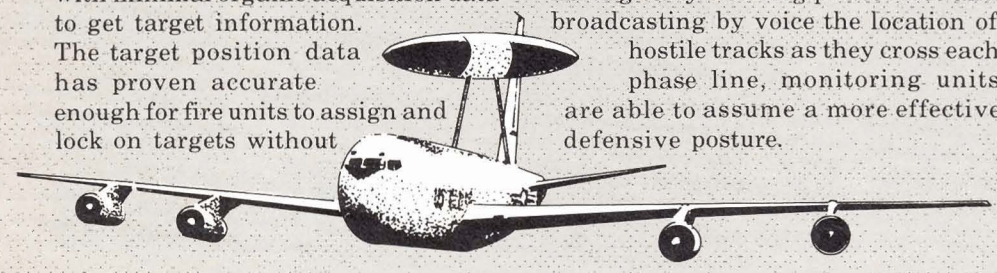
AWACS and Interoperability

The issue of interoperability between services takes on great importance when considering operation in the Middle East. The ability to work effectively, maximizing the capability of weapon systems by employing them in

ways complementing each other, builds a formidable integrated defense.

Cognizant of this fact, the 11th ADA Brigade is actively involved in the finement of operations with the Air orce's Airborne Warning and Control System (AWACS). The need to conserve scarce assets through strict operations security as well as simply "fighting smart," has given rise to new doctrine and procedures.

The combination of new Hawk hardware, as well as the ability to work with the AWACS through data and voice links, makes silent operations possible. Silent Sam involves the use of the AWACS as a "transparent" system from which HIMAD units on the ground obtain an air picture. The brigade uses this air picture supplemented with minimal organic acquisition data to get target information. The target position data has proven accurate enough for fire units to assign and lock on targets without radiating organic acquisition radars.



To further enhance the Silent Sam ode, Hawk optical tracking adjunct ystems (TAS) have achieved optical locks through remote symbology assignments. Optical tracking affords positive identification and superior signal security. The enemy pilot is totally unaware that he is being tracked. When the engagement is authorized, operators simply radiate the tracking radar long enough to allow launch and intercept. Once target destruction is achieved, tracking radars return to standby and quietly await the next ambush opportunity. Refinements in the TAS that enable optical acquisition will greatly enhance HIMAD operations and survivability, and are currently being investigated by the brigade.

It will perhaps be necessary for units to radiate at various times. The exchange of radar data through HIMAD system software will hold this requirement to a minimum. Ironically, the very environment that makes sustainment of operations difficult actually enhances execution by virtue of a clear tmosphere. Reliability of the C³I net- ork is of tremendous consequence when such heavy emphasis is placed on data links. The weakness of air defense artillery's emissions control plan through Silent Sam is data link viability. Degradation of these links ultimately forces increased internal radar emissions. The resulting increased anti-radiation missile and direction-finding threat is perilous for HIMAD units. (See Figure 1.)

The impending introduction of Adaptable Surface Interface Terminals (ASIT) will allow direct links between HIMAD battalions and the AWACS. The redundancy in sources of data will only serve to enhance the retention of this critical source of information. (See Figure 2.)

The role of the AWACS does not stop with the transmission of tactical action data link (TADL-A) data. Procedures are in place that allow for the voice broadcast of early warning information to all ground elements within the high-frequency radio range. By establishing early warning phase lines and broadcasting by voice the location of hostile tracks as they cross each phase line, monitoring units are able to assume a more effective defensive posture.

Immature Airspace Theater

Unlike the highly organized airspace of Europe, the Middle East presents a comparatively austere navigational environment. The AOR as a theater is simply not at the same level of maturity as Europe. The complete design of airspace utilization among joint service users is of great importance.

The resulting system will of necessity be simple. Basic air routing procedures as well as entry and exit measures will have to consider the capabilities of weapon systems used in the same area. Area defense weapon engagement zones which can be extremely large are restrictive to fighter aircraft sharing the same airspace. Smaller missile engagement zones (MEZ), which encompass the range and altitude capabilities of the individual HIMAD battery only, are a more viable approach to airspace usage. The potential hazard to friendly aircraft improperly entering or exiting a small, well defined MEZ is more easily avoided.

By the same token, the reduced size of a battery MEZ would potentially allow for a more intensive defense. The 11th ADA Brigade is participating jointly with the appropriate Air Force elements in earnest efforts to develop the necessary procedures and airspace management criteria for the AOR. This plan will be published later this year.

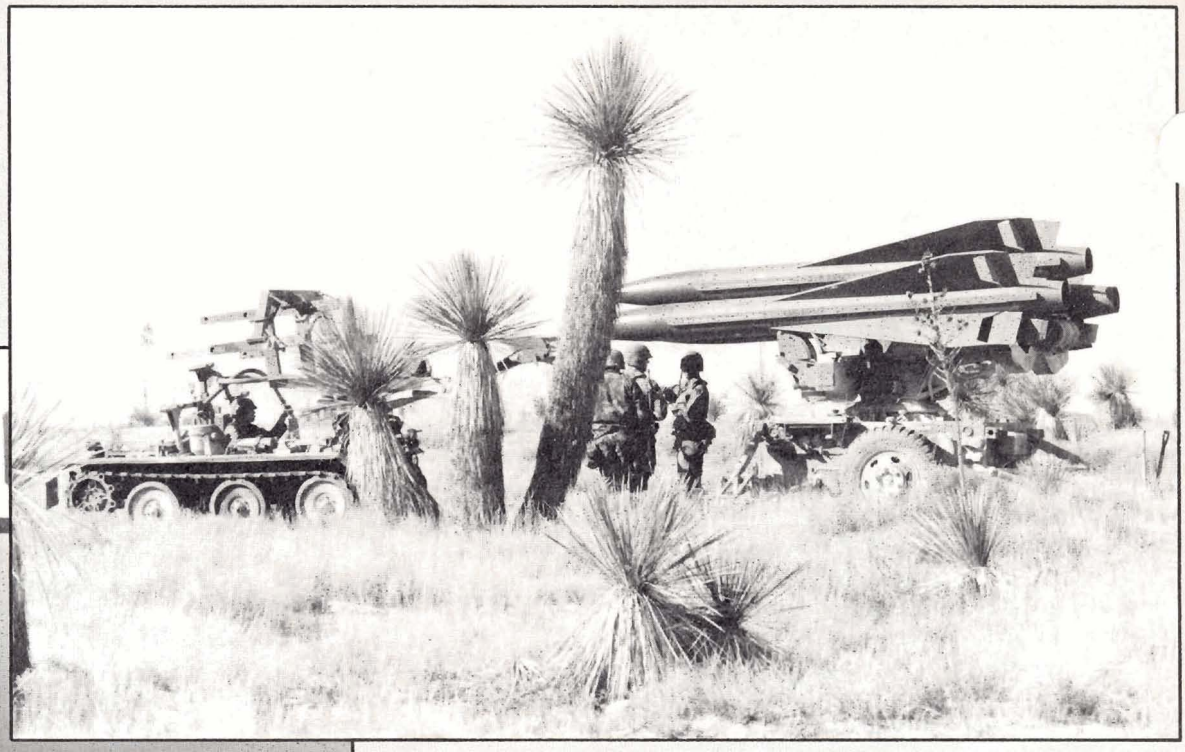
Middle East Under Close Scrutiny

The 11th ADA Brigade's mission for the Middle East has spawned the need for close scrutiny of current and past air defense artillery doctrine. The resulting departure from NATO European procedures and tactics is based on a totally different environment and comparatively austere tactical conditions. Limited logistical facilities will ultimately change TOEs to enable units to be more self sufficient. Limited combat assets make clear the need for better use of all weapon systems capabilities.

Regardless of all the efforts of each individual service, success will be achieved through a combined effort. The ingredient of a joint service collective effort that is trained at every opportunity must be continuously added to the formula. As an example, CRCs must rehearse allocating fires to Army HIMAD. The integrated air defense system relies on this function to properly work.

It is hoped that the brigade's continued emphasis on joint operations during joint training exercises worldwide will aid in the perfection of joint air defense operations. A team effort among participating services under the CENTCOM umbrella has given rise to plans that will get us there and enable us to do sustained battle.

Capt. Richard L. McCabe *is assigned with the G-3, 101st Airborne Division (Air Assault), Fort Campbell, Ky. He is a distinguished military graduate of Georgia Military College, Milledgeville, Ga. As a battery commander and assistant brigade operations officer in 11th ADA Brigade, Fort Bliss, Texas, he planned brigade participation in numerous joint exercises worldwide.*



Brigade Satisfies All ADA Cravings

by MSgt. Bill Darrah

The 11th Air Defense Artillery Brigade offers it all—a taste of Europe or the Middle East, an opportunity to work with the latest air defense artillery equipment or conceive new ideas and watch them be tested. Much of what the brigade does is aimed directly at the perfection of plans, procedures and equipment to fight and win the air battle anywhere and anytime.

Assigned a primary FORSCOM mission, the brigade is a rapid deployment force and consists of three Hawk battalions and one Chaparral/Vulcan battalion. The 4th Battalion, 1st Air Defense

Artillery (C/V); the 1st Battalion, 7th Air Defense Artillery (Hawk); and the 1st Battalion, 65th Air Defense Artillery (Hawk), have been assigned to the Middle East mission under the U.S. Central Command. The third Hawk battalion, 2nd Battalion, 55th Air Defense Artillery, is the brigade's primary U.S. Army Europe unit.

By virtue of being located with the U.S. Army Air Defense Artillery Center at Fort Bliss, Texas, the 11th ADA Brigade's secondary mission is to support the center and the U.S. Army Air Defense Artillery School by providing support to individual and unit training. It is also active in the developing, upgrading, testing and evaluating of existing and new air defense concepts and systems.

In addition, the brigade commander acts as the senior air defense artillery advisor to the commanding generals of FORSCOM and Third Army, and is frequently called upon to provide them and allied nations advice and assistance on air defense related matters.

New systems are not new to the 11th ADA Brigade. The most recent air defense artillery system certified for deployment is the Patriot missile system. The brigade expended thousands of work hours over a three-year period helping to bring the system on-line.

The latest system currently undergoing evaluation by the brigade is the Sergeant York Gun. Echo Battery, 4/1 ADA, was formed for the task, and the findings by that unit will determine the fate of the Sergeant York Gun. If the system is adopted by the Army, E Battery will become A Battery of The School Brigade to form the cadre for a new battalion.

To round out its list of new systems, the brigade has also acquired operational control of the 5th Battalion, 200th Air Defense Artillery, New Mexico Army National Guard. The 5/200 ADA is the only U.S. Army battalion equipped with the Roland air defense system, which provides all-weather, day or night, short-range air defense. Though the brigade was not involved in the testing of the Roland system, it is involved in the integration of the system into the overall air defense network.

Through the many exercises the brigade participates in each year, new procedures are developed, changes to existing software and equipment are recommended, and the information is shared with the school and Air Defense Artillery Board for incorporation into future developments.

But a battle is not won by just one new development or weapon system. New developments in methods and machines must be combined to work as a single cohesive unit. Therefore, many of the brigade's exercises are conducted with other branches of the service so that each can learn how the other operates and improve their equipment and procedural compatibility. Each exercise is looked at as a testing ground to either practice or evaluate a specific area of air defense.

For example, Blazing Skies III, a joint training exercise conducted in the Texas and New Mexico deserts, was the largest and most successful exercise for air defense in the continental United States during last year. The experience involved more than 3,600 servicemembers from the Army, Air Force, Marine Corps, Army National Guard and the Army Reserve.

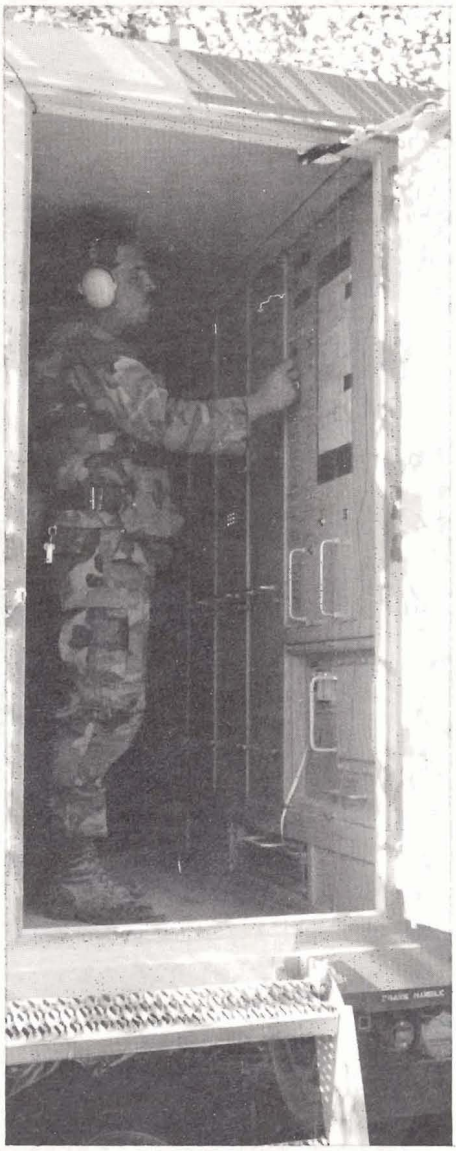
One of the major objectives of Blazing Skies III was to explore and implement new procedures that will increase the survivability of air defense units by reducing acquisition radar emissions. The goal was to limit the use of battery acquisition radars by using an Air Force AWACS as an external acquisition source to locate and identify potential targets and safely pass information to the brigade batteries. (See related story Page 14.) The exercise was a success and the emission control procedures established by the brigade during the exercise will become air defense doctrine.

The exercise also successfully integrated Hawk, Chaparral, Vulcan, Stinger and the Roland system into a single air defense network, allowing targets to be assigned to a specific battery by a single operations center.

By educating other combat arms commanders on what air defense artillery units can do for them, the brigade staff is working to ensure air defense is an integral part of overall battle planning. As a result of this educational process, the brigade is being invited to an increasing number of exercises each year. In all, brigade soldiers participate in approximately 10 major or minor exercises annually. From the knowledge gained from these exercises, the brigade has developed detailed and stringent Army Training and Evaluation Program (ARTEP) standards that define performance requirements for Hawk and Chaparral/Vulcan units. These standards have set the pace for a dynamic program throughout the brigade and, in turn, the standards ensure successes in future exercises.

Last year, brigade soldiers participated in five major Third Army joint training exercises and command post exercises in the United States and overseas. The brigade also participated in several smaller exercises that were air defense and contingency-plan related, but were not exercises scheduled by FORSCOM. They included exercises conducted jointly with the Air Force and exercises that provided air defense support for infantry and armor units at the National Training Center, Fort Irwin, Calif.

All the latest equipment, a chance to evaluate the newest air defense artillery philosophies and up-to-the-minute joint service exercises give brigade air defense artillerymen a taste of it all.



Soldiering in combined field exercises sharpens skills for 11th ADA Brigade personnel.

MSgt. Bill Darrah *is the 11th ADA Brigade's public affairs officer.*

ADA at Heartbreak Ridge

by Blair Case

Heartbreak Ridge cost the U.S. Army 6,000 casualties, but historian T. R. Fehrenbach, in his influential *This Kind of War*, wrote that "the real heartbreak was not for the men who had died, but at what had been accomplished by it all."

Heartbreak Ridge lies in the demilitarized zone between South and North Korea. It was abandoned, along with Porkchop Hill and Bloody Ridge, when United Nations troops, under terms of the cease-fire negotiated at Panmunjom, pulled back to the 38th Parallel. No war memorials adorn the ridgeline, which is in the middle of no-man's land, and no veterans return to reminisce on its slopes. Pine and forsythia have obliterated the scars of combat, and the ridgeline, today, looks much as it did during the summer of 1951.

The war had reached a stalemate that summer, and Communist negotiators showed little inclination to break the impasse. United Nations commanders ordered a limited offensive to demonstrate that the U.N. force still possessed the will to continue the struggle. The troops who fought their way up Heartbreak Ridge bled to achieve subtle readjustments of the line and to apply pressure on Communist negotiators at the peace table.

Heartbreak Ridge is a narrow, rocky mountain mass running north and south that dominates the Mundung-ni Valley on the west and the Satae-ri Valley on the east. The south and east slopes are steep and rocky while the north and west slopes are rolling hills of sand. The ridgeline's geography made it easy for the North Koreans to reinforce their troops on the top of the ridgeline from a hill to the north of Heartbreak while U.N. forces attacked it from the southeast.

Shells from the M-19's twin 40mm guns could penetrate 16 inches of reinforced concrete. Designed to combat enemy aircraft, it was often used against bunkers.

Enemy bunkers and entrenchments guarded the key approaches. In the valleys bordering the ridgeline were two important roads and riverbeds. The roads were little more than paths running through narrow gorges and deep defiles. The twisting, boulder-strewn riverbeds were the approaches for tanks. Artillery and mortar fire soon denuded the peaks and slopes of Heartbreak and the surrounding mountains so that they were devoid of individual cover or concealment except for enemy bunkers and entrenchments dug so deeply that no conventional shell could reach them.

The U.S. 23rd Infantry Regiment moved against the seven-mile long hill mass on Sept. 13, 1951, fighting its way to the top time and time again, only to arrive at the crest exhausted, decimated and short on ammunition. Time and time again, North Korean counterattacks knocked it off the three high knolls that crowned the spine of the ridgeline. The bloody game of king of the hill went on for 27 days, with the 23rd unable to maintain a permanent foothold atop the ridgeline. Frustrated U.N. commanders finally decided to send task forces through the two valleys below Heartbreak in a flanking maneuver designed to cut enemy supply lines.

The flanking maneuver was code-named Operation Touchdown. The 82nd AAA Automatic Weapon Battalion (SP) was ordered to support tanks of the 72nd Tank Battalion in a thrust up the Mundung-ni Valley on the west of Heartbreak and a second armored task force foray up the Satae-ri Valley on the east. The anti-aircraft battalion was equipped with two self-propelled weapon systems, the M-16, with its quadruple .50-caliber machine guns mounted on a half-track, and the M-19, with its 40mm cannons mounted on an M-24 light tank chassis.

The M-16's high silhouette and lack of protective shields left crewmen exposed to enemy fire.

The M-16 was very accurate and, as each barrel had an automatic rate of fire of between 400 and 500 rounds a minute, the combined rate of fire was between 1,600 and 2,000 rounds a minute. Its rate of fire made the M-16 effective against point targets while providing sufficient dispersion for effective area fire. The M-16, a large weapon with a high silhouette and little protection for its crew, was quite vulnerable to enemy fire. The half-track's bed offered some protection against fragmentation and small arms fire, but a direct-fire weapon of any caliber larger than .30 caliber would penetrate the half-track's ¼-inch metal skin.

The M-16 also had the inherent limitation of the half-track weapon, the dead space over the cab. Electrical stops prevented the weapon from being depressed enough to fire on ground targets directly in front of the cab. This limitation could be overcome by backing the weapon into firing position, by digging in the front wheels or by placing them in a depression in the ground.

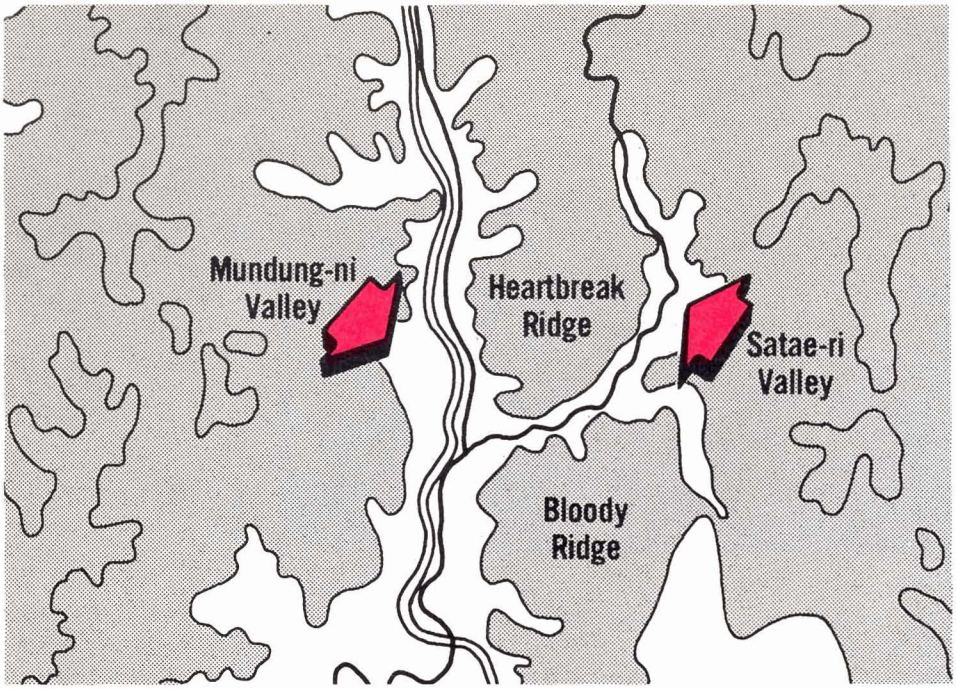
The M-19's twin 40mm guns had a muzzle velocity of 2,800 feet a second which gave it good penetrating effect.

The M-19 could penetrate 16 inches of reinforced concrete at a range of 700 yards, or more than 1¼ inch of armor at a range of 500 yards. It was well suited for fire against light pillboxes, slits in pillboxes, sandbagged or earthen emplacements and lightly armored vehicles. Its accuracy made it effective for the destruction of pinpoint targets such as caves. Each gun had an automatic rate of fire of 120 rounds a minute, giving the weapon a combined rate of 240 rounds a minute. The rate of fire, coupled with the weight of the 2-pound projectiles, resulted in extremely destructive fire. The M-19, like the M-16, presented a large target with an extremely high silhouette and little crew protection. Like all fully tracked vehicles, the M-19 was noisy, and its flat trajectory meant that the gunner had to be able to see the target in order to hit it, which, in turn, meant the enemy could see the M-19.

Hill 867 in the Mundung-ni Valley commanded the approach through the steep-clefted passageway to the mining country around the village of Mundung-ni. Approximately two battalions of North Koreans were fortified on it. The hill would have to be seized before Operation Touchdown could get underway. On Oct. 5, elements of the 9th Infantry Regiment set out to capture the high ground south and east of the objective and ran into stiff resistance. The infantrymen, hit hard by artillery and mortar fire directed from the hilltop, called for covering fire as they scaled Hill 867's sheer cliffs and ledges.

At about 5 a.m., Oct. 6, two sections of M-16s from B Battery, 82nd AAA, moved up from its assembly area and took up positions about 1,000 meters from Hill 867. The platoon leader, 1st Lt. Henry S. Dunbar Jr., placed his

Heartbreak Ridge cost the United States 6,000 casualties, but "the real heartbreak was not for the men who died, but at what had been accomplished by all."



The terrain favored the enemy. The North Koreans were able to reinforce their troops entrenched on Heartbreak Ridge through enfiladed routes to the north while U.S. forces attacked from the south.

The withering fire of the M-16s and tanks kept the enemy pinned down. . .

M-39 command vehicle in the center and to the rear of the two M-16 sections. As the infantrymen resumed their attack, the anti-aircraft gun and tanks opened up on the enemy positions. The enemy was clearly visible as they attempted to repulse the attack by rolling hand grenades over the cliffs and ledges on top of the advancing GIs of the 9th Infantry. The withering fire of the M-16s and tanks kept the enemy pinned down so that the attacking infantry could crawl and scratch their way to the top.

The M-16s and tanks continued their covering fire throughout the day. Dunbar, standing alongside his command vehicle to coordinate fires with the tank platoon commander, was seriously wounded when a passing tank detonated a land mine and sent shrapnel flying through the area. Capt. James H. Tyree, the battery commander, replaced the evacuated lieutenant and directed fire for the remainder of the day. The M-16 sections fired more than 118,000 rounds of .50-caliber ammunition. The advancing infantry secured the hilltop, taking extremely light casualties while the M-16s and tanks were credited with the destruction of an entire enemy battalion.

Once the hilltop was secured and the door to the Mundung-ni Valley lay open, 1st Lt. Clyde E. Cobb Jr., a C Battery platoon leader, took two M-16s and his M-39 command vehicle and carried engineers from the 2nd Engineer Combat Battalion and their demolition charges into the valley. The engineers worked night and day while the M-16s sprayed .50-caliber fire to suppress small arms and mortar fire. Craters dotted the road, and the North Koreans had planted mines along the way. At one point they had heaped large rocks and sprinkled the pile with hand grenades, each with its pin pulled. The engineers put 110 pounds of explosives around this roadblock, and

The M-16's quadruple .50-caliber machine gun had a combined rate of fire of between 1,600 and 2,000 rounds a minute.

A Quad 50 (above) provides covering fire for a patrol. An M-19, self-propelled anti-aircraft gun of the 82nd Automatic Weapon Battalion, (below) moves forward to smash an enemy roadblock.

the resulting explosion detonated the grenades. To take care of the mines, they placed chain blocks of tetranol at 50-foot intervals along the road and set them off. The explosions detonated the mines nearby. When the craters and mines were too dense, the engineers shifted the road to the streambed.

With the defile cleared, tanks supported by units from the 82nd AAA broke through into the clear and, running a gauntlet of fire, raced for Mundung-ni. As the task force moved up the valley, the 82nd's M-16s and M-19s were integrated into the column. The pinpoint accuracy of the M-19 was used to wipe out the occupants of bunkers, while the M-16s were employed against enemy troops in the open and to carry out wounded.

The column captured Mundung-ni and overran the hill north of town which had anchored the North Korean resupply line leading to Heartbreak Ridge. The hills and defiles, however, still swarmed with North Koreans. From Oct. 10 to Oct. 15, the tanks and anti-aircraft guns ran two excursions a day through the hostile valley, ripping up the enemy rear as they passed. Branching out onto dirt roads, the tanks and anti-aircraft guns blasted dumps and troop concentrations.

The second task force in the Satae-ri Valley on the east side of Heartbreak, meanwhile, kept pace with the Mundung-ni Valley task force on the west. Task Force Sturman, as it was called, destroyed enemy bunkers and decoyed enemy fire away from the 23rd Infantry soldiers on the western side of the ridge. Delta Battery, commanded by Capt. Nathaniel W. Head, provided the supporting fires for the Satae-ri task force. First Lieutenant Wayne R. Wiedman, platoon leader, in D Battery, employed his M-16s and M-19 in much the same manner they were employed in the Mundung-ni Valley. The M-19 was used to pinpoint enemy bunkers and was credited with killing 70 of the enemy on Hill 841. The M-16s were employed in the tank-infantry column for covering fire.

The successful flanking maneuvers weakened the enemy defense. Heartbreak Ridge fell on Oct. 13. Enemy losses totaled close to 25,000, almost half of them occurring during Operation Touchdown. The U.N. forces had won valuable defensive terrain, but the success had not been won lightly. For the remainder of the conflict, the dominating element in making military decisions became the estimated cost in personnel. The war settled into an artillery duel. Only at the end of the war, when the Communists decided to use the battlefield to apply pressure upon the negotiations and prepare a basis for their claim of military victory, did the battle for hilltops resume. Hills with names like Old Baldy and Porkchop Hill, which had little more than propaganda value, changed hands time and time again.

Heartbreak Ridge had nothing to teach air defense artillerymen about shooting down aircraft, but it should serve as a reminder that air defense artillerymen are full members in the combat arms brotherhood. They have always served at the forward edge of the battlefield and will be called on to do so again, whether in an anti-aircraft or ground-support role.

Denied aerial targets, anti-aircraft gun crews were used in ground-support roles.

A First for Air Defense Artillery

by Edward C. Starnes

"Anytime an air defender gets a medal for valor, it's often because he had his back to the wall in the face of desperate circumstances."

This view is expressed by Maj. Charles E. Kirkpatrick, a member of the Tactics Department, U.S. Army Air Defense Artillery School, Fort Bliss, Texas, and author of the recently published *Archie in the A.E.F., The Creation of the Antiaircraft Service of the United States Army.*

"Probably the best example of such a situation," he writes, "was the sacrifice of the 60th Coast Artillery (antiaircraft) on Corregidor Island in the campaign of 1941-1942 in the Philippine Islands. Those gallant men earned more than a dozen Distinguished Service Crosses, a host of Silver Star Medals and lesser decorations, three Presidential Unit Citations and the admiration of a nation. In the process, they shot down more than 50 Japanese aircraft. Unfortunately, however, that heroic episode was incident to a lost campaign, and the 60th would most probably never have had the opportunity to establish such a dramatic combat record if the efforts of the rest of the army had been graced with success."

Another example of this occurred during the Battle of the Bulge when 90mm-gun units found themselves on the frontlines as the Germans broke through, Kirkpatrick explains. "They were suddenly anti-tank defenses. Automatic weapons battalions began fighting infantry."

Histories of air defense, however, are not usually filled with the glamor of the hand-to-hand combat of the infantry, nor the gallant charge of the cavalry, nor the rumbling roar of tanks on the move.

"Of all of the arms," he writes, "only the [anti-aircraft] artillery is essentially passive when it wages war. It cannot go forth to seek out and engage its enemies; it must wait patiently, and often in vain, for its enemies to come to it."

The accomplishments of air defense cannot, therefore, be told in the tales of what it caused to happen, but rather in terms of what it prevented from happening.

So why worry about such a history? Because, says Kirkpatrick, "The A.A. Service undertook to prevent harm from coming to American troops and

American installations as a result of German aerial operations. It was enormously successful in that task, although its combat record was brief and provided few heroes for veneration. In an age which virtually worshipped its aces, the A.A. Service did more valuable, if unspectacular work, than all of the aces put together. Aces were really irrelevant in a war in which air supremacy was simply not attainable; their only real function was that of maintaining morale."

It was from these beginnings that Air Defense Artillery evolved, and it is with these beginnings that Kirkpatrick has begun the work of what will be a series of histories of the branch.

Kirkpatrick explains that the purpose of the work is to begin a serious study of the history of Air Defense Artillery and the directions which the Army has taken in the growth of its doctrine for air defense.

Unfortunately, according to him, "The problem in the Army is that history is how the last battalion commander did it." He contends that there is much in military history that can prepare us for the future.

An example he cites was a personal revelation for him. "I used to believe that technology drives doctrine. But take the experiences of World War I and the doctrine is essentially the same as today's. Technology does not necessarily drive doctrine.

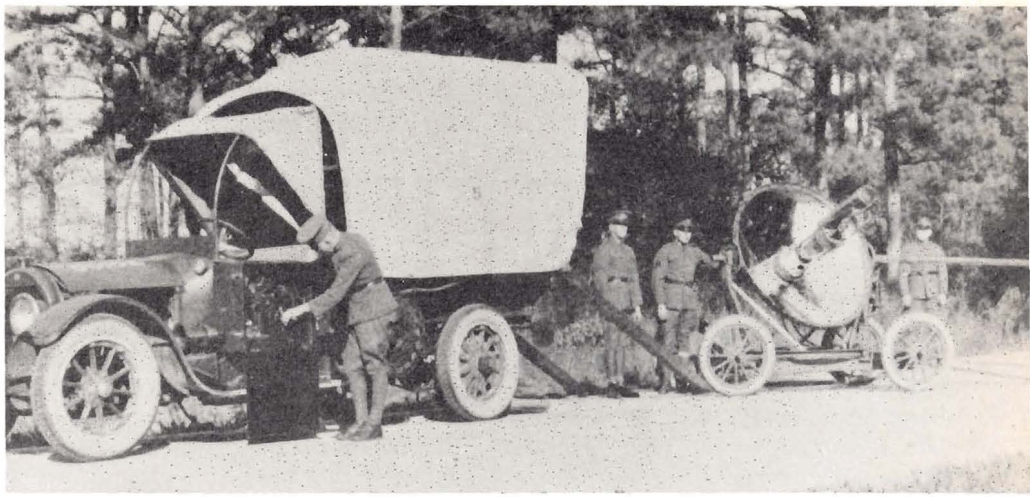
"All of the basic decisions arrived at during the First World War have survived the test of time and remain the accepted way in which air defense artillery units ought to be used."

During World War I, he notes, the goal was to protect the maneuver units. Between the world wars, doctrine changed to that of protecting critical assets. Following the experiences in the Philippines, the doctrine reverted to protecting maneuver forces.

The project to record the history of American air defense began as a 20-page paper Kirkpatrick wrote while attending the Air Defense Artillery Officer Advanced Course in 1978.

"Sam Hoyle [director of the Air Defense Artillery Museum at Fort Bliss] asked me a question about World War I aircraft, and I did the paper to answer him," Kirkpatrick says.

Not much more came of the project until Kirkpatrick became a military history instructor at the U.S. Military Academy. He filed a request to do a special research project through a program operated by West Point. The one-year program—sort of a sabbatical, explains Kirkpatrick—made it possible for him to research the air defenses of World War I.



Cadillac 60-inch searchlight.

Funding was provided by the Department of the Army through Fort Bliss to cover travel expenses and research costs. He began his research in the summer of 1982 and completed *Archie* in the summer of 1983. The book is "a publication of the Air Defense Artillery Museum" according to its flyleaf, and is "published by the U.S. Army Air Defense Artillery School."

Research included studying some 150 shelf feet on the Anti-aircraft Service at the National Archives; reading through course files and personnel files at the Army War College; sifting through records at Fort Bliss; and interviewing some veterans of anti-aircraft service from World War I, which included a combat battery commander, a battalion commander, a gun section sergeant, a searchlight section sergeant and a gunner.

There were also memoirs, 18 volumes of selected reports from World War I and a four-volume analysis of air defense artillery published by the U.S. Army Air Defense Artillery School. While Kirkpatrick cites the four-volume study as useful, he notes that it was very broad-brushed and had little on American developments.

His work on the first volume apparently whetted his appetite. He is nearing completion of a study of the Corregidor and Bataan campaigns. "Documents are very spotty," he says. In early 1942, some documents were smuggled out by submarine, but many were burned or lost. Spotty documentation and recollections are his primary sources for what he thinks is an important study, especially in view of the Army's need to "fight outnumbered and win" the first battle of the next war as spelled out in Field Manual 100-5.

"We currently teach battle from the concept of Patton's battles in Central Europe. We must look at a bonafide first battle where troops were still in a peacetime mentality, where the supply system operated under a peacetime pace," contends Kirkpatrick. "What we did in Central Europe is important too, but we must look at the actual first battle."

Another reason we should study history to keep our thoughts directed in the right direction on air defense is because, he says, "July 1950, to the best of my knowledge, is the last time the U.S. Army shot down an enemy airplane."

With this in mind, *Archie in the A.E.F.* is supplemental reading for the three-hour course in branch history at the Air Defense Artillery School.

Oh, who was "Archie?"

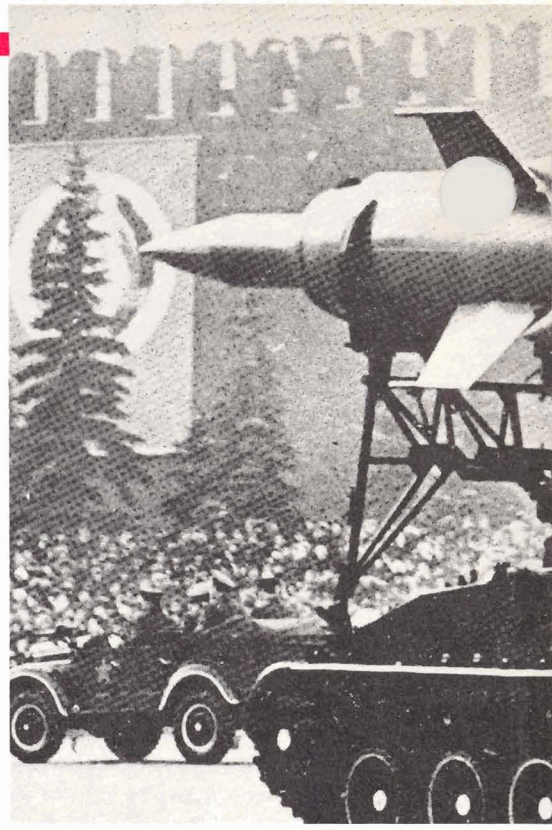
"It was," writes Kirkpatrick, "the pilots' generic for burst of anti-aircraft artillery, those evil-smelling eruptions of smoke against an otherwise clean sky which meant that men on the ground were trying to kill them. The term itself derived from a popular London music hall tune of 1915 in which a young lady sought to preserve her virtue. 'Archibald! Certainly Not!' was the memorable refrain which the pilots carried back to the front with them and applied to a more grisly situation."

Edward C. Starnes *is deputy public affairs officer at the U.S. Army Air Defense Artillery Center, Fort Bliss, Texas, where he has worked since 1975.*

Soviet Ground Air Defense: Doctrine and Tactics

by Capt. Brian E. Powers, USAF

(The views expressed in this article are those of the author and do not imply indorsement by the Department of Defense, the Department of the Air Force or the Department of the Army of factual accuracy or opinion.—Editor)



Soviet air defense owes a great deal to history. The experiences of World War II and careful study of lessons from the Vietnam and Middle East wars have given the Soviets a great appreciation of the modern air threat. Today, the Soviet Union and the Warsaw Treaty Organization countries have the most formidable air defense forces in the world.

During World War II, Soviet air defense comprised a mix of point defense using anti-aircraft artillery and zone defense using aircraft units. These defenses covered Moscow, major industrial and transportation centers and major field headquarters and logistic centers.

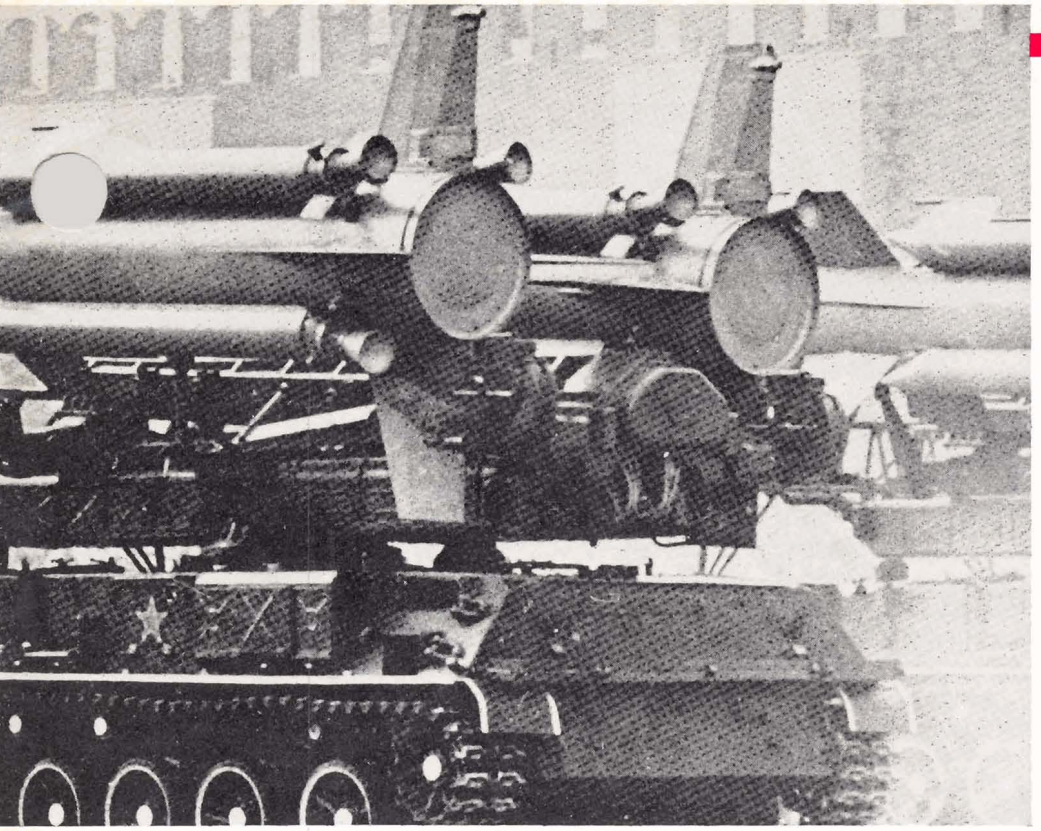
Following the war, the Soviets considered the U.S. strategic bomber force as a serious threat. The Ural industrial center, which had been relatively immune from German assault during the war, was now at risk. With Western nuclear weapons production and military technology continually improving, the Soviet Union realized the need for a modern air defense network.

Soviet air defense was organized into two distinct components: troops of the national air defense (PVO STRANY) and troops of the air defense of the ground forces (PVO SV). PVO STRANY was charged with the defense of the national airspace of the Soviet Union under direct command of the general staff. The PVO SV was a basic branch of one of the five principal services of the Soviet armed forces. Its mission was to protect ground forces from attack by enemy aircraft.

Able to test much of their air defense equipment in combat, the Soviets expanded and modernized their PVO STRANY and PVO SV forces. Surface-to-air missiles and anti-aircraft artillery were included in many of the arms transfers to Soviet client states, particularly to Southeast Asia and the Middle East.

The main lesson learned by the Soviets in Vietnam and the Middle East was that the air defense battle was one of attrition. The victor was the one who did not run out of missiles, bullets or airplanes. Thus, today's Soviet theory, doctrine and weapons development are keyed to conducting the offensive as a battle of attrition in which they expect their superior mass to prevail.

The air defense of the Soviet army includes both area defense and point defense weapons. Area coverage is provided by the front and army-level SA-4 Ganef brigades (the SA-X-12G will eventually replace the SA-4). These area missiles are primarily responsible for engaging targets below the four-kilometer ceiling. The SA-7 Grail, SA-14 (yet unnamed manportable system



SA-4 Ganef (left); SA-9 Gaskin (bottom).

which is replacing the SA-7), SA-9 Gaskin, SA-13 Gopher and all anti-aircraft artillery are intended for point defense. The SA-6 Gainful, SA-11 Gadfly and SA-8 Gecko bridge the gap between the area and point defense weapons.

Soviet Military Doctrine

The emphasis of Soviet and Warsaw Pact military doctrine and force posture is on the primacy of offensive action. This doctrine is based on a strategy of high-speed maneuver, but one which also provides increasingly for a sustained combat capability, using the combined arms concept of massed Soviet and Warsaw Pact mechanized and armor formations. The concept of combined arms stresses the coordination and interaction among different military services as well as among different weapon systems and platforms, both nuclear and non-nuclear.

A.A. Sidorenko writes in *The Offensive—A Soviet View* (translated in 1979) that "the offensive is the main type of combat action of Soviet troops." The Soviet ground forces must have the absolute capability to "initiate the most active and decisive offensive with the utilization of all combat power."

In Soviet military thinking, speed offers not only victory, but also economy beyond that of time. Speed and swiftness facilitate surprise, secure the secrecy of preparations and do not give the enemy the opportunity to strengthen his defensive positions. Swiftness of the attack is ensured by reliable suppression of the enemy and continuous advance.

In *Inside the Soviet Army* Victor Suvorov describes the "axe theory" as preventing your enemy from using his axe by using your own axe first. This theory is a good description of how the Soviets view offensive operations in their military doctrine. Strike your enemy like an axe, swiftly and decisively, before he has a chance to react. This is the purpose of the offensive.

The aim of the offensive is not simply to beat back an adversary or to remove a threat along the borders. V.Y. Savkin explains in *The Basic Principles of Operational Art and Tactics*: "The goal of the attack lies in the total defeat of the defending enemy and capture of vital areas of his territory. This goal is achieved by destruction of means and mass destruction of the enemy's main groupings with nuclear weapons, the fire of other means and also the forceful advance to a great depth of tank and motorized-rifle troops interworking with aviation and airborne landings, and the bold move to the flanks and rear of the enemy and destruction of him piecemeal."

The backbone of the offensive is the Soviet ground forces. They are large, powerful, structured for a short, violent war and oriented primarily toward Europe. Soviet ground forces have undergone significant expansion in men and equipment in the past 20 years. This expansion fit into the design of their offensive doctrine. The size and disposition of these forces, with their massive emphasis on armored and motorized units, lends credence to this.

Even defensive operations are indirectly linked to offensive operations. They are characterized as continual and vigorous counterattacks whose ultimate purpose is to create conditions for shifting of the defensive troops to decisive operations. The purpose of the defensive is to inflict maximum damage on the attacking enemy and to create favorable conditions for the resumption of the offensive. It, therefore, is imperative that there be continuous, violent and aggressive counterattacks in order to create those conditions that favor decisive offensive operations.

In summary, Soviet military doctrine evolves around the supremacy of the offensive, the decisiveness of nuclear weapons, surprise, numerical superiority in both men and equipment, and high and rapid rates of advance.

Soviet Tactical Air Defense Doctrine

NATO has recognized the offensive nature of Soviet doctrine and places great emphasis on the role of tactical air forces in halting and defeating any Soviet advance into Western Europe.

The Soviets, fully aware of the West's response to their offensive doctrine, have developed air defense forces and weapons that would effectively protect their ground forces. They realize that massed Soviet troops and columns of equipment would make excellent targets for NATO tactical aircraft. The choke points and terrain of West Germany could delay the advance of Soviet and Warsaw Pact ground forces and subject them to devastating losses if they were attacked by aircraft at these vulnerable points.

To protect their forces, the Soviets apply the principles of defense-in-depth when deploying air defense systems. Soviet air defenses are echeloned on the battlefield just as are other forces. Every tactical command echelon of the Soviet army, from the front to the tank and infantry regiments, has an organized air defense unit which is integrated into the total air defense system.

According to the Soviets, air defense incorporates three related efforts involving all branches and components of the Soviet armed forces. The first is to destroy the enemy's air capability before it can be brought into action. This involves strikes by strategic rocket forces, field artillery, naval forces and special operations forces. The second effort is to destroy, by aircraft or surface-to-air missiles, enemy aircraft in flight before they penetrate the airspace over Soviet ground forces. The third effort entails the destruction of enemy aircraft and helicopters that have penetrated the airspace over the combat forces. The responsibility for this effort falls to ground air defense units in combined-arms formations.

There are four principles to Soviet air defense: mass, mix, mobility and integration. Anti-aircraft artillery and surface-to-air missiles are provided to all levels of command on a greater scale than in any other army in the world. Mix is created by the complementary nature of the weapons. Mobility is emphasized in the design of weapons as is seen in the latest air defense weapon systems which are designed for rapid movement with the tank and motorized-infantry forces. Finally, air defense assets are completely integrated throughout the Soviet army. Every commander can deploy air defense weapons, from the front-level brigades down to the platoon level.

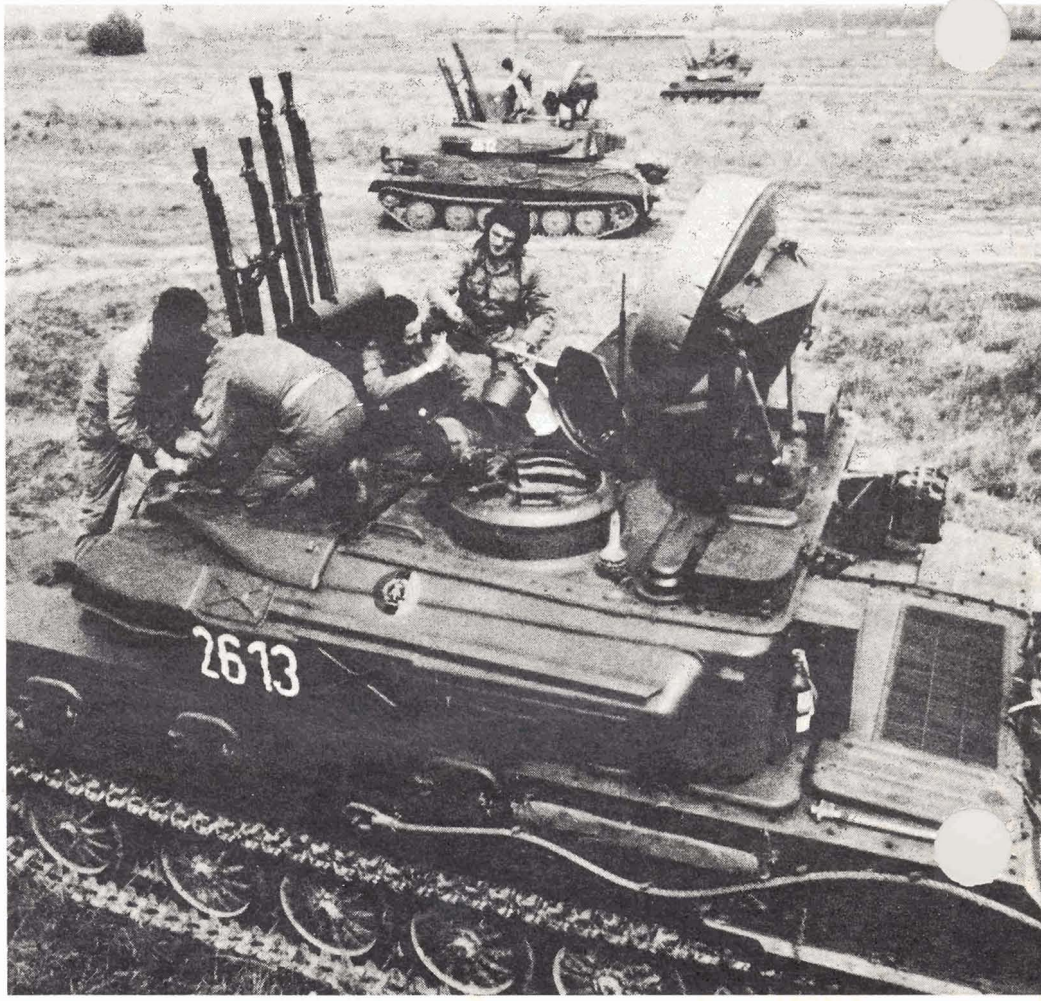
Mission of Soviet Air Defense

The mission of Soviet ground forces air defense units is to protect the ground force units and other potential targets over the battlefield. To accomplish this mission, tactical air defens units must be able to deter enemy a crews from pressing their attack and to force them to fire their weapons prematurely or abort their mission. By accomplishing this mission, the tactical air defense on the ground can combine with the air-to-air defenses of frontal aviation in winning air superiority over the battlefield. Soviet ground forces will then be able to continue their missions relatively unimpeded by enemy air action.

The two most important concepts in Soviet tactical air defense efforts are that air defense operations are considered an integral element of combined arms operations and that the air defense of ground forces is achieved by a variety of weapons and associated equipment that, when taken as a whole, form a system of air defense.

Reorganization of the PVO

The Soviets made a move sometime in 1980 to make better use of their air defense forces. The PVO STRANY, with its 10,000 surface-to-air missiles



and 2,500 interceptors, was a force that was larger than needed to counter the U.S. Air Force's strategic bombers. The strategic air threat had changed from high altitude to very low altitude. The Soviets consider fixed-wing, ground-attack aircraft and armed helicopters operating at low altitudes to be the principal threats to their maneuver forces.

The most effective defense against low-altitude aircraft has proven to be the surface-to-air missile and anti-aircraft gun mix. Under this reorganization, the national air defense forces converted to the air defense forces, giving PVO control of the ground forces' tactical missiles and surrendering many of their air interceptors to the air forces (VVS).

At the national level, troop air defense now apparently is to be the responsibility of air defense headquarters, thereby unifying control of both tactical and strategic surface-to-air missiles. Similarly, air force headquarters has acquired greater, although probably not complete, authority over air defense interceptors. A PVO still exists as an arm of the air defense forces.

The Soviets appear to have reorganized their air defenses to more effectively use their weapon systems. Ground air defense can now take more responsibility for air defense, thus giving the air assets more flexibility to conduct either offensive or defensive operations. With the threat coming from very low-altitude aircraft and missiles, the anti-aircraft guns would play a new role in bringing down the low-level air-launched cruise missiles and aircraft.

Another reason behind the reorganization appears to be command and control. Better command and control over the PVO SV would enable the Soviets to provide a more concentrated air defense posture. At very low altitudes, surface-to-air missiles and anti-aircraft guns are more effective than interceptors. Members of the PVO SV are thoroughly trained to combat the low-altitude threat.

In the old structure, tactical surface-to-air missiles and air assets organic to offensive-oriented ground forces were under the command of the military district. Surface-to-air missiles and air defense interceptors for territorial defense were controlled through independent command channels. Now at the military district level, air forces include PVO assets and frontal aviation aircraft. Similarly, air defense of the military district includes surface-to-air missiles dedicated to both troop and territorial air defense. The military district/front commander has a more central role under the new system since he is responsible for both offensive and defensive missions.

The reorganization of the air defense forces should influence Soviet independent air operations. The Soviets now have the option of expanding their air power by using under-utilized assets that would have remained within the Soviet Union for defensive purposes. Releasing some of these aircraft from the sole mission of air defense of the homeland should enable the Soviets to provide additional direct ground support and increase their offensive air capabilities.

SA-7 Grail (top); SA-8 Gecko (bottom); ZSU-23-4 (opposite page).

SA-6 Gainful.

Weaknesses and Vulnerabilities

In managing and coordinating an air defense network as extensive as the Soviets', the potential for problems would seem high.

According to Maj. William H. Crutcher in *Soviet Tactical Air Defense*, "The problems are generally in the categories of doctrine and its execution, equipment, communications and control. Many of them appear to be the result of failures of individual commanders to adequately master Soviet doctrine and to carry out their operations consistent with that doctrine."

This assessment of Soviet weaknesses seems typical of those found in any large army. But it is highly unlikely that the weaknesses are so prevalent that they would seriously degrade the overall effectiveness of the Soviet air defense system in combat.

One of their largest potential problems would probably be in logistical support and maintenance of the air defense weapon systems while they are in a sustained combat environment. In the Central Front, the air defenses of the Warsaw Pact forces could be heavily taxed if NATO were able to use its potential air power. This type of situation would put a great strain on the air defense equipment, ammunition and associated support. Weapon systems like the ZSU-23-4 and SA-9 might not be able to follow economy of fire procedures, thus requiring frequent resupply which would make them particularly vulnerable.

Another similar problem, because of their close location to the forward edge of the battle area, would be the systems' vulnerability to ground fire, particularly artillery and rocket fire. Systems like the SA-6, SA-8, SA-9 and ZSU-23-4 are not heavily armored. In addition, their radars' sensitivity would be especially vulnerable to ground fire.

The highly centralized command and control of Soviet air defense forces has also been assessed as a possible weakness. The entire system could become "unglued" under the extensive pressures of prolonged combat operations. Command and control over the air defense forces and airspace management are interdependent. Coordination between ground air defense units, air-to-air defense fighters and frontal aviation offensive air units is essential to preclude the destruction of Warsaw Pact air assets by Warsaw Pact air defenses.

In general, the Soviets have attempted to resolve the potential problems of command and control by imposing a degree of centralization that enables them to optimize efficiency while at the same time allowing sufficient decentralization to ensure effectiveness under a variety of conditions. In other words, the division air defense commander may conduct his own air defense operation as he deems necessary if the command and control process is not responsive enough to the combat environment.

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Suggested Reading

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The Basic Principles of Operational Art and Tactics, V.Y. Savkin. Translated and published under the auspices of the U.S. Air Force (Washington, D.C.: Superintendent of Documents, 1974)

The Offensive, A.A. Sidorenko. Translated and published under the auspices of the U.S. Air Force (Washington, D.C.: Superintendent of Documents, 1974)

The Soviet Art of War—Doctrine, Strategy and Tactics, William F. and Harriet Scott (Boulder, Colo., Westview Press, 1982)

There's a story about two soldiers who died and went to heaven. One was a general who was famous for being an orator and who had spoken in support of many worthwhile causes far and wide; the other a simple private who drove a bus. The general was surprised when St. Peter issued him his TA-50 and told him to pitch his tent in a dusty field. St. Peter then told the private that his quarters were located on a hill overlooking a beautiful pond. After a couple of days of MREs, the general strolled up to see how the private was getting along. He was surprised to see him sitting on the porch of a Southern mansion with angels tending to his every beck and call. He hurried back to St. Peter and said, "There's been some mistake. The private obviously was assigned to the set of quarters meant for me." St. Peter went to his master computer and called up the performance files of both the general and the private. He then said, "Remember when you gave all those long speeches? People were lulled into sleep before you got through three sentences. On the other hand, when that private drove his bus, all the passengers prayed like the dickens."

Leadership—Another Dimension

by Brig. Gen. William H. Riley Jr.

TEN PATS ON THE BACK FOR EVERY KICK IN THE BUTT—Brig. Gen. William H. Riley Jr., assistant commandant of the U.S. Army Air Defense Artillery School, decorates an air defense artilleryman.

The moral of the above story is that generals talk too much, and it is results that count! Keeping that in mind, I want to address some aspects of leadership without losing your attention, but making sure to emphasize that we must accomplish the mission (in peace as well as war) and results will still always count. However, maybe, there must be renewed emphasis on the way we get results!

Have you ever asked soldiers what their career goals were and received the answer, "Well, I intend to seek leadership positions. I want to be the guy in charge. I want to run things and get jobs done." Perhaps this might seem to be a naive answer, but I'll use it to illustrate what I call the "bull in the china closet" method of leadership. The statement represents the true difference between a **boss** and a **leader.**

We have all met the battery commander, battalion commander or brigade commander who was smart, energetic, loyal to the mission and committed to making his unit succeed. So where's the beef? Sometimes the problem with these commanders is that they turn off their subordinates with raw ambition, a drive to succeed and a personal approach to leadership that makes them unpopular and ineffective in their ability to relate to people. The

boss is inclined to view subordinates as inferior to himself because of the nature of his authority. He highlights his own technical experience, or background, or rank, or time in service, or the ribbons on his chest as badges of superiority over his troops. On the other hand, the **leader** recognizes the innate talents of each of the people who work for him, attempts to capitalize on them and ends up making the whole (the team) much greater than the sum of the parts (the individual soldiers).

The leader recognizes his subordinates' "freedom to fail" and accepts it as the price tag for acquiring experience.

There are other aspects of the boss-versus-leader philosophy that affect results. Because the boss feels that his subordinates are less competent in so many areas than himself, he feels compelled to centralize everything and to develop elaborate systems to check every element of tasks being performed. He feels obligated to deliver frequent tongue-lashings so that the troops will know he is serious about not tolerating incompetence. He carries the philosophy to the extreme that "the organization performs well only those things the boss checks." He is inclined to dwell on the negative, and staff meetings and footlocker counseling tend to focus on what is wrong with the unit, to the exclusion of what is being performed well. He tends to internalize failures of the unit and feels that errors must have resulted from his own inadequacy in some area.

Conversely, the leader attempts to be a mentor in the best sense of the word. He is a teacher and a coach and sometimes a cheerleader. He focuses on the positive and tries to bring out the best in the talents of his team. That doesn't mean he won't check results or will permit incompetence. It means he will still practice "management by walking around," and he will know those who are messing up and not likely to grow from their mistakes. The leader recognizes his subordinate's "freedom to fail" and accepts it as the price tag for acquiring experience. However, if mentoring and footlocker counseling are to work, there must be personal and unit growth resulting from mistakes.

Another indication of the difference between a boss and a leader can be found in their attitudes toward trust and confidence. A boss will feel that his subordinates can't be trusted—you must check and recheck; they're late to work; they beat their wives; they drink too much; and they don't care anything about doing a good job. This attitude creates a self-fulfilling prophecy, because it affects everything the boss does, is easily read by his troops and colors every relationship entered into by him. When troops know they are being bad-mouthed, they will be all too willing to accommodate their bosses by committing the very sins of which they are accused.

Have you ever worked with a battery commander who too frequently conducted "health and welfare" inspections and shakedowns, called in CID investigations at the drop of a hat, phoned the MPs to arrest soldiers at the first sign of a skirmish in the quadrangle, offered Article 15s for gray areas of the UCMJ, "kept book" on transgressions of those not on his team and took pride in his quantity of expeditious discharges? How many of these soldiers could have been saved for productive service if they had been exposed to a positive attitude and team spirit? General Bruce Clarke used to say that a good ratio for leaders was to give 10 pats on the back for every kick in the butt to their soldiers.

The point I'm trying to make is that by doing more himself, a boss may actually be accomplishing less.

There are other examples I could give of "boss" behavior, because I don't think the attitude is unusual. The boss somehow believes that he **owns** all those people who are lower on the organizational ladder and can demean them without consequence. At some point, when the boss intrudes on personal lives through overzealous invasion of privacy, it becomes detrimental to unit morale. There has to be a median point between "big brother is watching you" and a complete laissez-faire policy. The point I'm trying to make is that by doing more himself, a boss may actually be accomplishing less. His aggressive, distrustful and impersonal behavior may actually discourage acceptance of responsibility by subordinates and encourage negativism.

This is not to say that a leader can be any less conscientious than a boss, nor can he be any less accountable for the actions of his subordinates. However, there is a difference in focus. The boss simply presses for results, but the leader strives to develop the people who can deliver results. The leader does not internalize mistakes of his unit; he tries to make individuals and teams grow from them. The leader does not seek self-aggrandizement (or good efficiency reports) by diminishing the stature of those who work for him.

Possibly the best aspect of encouraging more soldiers to be leaders instead of bosses is that leaders will produce more leaders, but bosses will only produce more misguided subordinates who will become bosses themselves. Perhaps we should all reassess our behavior to take another look at the assumptions we are inclined to make about the people who work for us and the way we should relate to them. The mentoring concept and footlocker counseling being stressed by our current Army chief of staff can be excellent vehicles for coaching and developing the innate talents of our troops.

Up with the leader; down with the boss!

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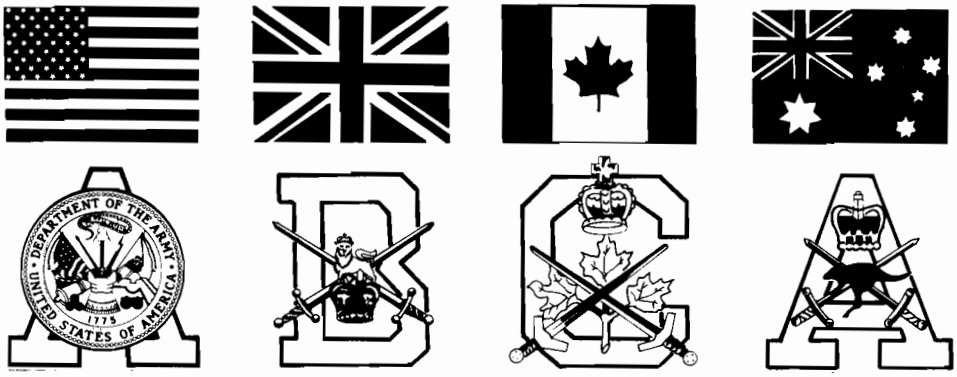
International Group Pursues Standardization

by G.L. Harrison



In late 1985, the U.S. Army Air Defense Artillery School, Fort Bliss, Texas, will host a meeting of a special group of people whose dedication is to promote standardization among their armies. The group represents the working element of the American, British, Canadian and Australian (ABCA) Standardization Program.

The origin of the ABCA Standardization Program goes back to the close cooperation among the Allies during World War II. After the war, it was decided that this cooperation should continue. By 1947, a plan to achieve standardization had been initiated among the armies of the United States, Great Britain and Canada. This plan was replaced by a basic standardization concept in 1954. Finally, in 1964, after Australia joined the organization, the current basic standardization agreement was ratified by the four armies, and the program was formally established. By invitation of the ABCA armies, New Zealand, through Australia, became associated with the program in 1965.

The aims of the standardization agreement are to ensure full cooperation and collaboration among the American, British, Canadian and Australian armies; to achieve the highest possible degree of interoperability among the signatory armies through materiel and non-materiel standardization; and to obtain the greatest possible economy by using combined resources and effort.

Policies of the agreement are designed to keep each army fully informed of research and development taking place in the other armies, to guide research and development whenever possible along lines compatible with the requirements of the four armies, to record and maintain formal agreements in both the materiel and non-materiel fields on items or concepts acceptable to two or more armies, and to ensure that such formal agreements are not modified without consultation.

Fields of Standardization and Collaboration

Standardization and collaboration are pursued simultaneously in non-materiel fields, which include studies on tactical concepts and doctrine, organization, training, operation, administration and logistics; and materiel fields, which include materiel matter, related technical procedures and studies pertaining thereto; and research, which includes scientific investigations and studies. Within the limits of national policies, information on the current status of all projects is made available to accredited representatives at all times.

Excluded from the program are those fields for which the release of information is prohibited by the laws or regulations of any of the four armies.

All aspects of standardization and collaboration, including exchange of personnel, materiel, information, visits and use of all facilities, are based on the principle of reciprocity.

Each army is responsible to coordinate with other armed services or government agencies of its country before attempting to reach agreements with other armies.

ABCA Organization

Armies run the program since all recommendations or agreements must be endorsed or ratified by them. The program can only progress as far and as fast as the armies wish. Each army has a national standardization office at its headquarters and has appointed representatives in the capital cities of the other three countries.

At the highest level, armies give direction to the program through the quadripartite standardization discussions, nicknamed TEAL. TEAL is conducted approximately every 18 months in each country, in turn, and is attended by officers at the vice or deputy chief of staff, or equivalent level, and their delegations. The last meeting was held in New South Wales, Australia, in November 1984. The next meeting will be in Cumberly, the United Kingdom, in May 1986.

Each army is required to nominate a senior officer on duty in Washington as its representative. These officers, known collectively as the Washington Standardization Officers, have the responsibility of managing the program. They are generally the heads of embassy army staffs, and they meet once a month.

The Primary Standardization Office provides the full-time, day-to-day management functions required by the program. The staff consists of four lieutenant colonels, one from each army, one Australian major, one British civilian and a clerical staff of one Canadian warrant officer chief clerk and two American typists. Their responsibilities are to keep the program under continuous review, act as the office of record, monitor the work of and attend the meetings of the quadripartite working groups, and provide the secretariat for the Washington officers' meetings and TEAL conferences. The office also maintains the quadripartite standing operating procedures, the ABCA handbook and the standardization lists.

The functional element of the program is the quadripartite working group and its associated special working parties and information exchange groups.

One mission of the quadripartite working group is to achieve the highest

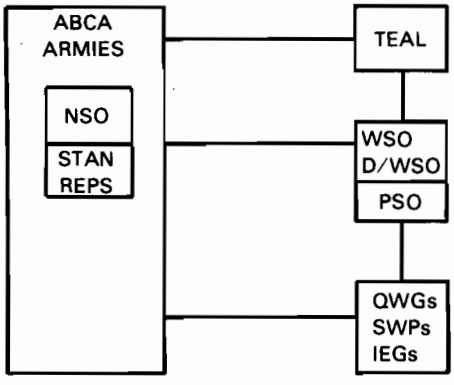
possible degree of interoperability through materiel and non-materiel standardization. In general, their tasks are to maintain the standardization level that has already been achieved, originate and finalize standardization agreements, identify areas for cooperation, influence requirements, develop concepts, participate in the validation of standardization agreements and exchange information.

Working groups meet for the purpose of resolving issues which cannot be settled by correspondence. The aim of these meetings is to recommend definitive actions which, subject to armies' approval, promote standardization.

A special working party may be established by the Washington Standardization Officers on the recommendation of a sponsoring quadripartite working group. Its purpose is to achieve, through correspondence, tasks requiring expert examination beyond the quadripartite working group's capability.

An information exchange group may also be established by the Washington Standardization Officers upon the recommendation of a sponsoring quadripartite working group. Its purpose is to correspond informally about the progress of work in a designated area of interest. Information exchange groups do not meet.

Working parties and exchange groups are designed to be terminated once their tasks have been completed.



ABCA Organization

The Standardization Process

The Combat Development Guide, agreed upon by armies, provides the operations concepts and the capabilities required for the geographical regions of interest to ABCA armies. It is issued 10 years before the period it covers and is rewritten every five years. By providing an early expression of quadripartite views, it enables armies to consider standardization early in their own respective equipment development processes. General capabilities and quadripartite objectives listed in the guide provide guidance to quadripartite working groups in the development of concepts and agreements.

Concept papers are normally based on quadripartite objectives and are agreed upon by the quadripartite working group and not the armies. Nevertheless, armies have agreed to make reference to these papers when preparing objective and requirement documents. Essentially, the concept papers are designed to influence armies' research and development programs and are also used when developing future organizations, training doctrine and tactics.

Armies have agreed to circulate their objective and requirement documents at an early stage so that other armies may propose changes which would improve the chances for standardization. A series of commenting procedures has been devised for this purpose and has been related to the three phases of equipment development—objective documents, requirement documents and equipment which has been type classified or accepted for service.

Standardization Lists

The quadripartite standardization lists record details of projects offered for comment and in which one or more of the armies has expressed an interest. The lists have three parts:

- the cooperative research and development list, which records those items for which armies have indicated a desire to standardize by participating in some form of cooperative research and development. Projects on this list constitute the priority areas.
- the information list, which contains those items in which armies have existing equipment, matching objective or requirement documents, or potential objective or requirement documents which would match, but for which none is prepared to consider cooperative research and development at that stage.
- the quadripartite research list, which records armies' research projects in which at least one other army holds any interest. It should be emphasized that points of contact of quadripartite working groups form the interface between the research scientists and the ABCA program and, hence, are required to provide updated reports on these projects at their respective meetings.

Quadripartite Standardization Agreements

Quadripartite standardization agreements (QSTAGs) are developed between two or more armies to defi agreements in the materiel and no materiel fields. They constitute a record of substantial areas of standardization achieved and to be maintained. These agreements may be developed on equipment, logistical procedures, terminology requirements, training requirements and tactical doctrine.

A custodian army is assigned to develop each QSTAG, and the Primary Standardization Office allocates QSTAG numbers and arranges ratification and publication of the agreements.

When standardization of a particular equipment procedure or technique is not possible, and when the listing of ABCA national characteristics, procedures or techniques would provide an aid to interoperability and mutual understanding, the Washington Standardization Officers may approve the production of a quadripartite advisory publication. However, these publications are not intended to be substitutes for QSTAGs, and their numbers are to be kept to an absolute minimum.

Quadripartite Working Group Meetings

Quadripartite working group meetings are normally hosted by armies in turn. Meetings are approximately 18 months apart and normally do not exceed five working days. Variations to this interval or duration require the approval of the Washington Standardization Officers.

The host army is responsible for issuing invitations, providing administrative and secretarial support, appointing a meeting chairman if the standing chairman is unavailable, providing representatives of relevant working groups and other standardization programs or specialists necessary to brief, providing security and scheduling the daily agenda.

The next quadripartite working group meeting on air defense, referred to as QWG/AD 12, will be conducted at Fort Bliss during the week of Oct. 30 to Nov. 5, 1985.

G.L. Harrison *is the rationalization, standardization and interoperability coordinator for the Directorate of Combat Developments, USAADASCH, Fort Bliss, Texas. Prior to accepting that position in December 1983, he was a training specialist with the Directorate of Training and Doctrine, also at Fort Bliss.*

Doctrinal Development

by Capt. Michael B. Bearce

Jehovah personally instructed Joshua to march 17 times around the walls of Jericho and then have his Hebrew warriors sound their trumpets. The walls, as it says in the old spiritual, came tumbling down. Modern military commanders, however, are usually forced to rely on field manuals rather than divine guidance for their march orders.

Field manuals contain the doctrine, tactics, techniques and procedures that determine how the Army fights. Since doctrine, once embedded in Army training literature, tends to have the effect of holy writ, it's important that soldiers who wish to have an impact on doctrine know where to find it and how it got there in the first place.

Contemporary Army doctrine is the AirLand Battle Doctrine as described in FM 100-5, Operations. AirLand Battle Doctrine is incorporated in a series field manuals which make up the Armywide Training and Doctrinal Literature program. Field Manual 44-1, U.S. Army Air Defense Artillery Employment, is the capstone ADA doctrinal field manual. It bridges the gap between AirLand Battle Doctrine and air defense artillery functional area doctrine by explaining ADA doctrinal principles such as mix, mass, mobility and the integration of weapon systems and how each relates to AirLand Battle Doctrine.

Tactics supplements, but is different from, doctrine. Tactics is the employment of units in combat. It is also the order arrangement and maneuver of units in relation to one another and/or the enemy in order to use their full potential. Air defense artillery tactics is primarily contained in the ADA camouflage-covered field manuals which were formerly designated as "how-to-fight" manuals.

Tactics must be supplemented by techniques and procedures, by further guidance from higher headquarters or the initiative of the leader charged accomplish an assigned task. Techniques and procedures are intended to improve a force's efficiency by ensuring uniformity of action or by ensuring that actions of various individuals and elements complement those of other individuals or elements. Techniques are the methods units use to perform any act, especially the detailed methods used by troops or commanders in performing assigned tasks. Technique refers to basic methods of using equipment and personnel. The phrase "tactics and techniques" is often used to refer to the general and detailed methods used by commanders and forces in carrying out their assignments. Air defense artillery techniques are found in all ADA field manuals.

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

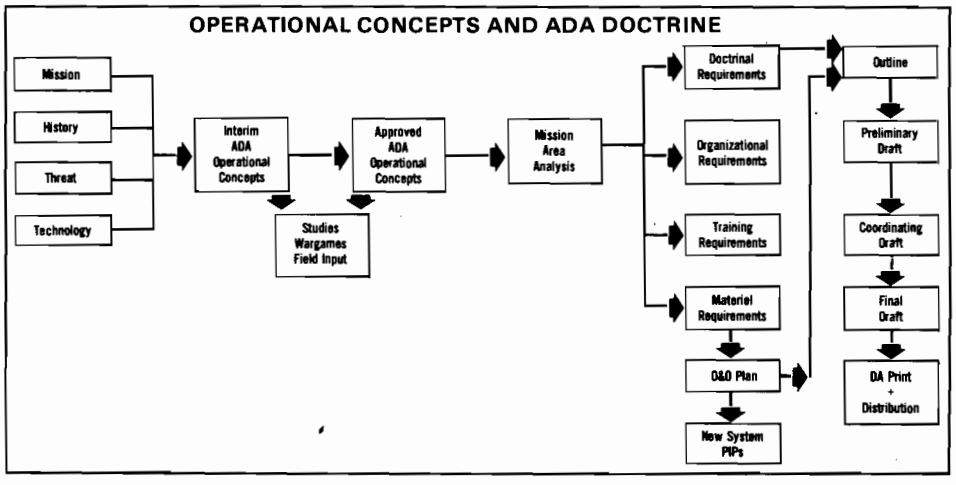
The U.S. Army Training and Doctrine Command, of which the U.S. Army Air Defense Artillery School is a part, has the mission to develop Army doctrine. The Air Defense Artillery School has the mission to develop ADA doctrine. Under the concept-based requirements system, all doctrinal, organizational, training and materiel requirements are based on approved operational concepts. Weapon-specific doctrine is also based on approved system operational and organizational plans which themselves are based on approved operational concepts.

The recent fielding of Patriot provides an example of how weapon-specific doctrine evolves. The Directorate of Combat Developments, within the Air Defense Artillery School, developed an operational concept and system operational and organizational plan for the new weapon system. The operational concept and system operational and organizational plan were staffed throughout the Army for field-user input. Once the operational concept and system operational and organizational plan were approved, the school's Tactics Department and Hercules/Patriot Department wrote field manuals and training circulars for Patriot. The Tactics Department primarily addressed tactics and techniques while the Hercules/Patriot Department emphasized procedures and techniques. Each doctrinal product was staffed worldwide at the coordinating draft stage for field-user input.

The Directorate of Training and Doctrine, which edits, produces and distributes field manuals, manages the entire doctrinal literature program and serves as the doctrine point of contact between the school and outside addressees. The Directorate of Evaluation and Standardization determines the adequacy of doctrine, tactics and techniques through the use of branch training teams and ensures the doctrine is current and reflects field input. The directorate also manages the ADA Standardization Program which impacts heavily on crew drills and doctrinal terminology.

The figures below show the simplified flow of doctrine development.

Note that the field user has two opportunities to influence ADA doctrine. The first opportunity occurs during the staffing of the operational concepts, while the second opportunity occurs during the staffing of the draft doctrinal publications. Although tactical units must focus on the mission, ADA leaders must take the time to review drafts of doctrinal publications and submit comments and recommendations. Those leaders who take the time to review and comment on publications generally are quite pleased with ADA doctrine. Those who do not take the time to provide their input to the process are often those who are dissatisfied with ADA doctrine.



Scanning

2/61st ADA Wants Its Mail

The battalion commander of the 2nd Battalion, 61st Air Defense Artillery (C/V), Munson, Korea, is concerned about the continuous non-receipt of, or missent, official mail to the unit.

To expedite official, as well as unofficial, mail to the 2/61 ADA, the following addresses should be used.

Commander
Headquarters
2d Bn, 61st ADA
2d Infantry Division
APO San Francisco 96251-0233

Commander
HQ & HQ Battery
2d Bn, 61st ADA
2d Infantry Division
APO San Francisco 96251-0236

Commander
Battery A
2d Bn, 61st ADA
2d Infantry Division
APO San Francisco 96251-0410

Commander
Battery B
2d Bn, 61st ADA
2d Infantry Division
APO San Francisco 96251-0365

Commander
Battery C
2d Bn, 61st ADA
2d Infantry Division
APO San Francisco 96251-0234

Commander
Battery D
2d Bn, 61st ADA
2d Infantry Division
APO San Francisco 96251-0235

Message address is: CDR HQ 2D BN 61 ADA MUNSAN KOREA//EAIDAF-CO//

Any questions may be referred to SFC Strachan, Directorate of Evaluation and Standardization, USAADASCH, AV 978-3442/5721.

ADA Hotline Available

The Air Defense Artillery Hotline, AV 978-3159, is a 24-hour worldwide service provided to the field for requests for information and assistance from the U.S. Army Air Defense Artillery School, Fort Bliss, Texas. For each request for information or assistance, a worksheet is prepared and forwarded to the appropriate school agency for action. The Directorate of Evaluation and Standardization, USAADASCH, monitors all requests to ensure that a prompt response is given to the requester. Calls on the Hotline received after duty hours are recorded by an answering machine, and a worksheet is generated the following morning.

ARTEPs Changing, Getting Better

The U.S. Army Training and Doctrine Command is improving the Army Training and Evaluation Program (ARTEP) to make the program much more usable by each unit trainer.

Included in the improvements is the development of mission training plans (MTPs) and support drills. The MTPs will be developed at lower echelons than ARTEPs, in most cases at platoon level. The MTPs will have more details in training and evaluation outlines; give examples of "how to train;" show the relationships among tasks, drills, situational training exercises, field training exercises and missions; explain the duties of opposing forces during training and evaluations; and detail how to prepare and conduct an evaluation.

This program is being implemented in three phases. Phase I—each proponent school will develop a prototype MTP with support drills. Phase II—prototypes, after initial approval by the U.S. Army Training Board and the Combined Arms Center, will be fielded for validation to selected user units. Phase III—MTPs will be developed and phased in to support all units, thereby phasing out all ARTEP documents. The ARTEP as a program will still exist. However, the ARTEP document as we know it will be replaced by MTP documents.

The commandant of the U.S. Army Air Defense Artillery School, Fort Bliss, Texas, approved the selection of the Hawk assault fire platoon as the unit for which the Air Defense Artillery prototype MTP would be developed. MTP 44-247-09, Assault Fire Platoon, Hawk, will be evaluated by units from U.S. Army Forces Command and U.S. Army Europe by the end of 1985. One assault fire platoon from Fort Bliss; one from Fort Bragg, N.C.; and two from 32nd AADCOM have been requested by USAADASCH to participate in a six-month evaluation of the prototype MTP. Results of the prototype evaluation will affect the final format and content of MTPs developed in the future.

More information about MTPs will be published as it becomes available.

750 Positions for College Degrees Approved

The Army Educational Requirements Board validated 750 more Army officers' positions which will require that the individuals holding them have degrees.

The board approved 127 positions that require master's or doctoral degrees in space-related disciplines. These positions will support the Army's space program.

The board also identified positions in the Army's Technological Enrichment Program. Participants in this program are usually lieutenants who pursue advanced degrees in fields such as artificial intelligence, robotics, biotechnology and laser physics before their first duty assignment.

The 750 newly approved positions include 75 warrant officer positions, primarily for bachelor's degrees; 12 positions in the Judge Advocate General's Corps; 19 in the Chaplain's Corps; and 30 positions requiring a doctoral degree.

The board also approved 334 positions in the Training With Industry Program. Officers participating in this program spend a year in training with a civilian industry, where they learn skills which they can apply to Army operations.

The board also revalidated 3,800 positions requiring advanced degrees. These positions were approved when the last board met in 1983.

Commands and agencies interested in having commissioned or warrant officer positions validated should review AR 621-108, Military Personnel Request for Civilian Education, before submitting requests. For specific information about the Army Educational Requirement Board, units may call AV 221-8102/0684. *(MILPERCEN)*

Lieutenants Needed for Special Forces

On April 1, 1985, the Military Personnel Center resumed assigning a limited number of lieutenants into four Special Forces groups of the 1st Special Operations Command (SOCOM).

Requests for assignment will be accepted until September 1986. At that time the Special Operations Warrant Officer Program will be able to support the 1st SOCOM, and lieutenants will no longer be required.

Each officer who wants to volunteer for Special Forces training and duty must:

- be a combat arms or combat support arms officer.
- be a first lieutenant as of his projected reporting date into SOCOM and for a period of 12 months afterward (this does not include the five-month qualification course).
- have 18 months experience in his basic branch with a TOE unit.
- meet the requirements listed in AR 614-162, Selection, Training and Assignment of In-service Officer Volunteers to Special Forces Organizations, if he does not have an additional skill identifier of 5G.
- have the endorsement of the command to which he is assigned.

Officers designated for special operations training and assignment will be sent to the JFK Special Warfare Center at Fort Bragg, N.C., for five months to attend the Special Operations Detachment Officer Qualification Course. After completing the course, they will be assigned into one of the four Special Forces groups.

Breaks in stabilization will be approved for officers stationed in CONUS who are designated for SOCOM assignment. However, officers who are assigned overseas will not have their current DEROS curtailed.

Interested officers should contact their battalion adjutants and submit their requests as outlined in AR 614-162. *(MILPERCEN)*

Officer Retirement Grades

How long do commissioned officers have to serve on active duty in a certain grade in order to retire in that grade? Some are required to stay in the grade for three years, while others must serve only six months, according to Military Personnel Center officials.

An officer who was recommended for promotion to lieutenant colonel, colonel, brigadier general or major general on or after Sept. 15, 1981, must have served on active duty in that grade satisfactorily for three years in order to retire in the same grade.

An officer in one of these grades who was last recommended for promotion on or after Sept. 15, 1981, and who has served less than three years in the grade, will be retired at the next lower grade in which he or she served satisfactorily for not less than six months.

In cases that involve extreme hardship or unusual circumstances, only the president of the United States can waive the requirement for three years time in grade. The authority to waive cannot be delegated.

A commissioned officer in any other grade can retire in the highest grade in which he or she

served satisfactorily on active duty for not less than six months.

In all cases, the secretary of the Army determines whether an officer served satisfactorily.

For more information on retirement grades for commissioned officers, see Chapter 4 of AR 635-100, Personnel Separations: Officer Personnel, or visit your local Military Personnel Office. *(MILPERCEN)*

Changes to CAS³ Policy

The Army policy regarding attendance at the Combined Arms and Service Staff School (CAS³) was changed March 6, 1985. The year group for which CAS³ completion is now mandatory is YG76. Officers in year groups 77 and 78 may still be scheduled for attendance, but are no longer required to attend.

There were also changes in the number of yearly classes. In FY86, there will be nine classes per year. These are:

Class Number	Date
86-1	8 Oct - 13 Dec 85
86-2	8 Jan - 14 Mar 86
86-3	29 Jan - 4 Apr 86
86-4	20 Mar - 23 May 86
86-5	10 Apr - 13 Jun 86
86-6	29 May - 1 Aug 86
86-7	19 Jun - 22 Aug 86
86-8	1 Aug - 10 Aug 86
86-9	27 Aug - 31 Oct 86

The major Army commands were given quotas for each class. The numbers vary based on the heavy PCS periods and assignment cycles. For example, the summer classes 86-6/7/8 will be filled primarily by officers en route from one duty station to another. Classes 86-3/4/5 will be filled by officers on a TDY and return status. MILPERCEN has the mission of quota management and coordination.

Beginning with YG79, all Officer Personnel Management Directorate officers must attend CAS³. Year groups 77 and 78 officers may still be scheduled. The completion of the non-resident instruction (Phase I) is still a requirement prior to attendance of the resident nine-week course.

Further information about CAS³ can be found on Page 13 in this issue.

Questions should be directed to Air Defense Branch (Capt. Lund), AV 221-0025/0026, or the Professional Development Section, Combat Arms Division (Mr. Melendez), AV 221-9846/9847. *(MILPERCEN)*

APRT Policy Changed

A new physical fitness policy will affect students attending professional development courses offered at TRADOC's 24 schools.

Before Oct. 1, 1984, students could be given up to 90 days after their school ends to pass the Army Physical Readiness Test (APRT). Now, students attending a professional development course that is 56 days or longer have to pass an APRT given at the end of the course to graduate. Students who do not pass the APRT will be designated as non-graduates and be sent back to their unit or to their next assignment.

Students will be administered a diagnostic APRT during the first week of the course. Those failing the test will participate in a rigorous remedial physical training program. This will give students time to build up to APRT standards. A final APRT is given for record 30 days before the course ends. If a student fails this time, he may be retested as often as necessary until the day before graduation.

Officer Basic Course students may be granted a grace period to graduate if they fail the final APRT. However, they must pass an APRT within 90 days after the course ends to be issued a diploma.

The new policy requires school commandants to keep and report detailed quarterly statistics on APRT failures. These reports will tell TRADOC headquarters which commands send students who don't meet Army physical fitness standards to TRADOC schools. *(TRADOC OCPA)*

Assignment Preferences Now Automated

A new officer preference statement was scheduled to reach field units in March 1985. The new DA Form 483 will help career managers respond to an officer's desires more quickly than was possible with the old form. Managers will use the automated information when they assign an officer to a school or a new position.

Officers should not use the old DA Form 483. If the new forms are not available, officers should contact their servicing Military Personnel Offices.

The form lets officers select preferences which will be read by a MILPERCEN computer. Information entered on the form, which becomes part of the official master file, includes preferred functional area, a preference for overseas or continental United States duty, a duty or location priority, three duty preferences and several tour location choices.

There is also a comment sheet on which officers can express career desires not included in the automated part of the form.

MILPERCEN officials caution officers to carefully follow the directions included on the form and to return the form unfolded in a 9 by 12-inch or larger envelope. Since the computer cannot process folded forms, a delay in updating an officer's preference information could occur. The form must be sent directly to MILPERCEN using one of the addresses listed on the form.

Officers should submit the automated preference statement about 12 months before completing an overseas tour; about 12 months after reporting to a CONUS station; within 60 days after starting a class at a CONUS service school, a civilian institution or training with industry; or whenever personal desires change.

Information from the form becomes part of the new automated officer distribution and assignment system. The date of the latest preference statement will appear on the individual's Officer Record Brief. *(MILPERCEN)*

Changes to Defense Officer Personnel Management Act

Legislation approved in October 1984 changes several provisions of the Defense Officer Personnel Management Act. The changes affect reserve and active-duty commissioned officers and active-duty warrant officers.

Appointment of former commissioned officers: This change allows an officer who is discharged from a Regular appointment to be given a Reserve appointment in the highest grade held and to be credited with the time-in-grade that he or she had in the former Regular grade.

Simplifying process for discharging officers for cause: The three-stage board process for discharging a Regular officer for cause has been reduced to two boards. After AR 635-100 is revised, a recommendation that an officer must show cause for retention on duty will be sent directly to a board of inquiry without being considered first by an elimination selection board.

Eligibility for promotion: An officer on the active duty list who has failed twice to be selected for promotion to captain is no longer eligible for further consideration by a selection board.

Excluding separating officers from consideration for promotion: The secretary of the Army has approved a policy which excludes commissioned officers from consideration for promotion if they have an approved separation date within 90 days of the date a promotion board convenes. This policy applies to officers who are eligible for promotion to the grades of captain through colonel.

Special selection boards: Special selection boards may now be used to consider a warrant officer for promotion when there was an error in his or her original consideration, or when the officer was eligible and should have been considered but was not. This is similar to the current process for commissioned officers.

Discharge of Reserve second lieutenants: Reserve second lieutenants on the active duty list who are not qualified for promotion to first lieutenant will now be discharged from their appointments instead of being released from active duty. This makes the process for Reserve officers the same as for Regular officers.

Denial of separation pay: The Defense Officer Personnel Management Act allows the secretary of the Army to deny separation pay if an officer is separated for cause. Before the act, it was called severance or readjustment pay, and the law did not allow the secretary to restrict payments. The secretary may now restrict payments to officers who served before or after the act was passed.

Promotion eligibility for retired officers restored: Another change restores eligibility for promotion for retired officers who were on active duty and were eligible for promotion before the act and who have remained on active duty since the act was passed. *(MILPERCEN)*

Changes to EER Procedures

■ Military Personnel Center officials note that some units may not be aware that the Armywide EER weighted average was eliminated on Jan. 1, 1984. The last EER weighted average was published in December 1983, and some units may still be using it or calculating a local EER average.

Units should immediately discontinue using the EER weighted average or any locally tabulated average. These averages do not reflect the status of EERs throughout the Army or at unit level and may handicap soldiers in their career progression.

MILPERCEN has prepared an instructional package to educate soldiers and rating officials on the proper preparation of EERs. A copy may be obtained by writing to: Commander, MILPERCEN, ATTN: DAPC-MSE, 200 Stovall Street, Alexandria, VA 22332-0400.

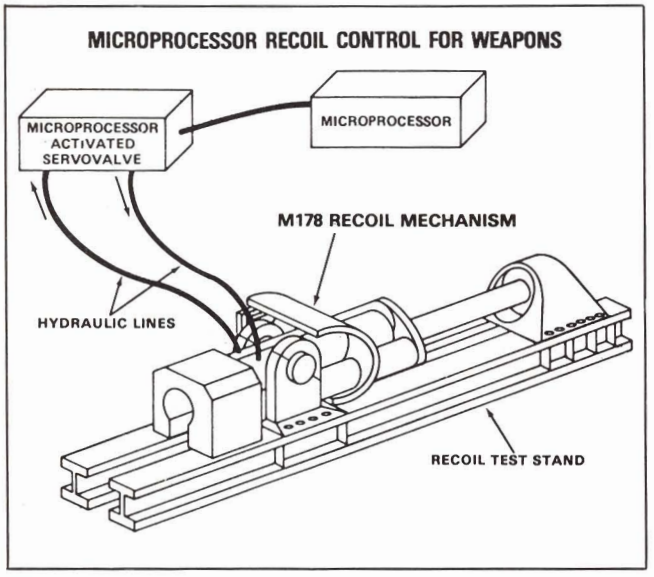
■ Soldiers are no longer rated three months after they are promoted to E-5, MILPERCEN officials announced. The requirement for initial EERs (Para 2-6, AR 633-205, Enlisted Evaluation Reporting System) was eliminated May 1.

Military Personnel Offices will accept initial reports with a "thru" date of April 1985 or earlier, but reports that have a "thru" date of May 1985 will be returned to the rater.

For more information on EERs, call MSgt. Hendrix, AV 221-9610. *(MILPERCEN)*

Developments

Putting the 'Light' in Artillery



Engineers of the Future Weapon Systems Branch, Large Caliber Weapon Systems Laboratory, Aberdeen Proving Ground, Md., are developing innovative approaches to put the "light" in field artillery.

Composite materials, such as graphite and fiberglass, are being investigated as alternatives to aluminum and steel in the construction of lightweight artillery. With the support of the Army Materials and Mechanics Research Center, Watertown, Mass., the engineers intend to demonstrate a full-scale, 155mm towed artillery weapon incorporating state-of-the-art composites.

The ultimate goal is to develop a towed artillery piece that weighs 9,000 pounds, yet maintains the same range characteristics as the 16,000-pound M-198 towed howitzer. The weapon must be significantly lighter, yet must not jump off the ground, or hop, when fired.

To ensure the stability of this lightweight weapon, the branch is investigating a novel recoil mechanism design. Using electronic feedback control, engineers are attempting to monitor and optimize recoil energy management to reduce forces as much as possible.

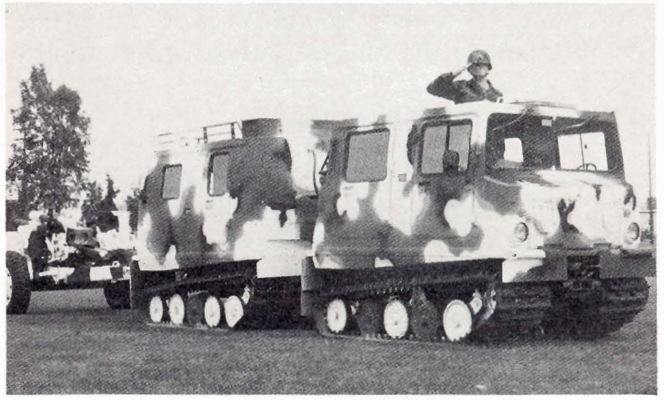
A full-scale demonstration of this concept is planned for later this year. An existing recoil mechanism will be modified and exercised on a test stand. This stand, known as a powder gymnasticator, can simulate recoil action, can exercise recoil mechanisms ranging from 105mm to 8-inch and can generate forces up to 2.3 million pounds. *(The Voice)*

M-1A1 Type Classification; M-88A1 PIP

The U.S. Army Armor School, Fort Knox, Ky., recently reached a major materiel system acquisition decision when the Defense Department recommended type classification and production of the M-1A1 Abrams tank. The M-1A1 is the 120mm cannon version in the Abrams family. The type classification and recommendation to begin production were made by the Defense Systems Acquisition Review Council. The secretary of defense has approved the recommendation, and fielding of the M-1A1 will begin during FY86.

In other news, a "customer test" of an improved test bed M-88A1 recovery vehicle is being conducted. Because of tractive effect loss and problems in recovering M-1A1 tanks, a heavier and more powerful recovery vehicle is needed. The test bed, produced by BMY Corp., weighs up to 64 tons and is powered by a 1,050 horsepower engine. The outcome of the test will provide data to support improving the M-88A1 so it can recover the M-1A1 and the Sergeant York Gun, or suggest that a new recovery vehicle design may be needed. *(The Hot Loop)*

New Support Vehicle For Alaskan Units



The Army recently purchased 257 small-unit support vehicles (SUSV) for use by Active Army and National Guard units in Alaska.

The vehicle is a lightweight (9,790 pounds) track-laying conveyance which is designed for platoon-sized units in northern and mountainous regions. The SUSV can be used to carry selected items of equipment, ammunition and supplies. It can transport 17 fully equipped soldiers or 4,190 pounds of supplies and a driver. It can be used to evacuate injured personnel, tow one or two 10-man ski patrols or pull light weapons such as 105mm howitzers.

The SUSV can travel 25 miles an hour up to a range of 200 miles depending on the terrain. It can negotiate 31-degree hard-surfaced grades; 17-degree grades in deep snow; and, when traveling across the side of a slope, can traverse grades of about 40 degrees.

Tests on the first two SUSVs at Fort Greely, Alaska, showed that the vehicle can start and operate at temperatures as low as minus 50 degrees Fahrenheit.

New NBC Mask System Aids Controllers

In the past, air traffic controllers were unable to use the nuclear, biological and chemical (NBC) protective mask in any but a tactical environment because of problems with wiring the mask into a radio system. Now, soldiers of the 7th Signal Command's U.S. Army Information Systems Command Signal Battalion, Fort Rucker, Ala., are learning how to survive an NBC attack and continue their primary mission in an NBC environment. Controllers and pilots are using the M-24 NBC protective mask, which has a built-in microphone for radio communications.

The battalion's Area Maintenance Facility Division devised a method to connect the mask to the radio system through an adaptor. With the adaptor, 7th Signal Command traffic controllers are able to use the radios in permanently established towers.

Instead of having to go to the field for job-oriented, realistic chemical defense training, controllers can train in any control tower. The experience also gives controllers some insight into the problems they may encounter in an NBC environment. *(PAO)*

A Hearing Aid That Thinks

For the hearing impaired, the inner workings of the ear fights a losing battle when trying to distinguish sounds and high frequencies. Understandably, this lack of distinction would be extremely critical to a soldier at war.

Researchers of Walter Reed Army Medical Center's Audiology and Speech Center, Washington, D.C., are exploring the development of an intelligent hearing device that will alleviate the problem of distinguishing normal speech patterns that often sound fuzzy.

The device would preprocess information to think for the person. It must receive speech, then modify certain parts to make it more intelligible. It has to compensate for irreversible nerve damage.

For example, without an aid, a hearing-impaired person might only register and process 60 percent of incoming sounds. An aid would boost the percentage to 85, while the new device will help close the remaining 15-percent gap, according to Dr. Allen Montgomery, a speech and hearing researcher at Walter Reed.

The intelligent device, once perfected, will examine each incoming word, then pick out the consonants. The sound will be stretched and intensified. The transition from consonants to vowels will be accomplished by altering the intensity.

Vowel sounds will remain the same. This will require needed modification of the incoming signals. Since the consonants are being stretched as the ear hears them, a time-lapse develops when the impaired reads a speaker's lips. To compensate for this synch shift, the vowels are shortened while the consonants are lengthened.

Over the next two years, the researchers have to perfect the idea, then miniaturize the concept onto a computer chip smaller than a quarter of an inch to fit in a conventional hearing aid case.

If the technical problems can be overcome, the benefits will be enjoyed not only by soldiers, but by all hearing-impaired persons. *(TRADOC OCPA)*

Intelligence

India's Air Force Update

India's air force apparently will acquire Soviet Mi-17 Hip assault transport helicopters. India already operates Mi-8 Hip transports and has also started operating a number of Mi-4 Hound helicopters from the Andaman Islands. All the helicopters are used in army support roles. India received about 113 Mi-4s from the Soviet Union, which began deliveries in 1961 following the Sino-Indian border war.

Meanwhile, the Soviet Union and India have finally formalized an agreement concerning the new Soviet fighter, the MiG-29 Fulcrum. Experts have said the MiG-29 has a combat capacity equal to or superior to the F-16 and the F-18.

The twin-engined MiG-29 incorporates the best of present Soviet technology. (See *Air Defense Artillery*, Oct-Dec 82, Page 19; Spring 1983, Page 40; Spring 1984, Page 17.) According to present indications, the MiG-29, which recently entered service with the Soviet air force, will probably be delivered to the Indian air force at the end of this year. India could become the first country, outside the Soviet Union, to possess this aircraft, which has not yet been given to member countries of the Warsaw Pact.

The MiG-29 will be sent to India in parts and assembled at the Hindustan Aeronautics factories.

Angola Receives Soviet Aircraft

The Angolan air force has received an undisclosed number of Soviet-built MiG-23 Flogger fighters to supplement its MiG-21MF Fishbeds, according to sources. It is also claimed that negotiations are under way for Angola to buy Swiss-made Pilatus aircraft, 25 Aerospatiale Gazelle helicopters and an unspecified number of Dauphin helicopters from France.

Angola is also reported to have acquired eight Aviocar CASA-212 military STOL aircraft, reportedly equipped with high-tech weapons, from Spain.

Sweden Chooses Its Own Fighter

Sweden chose to develop its new JAS-39 Gryphon fighter, rather than buy F-16s or F-18s, because of the need to operate the aircraft from any convenient stretch of highway without ground support equipment (*Air Defense Artillery*, Winter 1983, Page 56).

The aircraft has built-in test and maintenance equipment and, with its STOL capability, requires only 1,500 feet to take off or land. *(F.Y.E.O.)*

Offsetting Patriot's Cost

In January 1985, Fokker, of Holland, and Raytheon companies signed a basic purchasing agreement within the framework of the Patriot program. Under the terms of the agreement, Fokker will produce electronic modules and power supplies for integration into Patriot units for both the Royal Netherlands Air Force and the U.S. Army. Purchases from Raytheon of Fokker-manufactured items will be spread over the next four years. In addition, Raytheon plans to purchase logistical services for the Patriot system from Fokker over the next 11 years.

The deal is part of the offset/compensation agreements negotiated between the United States and the Dutch governments when the Netherlands decided to acquire four Patriot fire units, 160 missiles and 20 launchers (*Air Defense Artillery*, Spring 1984, Page 58). *(Military Technology)*

UK Wants High-velocity Missile

The United Kingdom Ministry of Defence has awarded contracts to Short Brothers PLC and British Aerospace Dynamics Division for 12-month project-definition studies on a high-velocity missile system. A four-year development contract is expected to be awarded next year.

The missile, for use against low-flying helicopters and aircraft, is expected to have a peak velocity of about Mach 4 with an effective range of at least five kilometers. A shoulder-launched version, a lightweight multiple launcher and a system for use on armored personnel carriers are envisaged. *(Jane's Defence Weekly)*

Japan Budgets For Patriot

Japan's Ministry of Finance recently authorized the initial purchasing cost for the Patriot missile system.

The authorization is for purchase of one fire unit. The Japanese Air Self-defense Force plans eventually to have a total of 26 fire units (24 for six air defense groups and two for training), although the National Defense Council postponed the decision for the final purchase number.

The Patriot, which will replace the aging Nike-J missile system, will be manufactured in Japan under license. *(Jane's Defence Weekly)*

Soviet Global Ambitions

The following excerpts from *Soviet Military Power 1985* reflect the continuing increase in Soviet military force capabilities abroad.

Cuba: The Soviet Union uses Cuba for both naval and naval air deployments. The Northern Fleet Tu-95 Bear-D and Tu-142 Bear-F naval reconnaissance and anti-submarine aircraft have made some 50 deployments to Cuba.

Nicaragua: In 1980, the first group of Nicaraguans was sent to Eastern Europe for MiG flight training. Soviet pilots and technicians accompanied deliveries of An-2 Colt transport planes and about 10 Mi-8 Hip helicopters that began in 1981. Soviet advisers are now assisting Nicaraguan forces with the Mi-24 Hind-D attack helicopters delivered in 1984. The new military airfield at Punta Huete, when completed, will have a runway long enough to accommodate any aircraft in the Soviet inventory.

Peru: Beginning with the sale of Mi-8 Hip helicopters in 1973, the Soviet Union began a comprehensive program of military equipment sales and training. Approximately 150 Soviet military advisers and technicians provide maintenance and instruction on Soviet-made military equipment. In return for such assistance, the Soviet Aeroflot office makes Lima the crossroads for most of the Soviet travel in South America.

Angola: The largest Soviet military transport aviation detachment abroad is deployed to Angola. The airfield at Luanda continues to serve Tu-95 Bear-D maritime reconnaissance aircraft, which deploy in pairs about three or four times a year. Angola received initial deliveries of MiG-23 Flogger and Su-22 Fitter aircraft, as well as additional helicopters.

Mozambique: In 1984, Mozambique took delivery of additional MiG-21 Fishbed fighter aircraft, increasing its total to at least 44.

Ethiopia: The Dahlak installation is a maintenance facility and supply depot for Soviet naval combatants operating in the Indian Ocean and Red Sea. The Soviets deployed two Il-38 May anti-submarine warfare and maritime reconnaissance aircraft to Asmara Airfield until they were destroyed by rebels in May 1984.

Guinea: The Soviets use Conakry harbor routinely. Although access for Bear aircraft was terminated in 1977, Conakry airfield is still used as a stopover point for military transport flights to Angola.

Seychelles: The Soviets are attempting to increase their influence in the Seychelles, with the probable intent of gaining regular access for naval ships and naval air units. In February 1984, Soviet military transport planes began using the islands for stopovers en route to southern Africa.

Libya: There are approximately 1,400 Soviet air defense, air force, army and navy advisers in Libya. The Soviet mission assists with the assembly and maintenance of MiG-25 Foxbats, MiG-23 Floggers, MiG-21 Fishbeds, Su-22 Fitters and Mi-24 Hind helicopters. Soviets are also assigned to Tu-22 Blinder bomber maintenance and assist with Blinder, Il-76 Candid and An-26 Curl operations. Il-38 May aircraft deployments to Libya have taken place since mid-1981.

Algeria: Although Algeria currently maintains a non-aligned policy, the Soviets remain its main supplier of military equipment. There are approximately 1,000 Soviet military advisers in-country. Many of these advisers are assigned to equipment repair installations and individual combat units, which include MiG-21 Fishbed, MiG-23 Flogger and MiG-25 Foxbat aircraft squadrons.

Iraq: In an effort to win its war with Iran, Iraq obtained more military assistance from the Soviet Union in 1983 than any country in the Third World. Iraq continued to be one of the Soviets' best arms customers in 1984, with large shipments of MiG-25 Foxbat fighters.

India: Of significant importance to the Soviet Union, India is the predominant power in South Asia due to its size, strategic location, regional dominance and leadership in the non-aligned movement. The Soviet Union's commitment to India was highlighted by India's receipt of the MiG-29 Fulcrum fighter, the first Third World nation to receive this most advanced Soviet aircraft, even before full deployment to Warsaw Pact forces. Delivery of the An-32 Cline tactical transport aircraft began in July 1984, and deliveries of the first of the Il-76 Candid heavy transport aircraft are expected to begin in the spring of 1985.

East Asia: Soviet forces in the Far East include more than 50 divisions along the Sino-Soviet border and northeast Asia, supported by some 1,700 aircraft, excluding the Backfire bomber.

Vietnam: With the arrival of seven additional Tu-16 Badger aircraft in late 1984, the squadron at Cam Ranh Bay now totals 24 reconnaissance or combat aircraft, with eight Bears and 16 Badgers, including 10 with strike capabilities. The Badgers' range from Cam Ranh Bay extends the Soviets' strike capability over an area that includes not only regional states but also the U.S. territory of Guam and the western portion of the Trust Territory of the Pacific Islands. Support facilities have also been upgraded for additional permanently deployed aircraft, including a squadron of MiG-23 Flogger fighters.

Books

NUCLEAR AMERICA
by Gerard H. Clarfield and William M. Wiecek
Harper & Row, Publishers, Inc., New York, 1984. 518 pages. $19.95.

Harry Truman called the atomic bomb "just another piece of artillery." George Kistiakowsky, one of the scientists who watched the first atomic bomb light up the night over the New Mexican desert, said, "I am sure that at the end of the world, in the last millisecond of the earth's existence, man will see what we have just seen."

Nuclear weaponry and nuclear energy have been the source of controversy, debate and paranoia since man first learned to split the atom. *Nuclear America,* the first comprehensive history of the development of military and civilian nuclear power in the United States, attempts to cover the pros and cons of the issue.

Has the dream of cheap nuclear power exposed Americans to catastrophic nuclear disasters and higher utility bills? Has the U.S. military abandoned "mutual deterrence" to pursue a nuclear warfighting capability likely to end in "mutual destruction"?

These are some of the questions that *Nuclear America* poses. The answers the authors provide add up to an indictment of public, military and private bureaucracies they conclude have led Americans down a nuclear primrose path with policies more often propelled by bureaucratic inertia than foresight.

Gerard H. Clarfield and William M. Wiecek contend that the "firebreak" between conventional and nuclear weapons that early strategic thinkers relied on to prevent a conventional war from escalating to all-out nuclear exchange has been dissolved.

"Even in the early years of the arms race, the military establishment never entirely accepted these views. As the quest for improved weapon systems succeeded and the instruments of mass destruction proliferated, the military's wavering acceptance of deterrence and the firebreak dissolved. Multiple independently (targetable) re-entry vehicle (MIRV), which the defense establishment demanded, produced thousands of new warheads. As their numbers increased, military leaders naturally had to find some justifiable use for these new weapons. So strategic doctrine shifted from deterrence to the development of a nuclear-war fighting capability. Nuclear weapons have been integrated into strategic planning and will be used for conventional military purposes in the event of war. Deterrence has been undermined, and the firebreak has disappeared as current American planners, insisting on more, as well as more accurate nuclear weapons, reject the understanding of an earlier generation."

Nuclear America is not just another "Ban the Bomb" or "No Nukes" diatribe. It is a carefully researched and expertly reported history of the controversy surrounding nuclear power in the United States from Hiroshima to the failure of the Strategic Arms Limitation Treaties of the 1970s. It is must reading for anyone who wants to be informed about both sides of the nuclear controversy.

THE FIGHTING ISRAELI AIR FORCE
by Col. Stanley M. Ulanoff, USAR, and Lt. Col. David Eshel, IDF, Ret.
Arco Publishing, Inc., New York, 1985. 256 pages. $19.95.

Written by recognized authorities on military aviation, this book is the story of the Israeli Air Force from its beginnings in 1948 through nearly continuous campaigns into the present. Included are the Sinai Campaign, the Six Day War, the War of Attrition, the Yom Kippur War and the activities in Lebanon. The book highlights the rescue at Entebbe Airport and the attack on the Iraqi nuclear plant that stunned the world in 1981. The book profiles air force leaders and chronicles the matchless fighter pilots and their aircraft.

It must be noted that the authors saw fit to reprint an article that appeared in the Winter 1983 issue of *Air Defense Artillery.* "Lebanon: An Air Defense Analysis," was written by Maj. Charles E. Mayo, who at the time was assigned as an air threat analyst at the Directorate of Combat Developments, U.S. Army Air Defense Artillery School, Fort Bliss, Texas.

The Fighting Israeli Air Force includes actual Israeli Ministry of Defense documents and is profusely illustrated.

LOCKHEED HERCULES
by Francis K. Mason
Sterling Publishing Co., Inc., New York., 1985. 241 pages. $19.95.

This book sums up the Lockheed C-130 and the many planes derived from it. The C-130 is an aircraft so powerful and robust, so adaptable and capable of carrying great loads that it could bear but one name—Hercules. Written by a former night fighter pilot who examines every aspect of the C-130's design and evolution, *Lockheed Hercules* is packed with photographs and drawings. It covers the aircraft's origins and early years, its service with the Navy, Coast Guard, Marine Corps and Air Force, its role in Vietnam and its work with other nations, including such countries as Yemen, Niger and Dubai. Forty-eight pages of appendices contain a glossary of abbreviations and a complete listing of all the models in chronological sequence.

AIR WARFARE. The Fourth Generation
by Christy Campbell
Arco Publishing, Inc., New York, 1985. 192 pages. $16.95.

This book describes in detail the roles of modern air forces, paying special attention to those of NATO and the Warsaw Pact. The immense scope of present-day air operations is described, including strategic bombing of the enemy heartland, disruption of supply lines, carrier strike operations, air defense, tactical airlift and battlefield mobility. *Air Warfare* also analyzes the capabilities of aircraft and armament and attempts to assess the nature of the air war of the future.

HUMAN KIND. Future Orbit or Self Destruct?
by Patrick Mulcahy
Atlantis Books, Monterey, Calif. 1984. 120 pages. $13.95.

Patrick Mulcahy is described as a logic-based futurist. But, the former chief of the U.S. Army College's Advanced Study Group has a firm

background in military analysis and is expert at applying pragmatic logic to global patterns.

This is a book of predictions based on facts. Mulcahy predicts that unless the United States changes its direction, the country is doomed. His carefully crafted summary of major developments includes such issues as nuclear conflict and the possible collapse of our Social Security system. He reveals factors less common to popular thought. His reason for writing with such a dark approach, he says, is to encourage policy shifts that would have a chance of altering negative trends.

Quite striking is his prediction that this country's population flow will crowd the southwestern Sun Belt, an influx which may well change voting patterns so significantly that our two-party system could crumble. His economic forecast is dire: "By the turn of the century the deepening recessions will lead to a major and crippling depression in the United States. Major depressions are normally followed by periods of abbreviated individual liberty and rigid economic decrees . . . I predict that the people of the United States will suffer a significant loss of individual liberty and modifications of our traditional democratic institutions . . . Our best hope for the future lies in the possibility that the younger generation will respond in a positive manner."

In the international arena, Mulcahy sees an alarming growth in the power of Islamic fundamentalists. His scenario is based on the regime of Iran closing the Straits of Hormuz, creating a major oil crisis. He claims that this formation of Islamic fundamentalists into a third major power shall further encourage frightened decision-making in the Kremlin.

Other scenarios he envisages are: Cuba attempting some adventurous incursion which will lead to its decisive defeat by this country; Israel holding a public demonstration of its nuclear weapons capability and announcing its use of these weapons if its existence as a nation is clearly threatened; and Ted Kennedy selecting Jesse Jackson as running mate and their landslide victory in 1988.

This book may anger those who prefer to ignore complicated and compelling issues. But Mulcahy, who is also a graduate of the Royal British Staff College and the Monterey Institute for International Studies, has been studying global patterns for 25 years. He should not be dismissed.

A TIME FOR COURAGE. The Royal Air Force in the European War, 1939-1945
by John Terraine
Macmillan Publishing Co., New York, 1985. 816 pages. $29.95.

The role of the Royal Air Force (RAF) in World War II was vital from beginning to end. Though most famous for its victories in such conflicts as the Battle of Britain, the RAF had its first victory in overcoming a national reluctance to rearm Britain after World War I and becoming the modern force of warfare that entered World War II. It is with this early period of development and struggle that John Terraine begins his insightful and comprehensive history of the RAF in the European theater of World War II.

In *A Time For Courage*, working with the cooperation of the Air Historical Branch of Britain's Ministry of Defence and using materials and sources not previously available, Terraine reassesses the role of the RAF: its aircraft and equipment, its famous (and not so famous) personalities and its enemies.

Intercept Point

continued from page 2

to the Army Staff. There are few colonel positions which influence ADA force structure and modernization efforts, and these few are constantly under siege. Additionally, there are few or no ADA colonel positions at major command headquarters such as Forces Command, Training and Doctrine Command and U.S. Army Europe. What can we do about these shortfalls? In the near term, we must continue to try to personally influence, at the general officer level, the assignments of general officers and colonels to key slots. This must be accomplished through informal contacts. Over the long term, we must recognize this problem across the branch and work at all levels to rectify it through proposals for changes to TDAs and TOEs.

Another area that I perceive falls short is the number of ADA officers qualified in research, development and acquisition (RDA) specialities. We have many senior officers who are personnel and operations specialists, but we have few who are RDA experts. It is difficult to find ADA officers to be assigned as project managers. It is hard to find ADA general officers to influence actions in the RDA community. The corrective action here is for younger officers, especially those with technical backgrounds, to seek assignments in RDA. The opportunities are great.

ADA Center and School

The ADA Center and School has improved in many aspects. The basic and advanced courses have been revamped, standards are higher than ever, field training is back in, and the new program of instruction is lean and demanding. Feedback from recent graduates is very positive. Our Training Brigade is producing the best soldiers I have ever seen. The quality of new recruits remains high. Our school and center continue to produce allied graduates of high quality, and the influence of the U.S. Army Air Defense Artillery across the Free World is very strong. Fort Bliss is truly the ADA center of the Free World. Fort Bliss is a fine post, and our branch can be very proud to have its headquarters there.

The post has been getting more dollars for maintenance. Barracks, motor pools and family quarters are much improved of late. We have renovated two of the three sets of boarded-up quarters on Sheridan Road, with the third approved for renovation in 1986. There are many other indicators of improvements at Fort Bliss which make me more proud of the post than ever.

Excellence Over All

We are an elite branch. We are the high-technology combat arm. We are more capable now of performing our mission than ever before in history. It has been an honor to serve in and to serve the Air Defense Artillery. It has been truly rewarding to have been the chief of branch of Air Defense Artillery. My wife, Mariwyn, and I shall miss you. We wish you the best possible future. Remember: Excellence over all.

Opinion

Cadet Recruitment Needs Emphasis

by Maj. Dennis Hutchinson

Cadets graduate from the U.S. Military Academy without having seen a live air defense artillery missile fired. Their underexposure to Air Defense Artillery means that all air defense artillery officers who come in contact with West Point cadets must act as a recruiter for the branch.

There are 36 cadet companies consisting of approximately 120 cadets each at the U.S. Military Academy at West Point, N.Y. Each company has a cadet chain of command overseen by a tactical officer, either a captain or a major, who counsels, develops discipline and leadership, and serves as a role model for the cadets. These officers must be top quality, highly motivated professionals.

Currently, the 36 tactical officers represent the following service branches: Infantry, 11; Armor, 7; Field Artillery, 6; Signal Corps, 4; Aviation, 3; Air Defense Artillery, 2; Quartermaster, 1; Military Police, 1; and U.S. Air Force, 1. As can be seen, Air Defense Artillery could use more representation among tactical officers.

Personal Contact

Personal contact with ADA officers and NCOs, along with the training environment provided, are the most influential aspects of a cadet's troop leadership training experience. Everyone in the chain of command contributes to this experience, either positively or negatively.

During their four years at the academy, cadets receive military instruction during the summer months and during the academic year. A cadet's first summer is spent in Cadet Basic Training, which, as the name implies, is similar to the basic training that a soldier receives upon entry into the Army. During basic training, the emphasis is on basic military training (first aid; rifle marksmanship; nuclear, biological and chemical warfare; drill and ceremonies; customs and courtesies; bayonet; individual assault techniques; and leadership reaction); physical training; moral, ethical and cadetship training; and social development training.

The cadets' first exposure to the branches that they could be commissioned into upon graduation occurs in the second summer during the two months called Cadet Field Training. Hours of training for each combat arms branch are: Infantry, 117 hours; Armor, 41.5 hours; Engineer, 18 hours; Field Artillery, 24 hours; Air Defense Artillery, 7 hours. During the junior summer, cadets participate in Cadet Advanced Training, which consists of Cadet Troop Leader Training or the Drill Cadet Program and Cadet Military Specialty Training. Normally each cadet will take either the Troop Leader Training or the Drill Cadet Program and one specialty training option during the second class summer.

Training Options

The specialty training options are Air Assault School; Airborne School; Jungle Operations Training Course; Northern Warfare Training Course; Survival, Evasion, Resistance and Escape; Flight School Orientation Program; Opposing Forces Academy; and Strategic Mobility Planning Course. Troop leader training offers a cadet realistic experience while assigned to a regular Army unit as a platoon leader or in a position of equivalent responsibility.

The Drill Cadet Program offers a cadet a chance to participate in leadership development by assuming the responsibility of a noncommissioned officer in a basic training unit at a U.S. Army training center. The cadet's last summer is spent in leadership roles as part of cadre for Cadet Basic Training or Cadet Field Training.

Each year a certain percentage of the graduating class is slotted for Air Defense Artillery. The minimum percentage allocated to Air Defense Artillery has averaged about eight percent of a class over the last several years. This compares to other combat arms as follows: Infantry, 21 percent; Field Artillery, 18 percent; Armor, 13 percent; Aviation, 10 percent; and Engineers, 9 percent. Cadets select their branch according to their cumulative general order of merit over their four years at the academy.

The reasons for a cadet's branch selection are complex and varied. However, the real issue for air defense artillerymen is not whether we get the top or bottom graduates from the academy, but that we get graduates who are knowledgeable in branch selection and come with a desire to serve and contribute. This brings us back to the Air Defense Artillery exposure at the academy.

ADA Exposure

As previously mentioned, the cadets' first exposure to Air Defense Artillery is in the summer of the second year. The seven hours of training given at Fort Knox, Ky., comprise a one-hour briefing on air defense weapon systems, job opportunities, and challenges; three hours on Vulcan aerial and ground firing, Vulcan aerial tracking and a Forward Area Alerting Radar Vulcan static display; three hours on Chaparral driving and tracking; Stinger introduction and tracking; and a Patriot static display.

The training is professional and well received by cadets. However, the training is insufficient in several respects. Most obvious is the absence of a Hawk static display. This is a serious deficiency since 40 percent of the cadets who select Air Defense Artillery will be serving with Hawk units. Also, the gun-missile mixture is stressed throughout the training, but the only live firing is done with the Vulcan gun system. Cadets graduate from the academy never having seen an air defense missile fired. And, although the Patriot display has been a great success, the absence of a Sergeant York Gun system or mock-up has left a void in the training and should be included to stimulate an interest in this new system and its ultimate employment.

The second opportunity a cadet has to work with an air defense system is in the third summer. During Troop Leadership Training, a certain percentage of the class is assigned to Air Defense Artillery units both in the United States and overseas. In the recent past, five percent of the class has elected to go to these units. This compares to the other combat arms: Infantry, 24 percent; Armor, 13 percent; Field Artillery, 11 percent; and Engineer, 10 percent.

Why are so few cadets going on Troop Leader Training opting for Air Defense Artillery units? Part of the answer could lie with the insufficiencies in field training. The importance of the seven-hour block of instruction offered in Cadet Field Training and its effect upon cadets is demonstrated when it comes time to pick a Troop Leader Training assignment.

Another significant portion of the answer is found within the air defense experience itself. Cadets request their Troop Leader Training assignment based on the exposure they have had to the various branches during Cadet Field Training and from the comments they have received from cadets who have taken part in Cadet Troop Leader Training. If you are fortunate enough to have a cadet come to your unit on this training, you will influence not only that cadet's perception of Air Defense Artillery, but everyone the cadet comes into contact with upon his or her return to West Point.

Cadets of the U.S. Military Academy receive a broad-based military education during their four years. This training covers the basic Military Qualification Standards I tasks and gives a cadet a general exposure to the various branches of service in the Army through field training instruction and on-the-job experience received during troop leadership training. You, as Air Defense Artillery commanders, officers and NCOs, can have an impact on this process. It is essential to our branch that we continue to recruit competent and inspired officers to complement our motivated and capable soldiers.

The U.S. Army Air Defense Artillery School will furnish one Hawk assault fire unit and one Sergeant York Gun to support Cadet Field Training this summer at Fort Knox. The Fort Knox ranges, however, are too small to permit live missile firings.

The U.S. Military Academy TDA allots Air Defense Artillery seven instructor slots and two tactical officer slots. It is doubtful that the number of air defense artillery tactical officers can be increased since the ADA allotment is in proportion to the numbers allotted larger branches. Air Defense Artillery will, however, continue to assign only the most qualified officers to represent the branch at the academy.

Maj. Dennis Hutchinson *is the Air Defense Artillery representative at the U.S. Military Academy, West Point, N.Y. Hutchison formerly commanded Nike batteries in Germany and in Korea. He has a master's degree in business administration from Long Island University, N.Y.*

PHILOSOPHY OF THE ARMY OFFICER CORPS

The Profession of Arms

The Armed Forces defend freedom by protecting national interests and deterring war. Decisive victory is imperative should deterrence fail. To cope with the rigors of war, the Army must foster a professional Army ethic, which includes:

- loyalty to the ideals of the nation.
- loyalty to the soldier and the organization.
- personal responsibility.
- selfless service.

The professional Army ethic applies to all aspects of officership and is as important in staff positions and support units and organizations as it is in command positions and combat units. It knows no boundaries between leading, commanding, managing, learning and teaching; but requires the ability to understand the integration of combat, combat support and combat service support units into Army, joint or combined forces to accomplish the mission. The Officer Personnel Management System reinforces and helps preserve the professional Army ethic through identification, development and promotion of officers who live by this ethic and who can lead the Army's soldiers and organizations in peace and war. The key to victory is the vigorous application of the professional Army ethic with the soldierly values: moral, physical and spiritual courage; candor and personal integrity; technical and tactical competence; commitment to mission and unit welfare; the ability to think ahead and manage change; audacity, coupled with sound judgment; and uncompromising standards.

Structure for Peace and War

Advancing technology, increasing battlefield lethality and accelerating change have compressed decision cycles and multiplied the complexity of war. In ***preparation for war***, leaders must: teach concepts and doctrine; build cohesive teams; train units for excellence; develop their subordinates; take care of soldiers and their families; establish an environment in which soldiers can live and grow; manage complex programs and systems; plan for combat; plan for mobilization and prepare for rapid deployment.

During the ***conduct of war***, leaders also must: grasp situations quickly; deal with uncertainty; act decisively; maximize firepower and maneuver; gain and maintain momentum; minimize battlefield confusion; and lead soldiers and units to fight and win with the resources available. Through progressive education, training and assignment, officers develop the essential knowledge and skills to raise provision, deploy, fight, maintain, sustain and educate the Army in the complex tactics and strategies required to deter wars, to fight wars and to win wars. Every officer must understand tactics, administration, logistics, communications and information management and be competent in the requirements of peace, mobilization and war.

OPMS Foundations

To ensure a system that provides for orderly change but is grounded in unchanging fundamentals, the Officer Personnel Management System is anchored to seven philosophical foundations. The system:

- fosters the professional Army ethic.
- demands candor and high ethical conduct.
- develops and assigns officers to support valid Army requirements.
- provides as much opportunity as excellence allows.
- recognizes the unique talents and potential of each officer.
- provides continuous and progressive professional development throughout a full career.
- rejects self-serving motives.

Responsibilities

Officers developed under the Officer Personnel Management System must understand that their ultimate responsibility is to be prepared to perform their wartime duties. Critical to this understanding is the knowledge that officers will be required to fulfill their responsibilities on and off the battlefield, since the sustainment of the Army in peace is vital to its success in war. Through leading, teaching and coaching, officers must create an operating environment which fosters the professional Army ethic, encourages initiative and builds esprit de corps. In return, the officer corps expects support by the system and a high degree of consistency in the application of its provisions.

Senior Air Defense Artillery Commanders

Maj. Gen. Victor J. Hugo Jr.
32nd AADCOM

Col. Anson W. Schulz
10th ADA Bde

Lt. Col. Joseph G. Garrett III
1st Bn, 1st ADA (Hawk)

Lt. Col. J.D. Leverett
2nd Bn, 2nd ADA (Hawk)

Lt. Col. Robert E. Huston
4th Bn, 3rd ADA (Patriot)

Lt. Col. Johnnie O. Rankin
2nd Bn, 43rd ADA (Patriot)

Col. Chapin Horton
69th ADA Bde

Lt. Col. Maurice R. Alexander
3rd Bn, 7th ADA (Hawk)

Lt. Col. Gary M. Stewart
6th Bn, 52nd ADA (Hawk)

Lt. Col. John J. O'Connell Jr.
2nd Bn, 57th ADA (Hawk)

Lt. Col. Miles A. Bolick Jr.
3rd Bn, 60th ADA (Hawk)

Col. Lewis G. McFarland
94th ADA Bde

Maj. Thomas M. Reise
3rd Bn, 59th ADA (Hawk)

Lt. Col. Albert J. Madora
2nd Bn, 62nd ADA (Hawk)

Lt. Col. Theodore S. Clements
3rd Bn, 71st ADA (Herc)

Col. Larry R. Butterworth
108th ADA Bde

Lt. Col. John W. Carlton
2nd Bn, 60th ADA (C/V)

Lt. Col. Frederick C. Beauchamp
6th Bn, 56th ADA (C/V)

Divisional ADA—Europe

Lt. Col. Roy W. Tate
1st Bn, 59th ADA (C/V)
8th Inf Div

Lt. Col. John Costello
2nd Bn, 59th ADA (C/V)
1st Armd Div

Lt. Col. James F. Barber
3rd Bn, 61st ADA (C/V)
3rd Armd Div

Lt. Col. Lewis A. Palumbo
3rd Bn, 67th ADA (C/V)
3rd Inf Div

WESTCOM

Lt. Col. Ronald K. Spearman
2nd Bn, 61st ADA (C/V)
2nd Inf Div

Lt. Col. Jerry L. Segars
1st Bn, 62th ADA (C/V)
25th Inf Div

59th Ord Bde

Maj. Alvin Washington
5th USA Arty Group

Col. George B. Reed
559th USA Arty Group

FORSCOM

Lt. Col. Robert R. Lund
3rd Bn, 68th ADA (Hawk)
XVIII Abn Corps

Lt. Col. Thomas E. Pence
3rd Bn, 4th ADA (V/S)
82nd Abn Div

Maj. Joseph C. Dyer
1st Bn, 3rd ADA (V/S)
101st Abn Div (Air Assault)

Lt. Col. George A. Latham
2nd Bn, 5th ADA (C/V)
2nd Armd Div

Lt. Col. Peter J. Condon
4th Bn, 61st ADA (C/V)
4th Inf Div

Lt. Col. Michael G. Thornton
1st Bn, 68th ADA (C/V)
1st Cav Div

Maj. Frank G. Brown III
1st Bn, 51st ADA (C/V)
7th Inf Div

Lt. Col. Joseph M. Cosumano Jr.
1st Bn, 55th ADA (C/V)
5th Inf Div

Lt. Col. Ronald K. Bancroft
2nd Bn, 67th ADA (C/V)
1st Inf Div

Lt. Col. Eugene P. Semmens
5th Bn, 52nd ADA (C/V)
24th Inf Div

Col. Peter C. Swenson
35th ADA Bde

Lt. Col. Jeffery L. Ellis
1st Bn, 4th ADA (Hawk)

Lt. Col. William A. Kunzman
1st Bn, 67th ADA (C/V)
9th Inf Div

Lt. Col. Dennis J. Spiegel
7th Bn, 7th ADA (Chaparral)

Maj. Gen. James P. Maloney
USAADACENFB

Lt. Col. Richard D. Allen
Headquarters Command

Col. J. Morgan Jellett
11th ADA Bde

Lt. Col. Charles W. Wood
4th Bn, 1st ADA (C/V)

Lt. Col. Stephen D. Cork
1st Bn, 7th ADA (Hawk)

Lt. Col. William H. Gardner Jr.
1st Bn, 65th ADA (Hawk)

Lt. Col. Robert M. Davis
2nd Bn, 55th ADA (Hawk)

Lt. Col. Francisco Estrada
5th Bn, 200th ADA (Roland)
(NMARNG OPCON)

Col. Claude Ellis Jr.
The School Brigade

Lt. Col. Gene L. Miller
Staff and Faculty Bn

Lt. Col. Darrell J. Supak
Student Bn

Lt. Col. David E. Beaman
1st Bn, 43rd ADA (Patriot)

Lt. Col. Jimmie Jones
2nd Bn, 3rd ADA (Patriot)

Col. James M. Chatfield
1st ADA Tng Bde

Lt. Col. K.C. Sorensen
Allied Student Bn

Lt. Col. Michael T. Byrnes
2nd Bn (BT)

Lt. Col. Larry G. Lovell
3rd ADA Tng Bn (OSUT)

Lt. Col. Richard A. Black
4th ADA Tng Bn (OSUT)

Lt. Col. Frank Farkas
1st Instructor Bn (Prov)

NATIONAL GUARD

Brig. Gen. George W. Treadwell
111th ADA Bde, NMARNG

Lt. Col. Edgar A. Koeltzow
1st Bn, 200th ADA NMARNG

Lt. Col. Felipe D. Garcia
2nd Bn, 200th ADA NMARNG

Lt. Col. Arthur G. Chavez
3rd Bn, 200th ADA NMARNG

Lt. Col. Terry L. Holden
4th Bn, 200th ADA NMARNG

Lt. Col. William A. Vick
3rd Bn, 111th ADA VARG

Lt. Col. David T. Hartley
2nd Bn, 174th ADA, OARNG

Lt. Col. John B. Kiffam
2nd Bn, 263rd ADA, SCARNG

Lt. Col. James Calloway
1st Bn, 265th ADA, FLARNG

The Senior Air Defense Artillery Commanders list is compiled by the Air Defense Artillery Branch, U.S. Army Military Personnel Center.

Coming in the Fall Issue . . .
Patriot in Contingency Operations