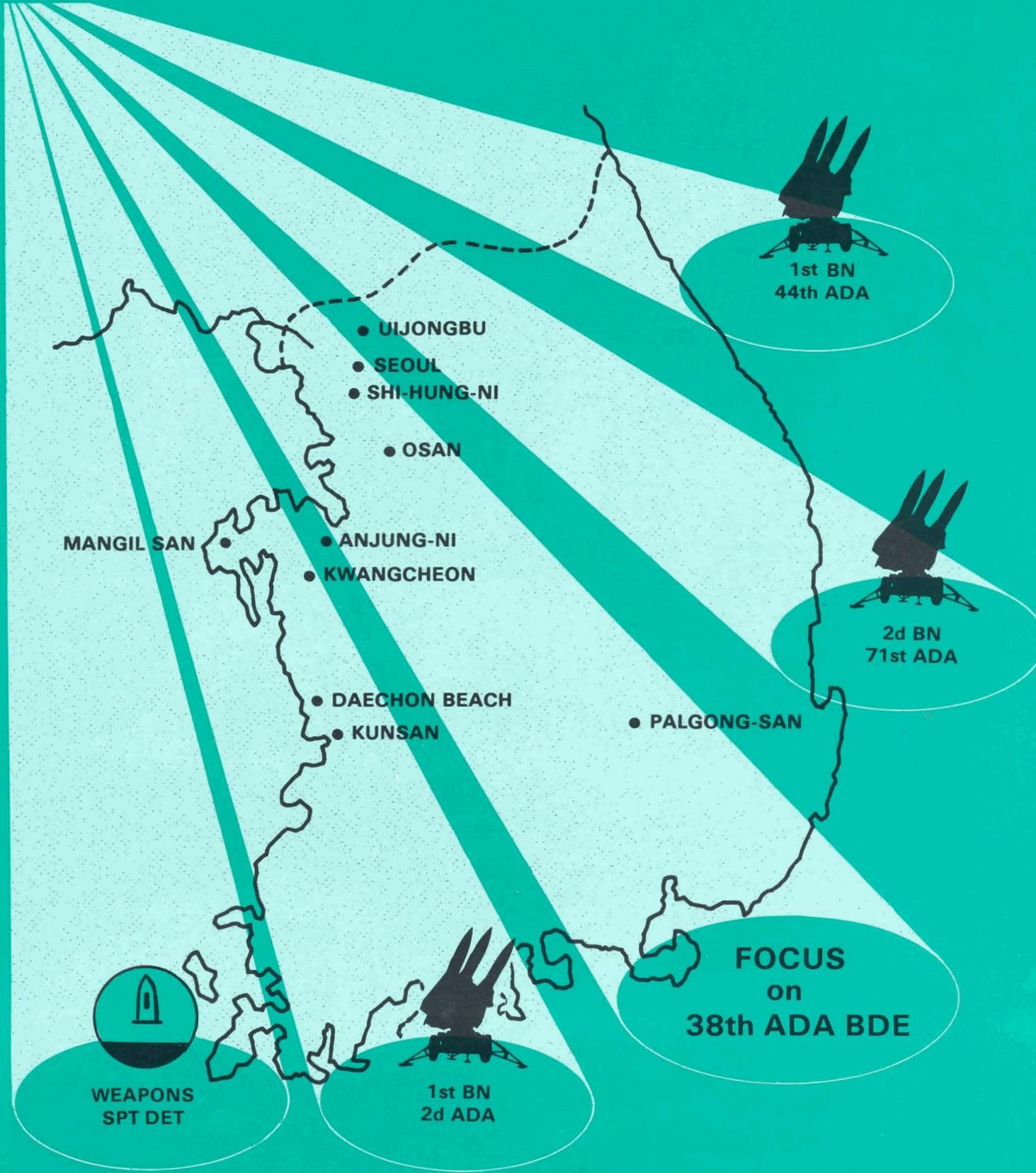


AIR DEFENSE

MAGAZINE



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FEATURES



The 38th Air Defense Artillery Brigade 8



ADA Training Developments 12



ADA In New Mexico National Guard 20

COVER: This issue features the 38th Air Defense Artillery Brigade in its role of providing air defense for forces defending the Western Sector of South Korea against Communist aggression from the north. An article describing the Brigade and how it functions begins on page 8.

CREDITS (Artwork and Illustrations) — Ralph Prince, Terry Smith, James Millender, Marie Seeber, Alfonso Serna, Armando Blanco, Jr., Timothy Hart, SP5 Joseph Adams, Angel Quezada.

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AIR DEFENSE Magazine is published quarterly by the US Army Air Defense School to keep air defense personnel informed of the latest tactical, doctrinal, and technical developments in air defense worldwide, and to maintain a stimulating and mutually productive dialog between the School and units in the field, with a view toward increased efficiency in all aspects of air defense.

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TRADOC SYSTEM MANAGERS

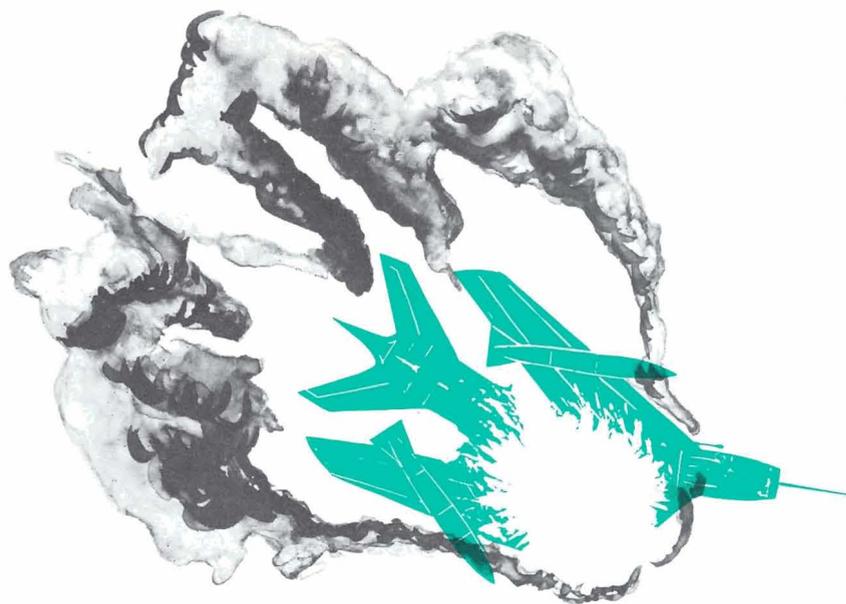
ROLAND - COL Russel W. Parker

PATRIOT - COL Samuel L. Hayton

DIVAD GUN - COL G. C. Mahan

STINGER - COL J. E. Caudill

As of 1 October 1979



INTERCEPT POINT

MAJOR GENERAL JOHN B. OBLINGER, JR.

The subject of a recent Intercept Point was "The Threat" and its implications to the Army and particularly to you and me — the Air Defense Artillerymen. It stated that the proposed TRADOC goals were to provide for *readiness* of the Army to fight, *force modernization*, and *force sustainment* and that these goals could be accomplished only by proper *management*. Expanding on the management theme, the topic of this Intercept Point is "TRADOC System Managers — Their Purpose and Function."

There are only two ways to improve the quality of our weapon systems to meet the postulated threat — Product Improvement Programs (PIPs) for current systems or development of completely new systems. Either method requires careful and continuous management to insure that the final product is both technically sound and tactically usable. This management is provided by two major Army commands, DARCOM and TRADOC.

The US Army Materiel Development and Readiness Command (DARCOM) is responsible for developing system hardware for the Army. A DARCOM Project Manager (PM) is designated by the Secretary of the Army for each major system. He manages the hardware development and schedule to insure that the system is technically sound, supportable, and delivered on time. TRADOC is responsible for establishing user requirements for new systems (and PIPs to fielded systems) and insuring not only that the systems produced by DARCOM are usable by our troops but that our troops are trained and have the proper doctrine and tactics to use the systems effectively. To actively participate in the materiel acquisition process, TRADOC has numerous agencies involved in a myriad of tasks. As system acquisition procedures became more com-

plex, it was increasingly difficult to coordinate all this activity into a meaningful and useful input to properly influence the process and represent the user's interests. Realizing the need for a better way to influence the development process, in 1979 TRADOC established a TRADOC counterpart to the DARCOM PM — the TRADOC System Manager (TSM). He is the individual who pulls the pieces of the puzzle together, the one who represents the user. He doesn't do the PM's job. He helps him do it.

The TSM is the focal point within TRADOC for all activities concerning his system. His goal is to insure that user interests (personnel, training, logistics, operations, organization, test, and doctrine) are adequately addressed in all phases of the materiel acquisition process. The TSM will manage from the "cradle to the grave." Not only is he active during development but also after the system is fielded.

Each TSM is chartered by the Commander TRADOC. The TSM office for a particular weapon system is located at the proponent TRADOC school for that system and works directly for the School Commandant. At USAADS, we have four TSMs as indicated below:

| System | TSM | Telephone |
|-----------|--------------------|-----------|
| DIVAD Gun | COL Gary Mahan | 978-6546 |
| Patriot | COL Sam Hayton | 978-7410 |
| Roland | COL Russell Parker | 978-7254 |
| Stinger | COL James Caudill | 978-6748 |

Now that you know the TSM's purpose for existing, let me explain how he operates. He has a staff of three officers. He is not an action officer — he is an energizer, organizer, integrator, and expediter. He insures that the appropriate TRADOC



agencies interface with the program in a timely manner. He and his staff accomplish this by:

- Coordinating all user actions as delineated in appropriate Army and TRADOC regulations to insure that plans for training, personnel, logistics, organization, and new doctrine/tactics are timely and fully integrated into the materiel acquisition program.

- Providing the user interface with the DARCOM PM for his system.

- Insuring the compatibility with user requirements of all contractual action taken by the PM for his system.

- Preparing the TRADOC position and participating in all decision reviews (In-Process Review (IPR), Army Systems Acquisition Review Council (ASARC), and Defense Systems Acquisition Review Council (DSARC)) for his system.

- Representing the user in all studies, evaluations, and other efforts supporting development of his system.

- Defending (validating) system requirements at all levels of the Department of Defense (DOD) and of Congress as directed.

- Insuring interoperability requirements of his system with command, control, and communications systems and total integration with battlefield systems as appropriate.

- Insuring that development contracts include training, personnel, and logistical support requirements and that the schedules of deliverables reflect their availability for evaluation at Operational Test I and at Operational Test II.

- Insuring that the fielded system can be effectively employed and maintained, and assessing the need for training, personnel, logistics, and product improvement.

- Coordinating doctrinal and organizational standardization or interoperability with NATO Allies and appropriate quadripartite countries.

- Monitoring and/or participating in the budgetary and priority process that impacts on the functions of training, personnel, logistics, hardware, doctrine, tactics, and testing for his system.

- Insuring potential health and safety hazards are considered during all phases of development for his system.

Each TSM office is a separate and distinct organization. The staffing is the same but each operates in a different manner, depending on the system's stage of development and the personality of the TSM himself. The relationship between the TSM's individuality and his method of operation was verified by General Starry, TRADOC Commander, when he asserted, "The TSMs perform by force of personality."

Thus far, the TSMs have had a substantial impact on the development of their systems. User interests are no longer relegated to a secondary role or considered "after the fact." The PM-TSM team is and will continue to be a positive influence on the timely development of major Army weapon systems. With the emphasis today and in the future on economizing, the TSM, in coordination with the PM, provides the Army with a cost-effective management approach to weapon system development.

John B. Oblinger

ENGAGEMENT ZONE

letters to the editor



A BIT OF NOSTALGIA

Dear Sir:

Inclosed is the class picture for the Air Defense Missile Officer Basic Course No. 13, 1960. This is a reprint photo and may be a bit grainy. Included also is a list of surnames and first initials.

As I have found out, there were very few class pictures taken: this one being the result of work done by 2LT Jim Moran, an amateur photographer. Therefore, I feel that there may be some historical or nostalgic interest in a photo of this type. If you feel that perhaps your magazine could use it, please go ahead and do so. Many readers might find it interesting.

I have lost contact with most of the men in the class, since most returned to civilian pursuits when their military time was up. Some, like me, maintained a Reserve status while others remained Active. Occasionally, while traveling I will see one of

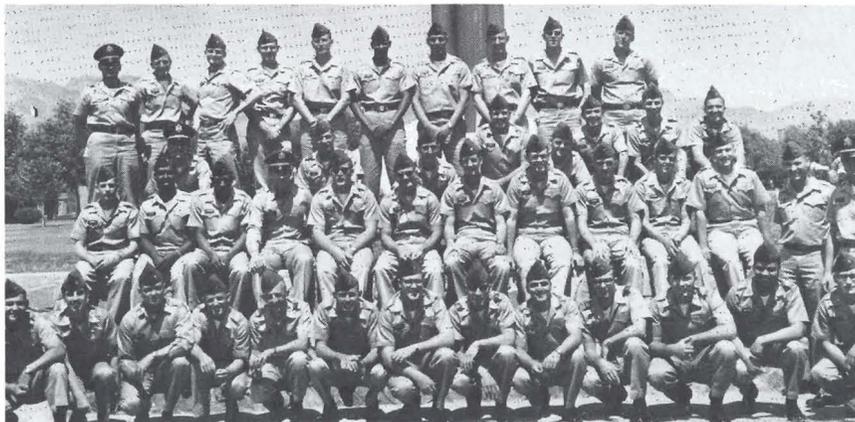
them, but that is a rare occurrence. As you know, there are no Air Defense Artillery (ADA) units and few ADA assignments in the US Army Reserve, so most ADA officers are in other types of units. At the present time my Reserve assignment is as a Mobilization Designee to the Deputy Chief of Public Affairs.

As a new subscriber to the AIR DEFENSE Magazine, I find that it has a wealth of information for we who are still in the ADA branch but without ADA assignment. Keep up the good work.

RICHARD E. WAGNER
LTC, AD, USAR

The picture LTC Wagner sent in, along with the names of the class members, appears below.

— Ed.



Class, Picture

Air Defense Missile Officer Basic Course #13-60

1st Row L-R: J. Feely, M. Mutter, C. Hamburg, L. Hintz, D. Beedle, L. Cobel, W. Fickes, J. Stacey, D. Rocco, W. Pullen, J. Gerber, D. Wilkinson, W. Karpenko.

2nd Row: C. Warner, R. Allen, D. Thompson, W. Hardy, J. Compton, J. Perham, J. O'Malley, D. Jones, B. Korona, R. McKinnon, R. Christensen, R. Henderson, S. Belvin.

3rd Row: G. Tronson, F. Elim, H. Ashley, T. Duffy, J. Hardy, W. Agster, J. Johnson, G. Bingly.

4th Row: S. Citterman, J. Marshall, C. Messer, R. Wagner, N. Fallin, R. Price, R. Bracher, A. Watts, T. O'Connor, L. Jacobson.

Not Present: S. Blau, J. Moran (did the photography), J. Paquin.

COLLEGE CREDITS

Dear Sir:

Colleges and universities are just beginning to grant credit for learning that occurs outside the classroom. A major influence on higher education's recognition of noncollegiate-sponsored instruction has been the American Council on Education (ACE).

The ACE's Office on Educational Credit and Credentials (OECC) has various departments that recommend credit for on-the-job training, company-sponsored courses, home study, and military programs of instruction.

The OECC's Military Evaluation Program is to evaluate and suggest credit for courses offered by the armed services. These credit recommendations, compiled in a national guide, provide men and women of our armed forces with a chance to begin or resume their formal schooling, to obtain salary increases and promotions, and to earn college degrees.

Commanders or education specialists having questions on the Military Evaluation Program, please feel free to call Eugene Sullivan, Associate Director of the OECC, at (202) 833-4685. As always, if you need any information on the American Council on education, contact me at our External Relations Division.

DARYL FERGUSON
Public Affairs Officer
Division of External Relations
American Council on Education
One Dupont Circle
Washington, D.C. 20036

We thank Mr. Ferguson for making this valuable information available to our readers, and we encourage air defenders to take advantage of everything the ACE offers.

— Ed.

REPRINTS

AIR DEFENSE Magazine published "The Profession of Arms and National Security," by General George V. Underwood, Jr., US Army (Ret), in the issue dated Oct-Dec 78 on pages 16-21. I would like to use this article for instructional purposes in

the Air Force ROTC classes I teach on American Defense Policy. I request permission to make copies of the article to be given to my students.

GREGORY E. MODER
CPT, USAF
Asst. Professor of Aerospace Studies
University of Washington

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— Ed.

SAFAD

Dear Sir:

While doing research for an article I hope to submit to you around Christmas time, I ran across the attached article. I thought you might like to use it to fill a small hole in your next issue.

E. P. SEMMENS
MAJ, ADA
Asst. Professor
Department of History
USAF Academy

The article to which Major Semmens refers appears below under the title, "Who Says SAFAD Can't Be Effective?"

— Ed.

WHO SAYS SAFAD CAN'T BE EFFECTIVE

On 13 April 1945, Battery C, 455th AAA Battalion (AW), was convoying down the Autobahn headed for Chemnitz Germany, providing air defense for a segment of Patton's rapidly advancing Third Army. The unit's wrecker had just stopped to help a mess truck fix a flat when one of the cooks yelled, "Hang on to your hats, Boys, here they come." Bearing down on the now isolated support vehicles were five enemy ME109 fighters, one behind the other. The motor sergeant jumped into his wrecker, which was equipped with a ring-mounted .50 caliber machinegun, and began to fire. The first German "flew down the gun barrel," was hit, and crashed. The remaining aircraft circled for another pass, aligning themselves in the same formation. The

NCO's fire brought down the lead two aircraft, and the last two Germans, sensing that this low-priority target had already cost too much, broke off their attack. The motor sergeant fired at the fleeing fighters and one of them left the area smoking badly.

Just think what an infantry platoon trained in SAFAD procedures with its organic firepower could do today.

Extracted from an April 1945 intelligence report prepared by the Third US Army Antiaircraft Section.

MILITARY ETHICS

Dear Sir:

You may take just pride in the timeliness and courage of "Ethics-Values, Which Way?" by Ch (LTC) Woehner, CH (MAJ) Longval, and Ch (CPT) Morgan, printed in the April-June 1979 issue of AIR DEFENSE Magazine. It is regrettable that combat arms officers don't say such things. How we need reasoned examination of the shallow secular assumptions that emasculate our American ethical and patriotic heritage! The "this world" blinders of secular humanism deny our Army sufficient incentive or motive for ethical, moral behavior so essential to persons sworn to die, if necessary, in defense of their country.

The moral and ethical bankruptcy of secular humanism can be seen in stark relief in the utilitarian arguments used to justify Nazi Army murder of American prisoners at Malmedy. At Auschwitz, the professional physicians who "coldly selected" the old, infirm, and "racially impure" for death in the incinerators were drained of moral courage by the same secular humanist ideological vacuum. That same bankruptcy now poisons the professionalism of our soldiers in situations ranging from simple tension between honesty and ambition to the horrendous choice to act morally in life-threatening situations. The secular ethic is an unfunny parody of a well-known question of Jesus: "What profit it a man to gain the whole world and suffer the loss of his own (life)?" Why should American leadership rest its rationale on a vacuous set of assumptions that blindly ignores the transcendent values of man, the only value able to rationalize sacrifice of life or limb for the survival of our country.

It's time for all leaders, but most especially combat leaders, to challenge situation ethics. We have the solid American Heritage, wonderfully articulated in our founding documents. Let's say it like it is and get on with soldiering.

RONALD G. MAXSON
LTC, Armor
Professor of Military Science
University of San Francisco

It is encouraging to receive comments from leaders who express this viewpoint on ethics and values. We asked the authors to address the starting points of ethics and value systems. Our value system is based on our day-to-day actions that reflect who and what we are. The soldier reflects a greater degree of identification with the corporate body (the Army) than does the civilian with his firm or company. But we must look to the leaders to set the example in ethical and moral conduct.

— Ed.

SERVICE RENDERED

Dear Sir:

I'm a second lieutenant in the Royal Netherlands Air Force. I'm attending an aviator course at Fort Rucker. Once, on the stage field, I read a book about air reconnaissance and I saw also that AIR DEFENSE Magazine had published several articles that are helpful in this subject.

I'm very interested in air reconnaissance, so I wonder if you would be so kind as to send me the deck of flash cards for aircraft recognition and some of your wall charts on aircraft and weapons.

2LT A. Schouten, RNLA
CMR #2, P.O. Box 5204
Fort Rucker, AL 36362

We are pleased to be able to comply with this request. The items involved are now produced as Graphic Training Aids and are available through the nearest Training and Audiovisual Support Center (TASC).

— Ed.

FOUR NEW ADA GENERALS

Included in the recent announcement of colonels selected for promotion to brigadier general were the following Air Defense Artillery officers:

■ Colonel Stanislaus J. Hoey — Chief of Staff, 32d Army Air Defense Command, Darmstadt, Germany.

■ Colonel Benjamin J. Pellegrini — Project Manager, Ground Laser Designators, Army Missile Command, Redstone Arsenal, Alabama.

■ Colonel Phillip H. Mason — Project Manager, Stinger, Army Missile Command, Redstone Arsenal, Alabama.

■ Colonel Eugene Fox — Executive to the Assistant Secretary of the Army for Research, Development, and Acquisition, Washington, D.C.



PERFORMANCE-PACED INSTRUCTION

AND THE AIR DEFENSE NCO

Master Sergeant William A. Chapman

A major change in the method of presenting and conducting individual instruction is underway throughout TRADOC service schools. Programs of instruction are being converted to performance-paced, and eventually most MOS training at Fort Bliss will be converted. Conversion for Chaparral, Vulcan, and Hawk operator and maintenance personnel is underway. What does this change mean to the air defense NCO? Let's look at the change from three directions: what performance-paced instruction is, what it means to the student, and what it will mean to NCOs who receive performance-paced graduates.

In performance-paced instruction, the student works at his own pace using individualized lesson materials. Each student must meet standard objectives before completing a lesson or module. Test standards are based on soldier's manual task standards and are scored "GO" or "NO GO." Students do not receive numerical scores and are not ranked by what percentage they achieve on tests. Instead, students are divided into two groups: (1) those who meet all required task standards during training and confirm mastery of selected tasks in an end-of-course test and (2) those who do not complete the course. Students who can not meet the standards will be eliminated from the course through administrative action. Performance-paced instruction will be primarily aimed at students learning how to perform tasks, rather than memorizing book definitions, functions, and nomenclature. What will this mean to the student?

Performance-paced courses will be directly related to soldier's manual tasks. The student will learn all that is necessary to perform *selected* critical tasks essential to the MOS and will concentrate only on the tasks necessary to go to work upon arrival at a unit. The student will be qualified in most of the tasks trained, requiring little or no additional training before performing these essential tasks on the job. In most cases, the student will not receive qualification training on all of his skill level tasks, but he will be proficient in those tasks presented. The performance-paced graduate may not know the text book description of the "gizmo switch," but he will know when to turn it on and off. More importantly, he will prove this knowledge by turning the "gizmo switch" on and off at the proper times rather than identifying a picture or book definition of it. Performance-paced instruction will do a better job of screening soldiers who slide through training by passing written tests and then arrive in units

unable to do their jobs without extensive and time-consuming retraining. That brings us to the NCO who receives performance-paced graduates to integrate into his squad or section.

How will the air defense NCO be effected? You can expect performance-paced graduates to be much better prepared to perform required tasks. They will have more experience on MOS-related equipment, and will be less hesitant to jump in and do what needs to be done with the equipment. Because of their previous successes in performing tasks during training, performance-paced graduates will be more willing to demonstrate their ability to perform critical tasks. Fewer replacements will prove to be unusable or untrainable, reducing the demands on your time and effort caused by the inept. You will find that performance-paced graduates will challenge you to show them the same high standards they have learned to work with in training. They will be more aggressive in seeking and accepting opportunities to perform. You will probably find that performance-paced graduates require less on-the-job training to become fully MOS qualified, and are better prepared to join squads or sections as team members.

You should *not* expect the performance-paced graduate to know all of the tasks in the soldier's manual, or to be qualified in crew performance tasks such as crew drill.

Like any other procedure, performance-paced instruction will only be as good as we allow it to be. Performance-paced training has the potential to provide the best replacements ever sent to the field. Whether this potential is realized depends to a great extent on noncommissioned officers.

If we accept the change to performance-paced instruction, know the soldier's manual tasks and their standards, and know which tasks are identified in the commander's manual for unit training, we will be ready for performance-paced graduates. When we receive these graduates, we must challenge them to perform (and expect them to be able to perform) at high standards those tasks for which they have trained. We must establish and train replacements to the same high standards for those tasks identified for unit training.

If we are not ready for these graduates, we will be doing the replacement, ourselves, and the Army a disservice by wasting the soldier's potential and quite possibly embarrassing ourselves.



THE AIR DEFENSE AR

CAPTAIN ROBERT

Twenty nine years ago, the North Korean Peoples Army launched a predawn surprise attack against the Republic of Korea (ROK). In 3 days the invaders, spearheaded by an armor column of 150 tanks and supported by 180 aircraft, had pushed through the poorly armed ROK forces and captured the capital city of Seoul.

The United Nations (UN) responded quickly to the North Korean aggression by sending a 16-nation fighting force to aid the South Koreans. After 3 years of bloody fighting, an armistice agreement was finally signed on 27 July 1953, establishing a truce between the two warring factions.

The result of the limited war, as it became known, was 187,000 UN troops killed with more than 800,000 wounded, and 147,000 ROK troops killed with over 700,000 wounded. The Communist aggressors also suffered heavy losses. Although exact figures are not available, Department of Defense estimates their casualties at approximately 1,420,000 killed or wounded.



Working together as equals, a KATUSA and an American soldier repair a Hawk missile launcher.

Today, "The Land of the Morning Calm" is still not at peace. The uneasy truce — one of the longest armed truces in military history — still stands, and the country remains divided. However, the Republic of Korea is no longer a weak, undeveloped country. It is a strong, progressive nation maintaining modern, well-equipped military forces. Together, ROK and UN forces guard the 151-mile Demilitarized Zone (DMZ) separating North and South Korea.

The UN forces are responsible for the defense of the western portion of Korea known as the Western Corridor. The Western Corridor includes the capital city of Seoul and the Uijongbu Corridor, the traditional invasion route into South Korea for centuries.

One of the major units of the UN Command is the 38th Air Defense Artillery (ADA) Brigade, subordinate to the Eight US Army (EUSA). The Brigade provides low- to medium-altitude Hawk missile air defense coverage for the western sector. To provide unified coverage for the ROK, the 38th ADA Brigade forms a partnership with the ROK

Army Air Defense Artillery Command (ROKAADCOM). Together, the two commands provide Hawk and Nike Hercules missile coverage for the entire ROK peninsula.

The 38th ADA Brigade is commanded by Brigadier General Victor J. Hugo, Jr., who assumed command from Brigadier General Walter J. Mehl on 25 June 1979. Major General Kim, Kwang Don, has commanded the ROKAADCOM since 17 January 1978.

To facilitate coordination and direction, the 38th ADA Brigade Headquarters is collocated with the ROKAADCOM, the US Air Force 314th Air Division, and the ROK Air Force Combat Air Command at Osan Air Base, approximately 35 miles south of Seoul. All are under the operational control

38TH ARTILLERY BRIGADE

W. TAYLOR

of the Commander, Combined Forces Command, Air Component, who is Lieutenant General Evan W. Rosencrans. The close cooperation and coordination between these units have resulted in the nickname "The Osan Family." That relationship is considered essential in the day-to-day operations and the overall success of the air defense of the ROK.

The three Improved Hawk battalions of the 38th ADA Brigade are deployed throughout the Western Corridor. The 2d Battalion, 71st ADA, is located along the DMZ north of Seoul. The Battalion is headquartered at Camp Red Cloud near Uijongbu. The four tactical batteries sit high atop the rugged mountains overlooking the DMZ. Battery D, 2d Battalion, 71st ADA, is the highest US IHawk tactical site in the world. The 1st Battalion, 2d ADA, is headquartered at Shi-Hung-Ni adjacent to Seoul. Its four batteries are located around the city of Seoul providing protection for the city and the central portion of the corridor. South of Osan Air Base is the 1st Battalion, 44th ADA. Headquartered at Reno Hill, the Battalion has four batteries spreading over 75 miles from south of Osan Air Base to just south of Kunsan Air Base.

The ROKAADCOCOM has two brigades. The 1st Brigade consists of two Basic Hawk battalions, a Nike Hercules battalion, and two automatic weapons batteries. The 2d Brigade has an IHawk battalion, a Nike Hercules battalion, and an automatic weapons battalion.

The distance separating the batteries offers one of the greatest challenges for an Air Defense Artillery commander. It is over 145 air miles from the 38th ADA Brigade's northernmost sites to its southernmost sites. The rural roads servicing the sites are usually dirt or gravel and are normally used by pedestrians, making travel

between sites difficult and time consuming. Travel by road from the Brigade Headquarters to Battery C, 1st Battalion, 44th ADA, a distance of only 25 air miles, takes approximately 4 hours.

Tactically, however, those distances are quickly overcome by sophisticated communications networks that bond the batteries into a single entity. The network, along with a Combined Tactical Operations Center, links the 38th ADA Brigade and the ROKAADCOCOM and enables them to combine their assets to form a highly effective air defense umbrella over South Korea.

Highly trained personnel are needed to make this sophisticated air defense system work, and the 38th ADA Brigade has several comprehensive training programs to insure that its personnel are adequately trained.

The most evident ongoing training program on site is the Army Training and Evaluation Program (ARTEP). Each battery participates in a monthly field training exercise to maintain its proficiency



Soldiers at an Air Defense Artillery tactical site prepare a Hawk missile for firing during a monthly ARTEP.



Working side by side with their American counterparts, KATUSA soldiers help take up field cables in preparation to move out during ARTEP.



The ability to move on short notice helps to make a unit effective.



During ASP at SEA Range, a Hawk missile zooms off its launcher.

in field operations. Semiannually, the batteries participate in a brigade evaluated ARTEP. In 1978 the Spring ARTEP was combined with the Annual Service Practice (ASP) (AD Mag. Oct-Dec 78 p. 24). The 7-day exercise evaluates the battery at its permanent tactical site and at a field site, the Special Eighth Army (SEA) Range at Daechon Beach. The units are given realistic situations requiring them to defend their base site from air and ground attack and then move, set up, and become fully operational again. They are evaluated during all phases and at the SEA Range they actually fire a Hawk missile.

The ARTEP/ASP exercise is unique in other aspects, too. It is a joint training exercise with ROKAADCOM units participating in the ASP portion. The US and ROK units are evaluated side by side and usually fire their missiles within minutes of each other. Training such as this helps maintain the close working relationship between the two commands.

In addition to field training, Brigade conducts classroom training. Perhaps the best course offered for the personal development of the junior enlisted personnel is the Basic Leadership Course. The 9-day course for grades E-3 through E-5 teaches the soldiers the principles of leadership. The school, located at Osan Air Base, graduates approximately 12 classes of 25 students each per year. Other schools run by the Brigade include the Noncommissioned Officer (NCO) Leadership Refresher Course for grades E-5 and E-6 and the Nuclear, Biological, and Chemical (NBC) Course for unit NBC specialists and supervisors.

The newest of the 38th ADA Brigade courses is the Driver Training School at Camp Humphreys. The School, started in December 1978, trains approximately 30 students per week.

They receive classroom instruction on Korean traffic laws, safety, and many other subjects. They also receive hands-on training in maintenance and driving instruction. The School is a particularly innovative approach to help curb the alarming accident rate in Korea, which is 25 times higher than in the US.

Perhaps the most unusual training in the 38th ADA Brigade is the cross-culture experience gained through the KATUSA (Korean Augmentation to the US Army) Program.

KATUSA personnel are Republic of Korea soldiers serving with US combat and support units. There are more than 7,000 KATUSA soldiers in the Eighth Army and, as of July, 1979, 400 of these soldiers were working side by side with Brigade personnel.

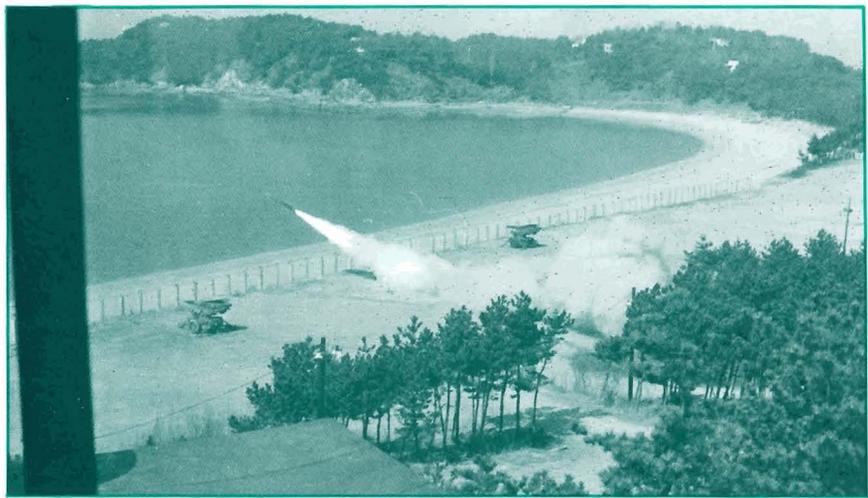
The KATUSA program originated during the Korean War when 100 soldiers were integrated into each front line infantry unit and 75 in each artillery battery. Beginning as a vital necessity during the Korean Conflict, the KATUSA Program proved to be more than just a way to meet manpower demands. These soldiers provided tactical and psychological advantages to the US units. The KATUSA soldier knew the country, terrain, climate, and the enemy and he could easily detect enemy camouflage. The KATUSA Program was adopted as a regular program after the armistice. In addition to increasing the operating capability of US units, the KATUSA Program provides the ROK Army with skilled specialists and technicians.

The KATUSA soldier performs the same job as his American counterpart in the Brigade, wears the same uniform and patch, eats the same food, lives in the same barracks — he is not only a part of the Brigade but a valuable member.

KATUSA personnel are enlisted men whose duty tour is usually 33 months. Their pay, provided by the ROK government, is the same as ROK Army soldiers of the same rank.

Although the language difference may cause some difficulties and cultural and social adjustments are necessary, US soldiers can obtain an understanding and knowledge of Korea and its people. The KATUSA Program has cultivated mutual understanding and respect among Koreans and Americans.

The understanding and knowledge gained through such mutual efforts as the joint ASP and the KATUSA Program are important to the future well-being of the ROK, as well as the US. As more and



A Hawk missile soars above the Yellow Sea near Daechon Beach.

more of the responsibilities for the defense of Korea are turned over to ROK units, it is imperative that ROK soldiers be fully prepared to assume those responsibilities.

To insure that the ROK has sufficient trained personnel to man its systems, the Improved Hawk Training Team (IHTT) was established in July 1978. The 20-man team, located in Taegu, conducts its classes in conjunction with the ROK Air Defense School. Training concentrates on both unit and direct support maintenance in the 24-series MOS. According to Lieutenant Colonel James L. Austin, officer in charge of the team, "The IHTT has been very effective. There are two instructors (one ROK and one US) in each class. That provides a high degree of technical expertise and eliminates language problems."

The results of these training programs are evident — highly trained air defense soldiers. The programs, combined with the spirit of friendship and cooperation, mold the 38th ADA Brigade and ROKAADCOC into a formidable air defense team, united to protect the Republic of Korea from aggression.

Captain Taylor, a graduate of the University of Nebraska, has also attended the Air Defense Artillery Officer Basic and Advanced Courses as well as the Defense Information Officers School. He has had command and staff experience in air defense and for the past year was Public Affairs Officer of the 38th ADA Brigade in Korea. He was recently assigned as an aviator at Fort Wainwright, Alaska.



AIR TRAINING

DEFENSE DEVELOPMENTS



Air Defense Artillery (ADA) progress is dynamic, viable, and continuous. But new ADA hardware is only as effective as the soldier's training for its use. The training method may include unit training, individual training, or a combination of both. A variety of training methods may be employed, from a simple lecture to a field training exercise, to achieve training effectiveness. The task of the training developers and implementors is to achieve effective use of training resources so the students can gain proficiency in operation of the equipment.

The direction of ADA training from the early 1970s through today required continuous refinement to take advantage of new technologies. This direction can be projected through 1985. Included in each analysis of new equipment procurement is a cost of training effectiveness analysis (as a separate input to the development plan) that examines all variables associated with training the individual, crew, and unit in the new equipment. These variables include cost factors and effectiveness of training projections for each training technique. Student load, facilities, faculty, program development, and course lengths (based on the life cycle of the new equipment or product improvement) are examined in detail for each training option. Of special concern is the identification of training devices, both current and proposed (see figs 1 and 2). Known also as simulators or skill performance aids, they are costly but very cost effective compared to the fire unit which they represent. New equipment and product improvement programs must be integrated into the

CURRENT TRAINING DEVICES

| <u>DEVICE</u> | <u>SYSTEM</u> |
|---|---------------|
| Tracking Head Trainer | Redeye |
| Field Handling Trainer | Redeye |
| Moving Target Simulator | Redeye |
| AN/TSM-73 Trainer | Chaparral |
| Dummy Round M30 | Chaparral |
| M44 Maintenance Trainer | Vulcan |
| M45 Maintenance Trainer | Vulcan |
| M46 Maintenance Trainer | Vulcan |
| Body Section Trainer M84 | Nike Hercules |
| W/H Section Trainer M74E1C | Nike Hercules |
| Rocket Motor Cluster Trainer M29 | Nike Hercules |
| BCO Training Facility (USAADS) | Nike Hercules |
| AN/MPQ-T1 Simulator | Nike Hercules |
| Operator Proficiency Training Equipment (OPTE) | Roland |
| AN/TPQ-29 | IHawk |
| Radar Signal Simulator Station | IHawk |
| XMTM-23C (concrete dummy round) | IHawk |
| System Intercept Trainer (electrical dummy round) | IHawk |

Figure 1.



ARTILLERY

Lieutenant Colonel Richard B. Wessling, Jr.

PROJECTED TRAINING DEVICES

| <u>DEVICE</u> | <u>SYSTEM</u> |
|--|---------------|
| Roland Classroom Trainer | US Roland |
| Laboratory Configured Fire Unit | US Roland |
| Fault/Malfunction Equipment | US Roland |
| Firing Sequence Simulator | US Roland |
| Firing Safety Device | US Roland |
| Training Safety Device | US Roland |
| Dummy Handling Round | US Roland |
| Operator Tactics Trainer | Patriot |
| Troop Proficiency Trainer | Patriot |
| Missile Round Trainer | Patriot |
| Dummy Round Trainer | Patriot |
| Tracking Head Trainer | Stinger |
| Field Handling Trainer | Stinger |
| Moving Target Simulator | Stinger |
| Stinger Launch Simulator | Stinger |
| DIVAD Gun, Classroom Trainer | DIVAD Gun |
| Operator Proficiency Trainer (OPT) | DIVAD Gun |
| Vulcan Training System (VTS) | Vulcan |
| Portable Field Trainer/Evaluator Model FP208 | FAAR |

Figure 2.

total scheduling requirements of the US Army Air Defense School (USAADS).

ADA training is driven by Department of Defense directives and Army regulations. Implementation begins at USAADS upon arrival of the individual, who is to be trained in accordance with the enlistment contract. Here the career of the individual begins under personnel management procedures. These procedures link the individual to a career field and training necessary to achieve proficiency and success for both the individual and the unit of assignment. The training is supported by a wide variety of materials that have been developed to guide each soldier along a path to success, based on task mastery to achieve advancement.

To support the training program, a wide variety of literature is written at a reading level compatible to the Army grade structure. All the literature supports the School and field units in training. Each enlisted military occupational specialty (MOS) and officer specialty code is represented by a training program based on task analysis. It is supported at specified skill levels by a program of instruction (POI), supporting literature, job performance aids, skill performance aids, and a training strategy. Completion of a POI results in the awarding of the military occupational specialty at the proper skill level to enlisted personnel or the awarding of the specialty code to officers. The total training program for each MOS is supported at USAADS and at the field unit by the following training literature products: soldier's manual, commander's manual,

TRAINING DEVELOPMENTS BY SYSTEM (AIR DEFENSE)

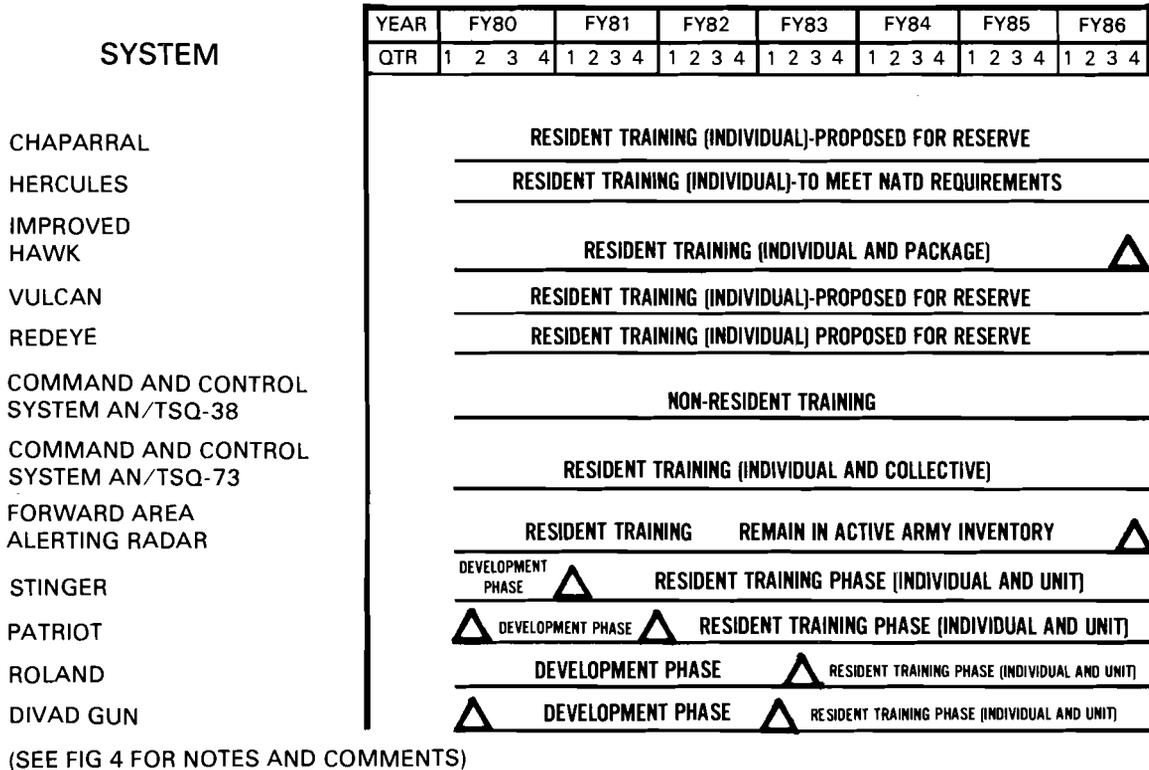


Figure 3

job book, skill qualification test (SQT), and the Army training and evaluation program. These products provide a complete listing of job tasks that must be mastered by each soldier. The SQT evaluates the soldier's mastery of these job tasks. The employment and doctrine guidance for a specific weapon system or command and control system are provided in the respective field manuals for operational training. Training circulars provide guidance for training personnel in the use of specialized equipment or techniques of employment in both the school and field settings. The Army training and evaluation program (ARTEP) provides the criteria for measuring unit proficiency in the field as a result of the prescribed collective training program. All of these products are developed at USAADS in unison and are coordinated in purpose and scope to support individual and collective training.

The Air Defense School has several responsibilities not shared by the other Army schools at the same level of need. They include first, development of a family of aerial targets for use in

ADA training; second, complex simulation devices to enhance training in all systems without the expense of the original item; and third, introduction of simulators, skill performance aids and other technology-based educational approaches designed to meet large scale mobilization requirements.

To understand the significance of the change that has occurred in the area of training at USAADS, the past, present, and future must be examined.

In the past, training was focused on the individual instructor as the key element. His expertise, or lack thereof, was the baseline for training. This approach followed the traditional system used in most civilian school systems and colleges.

The turning point of current training activities was the Training and Doctrine Command's "Model 76" reorganization using the Instructional Systems Development (ISD) process as the keystone to all training development activities. USAADS was already organized and operating under the outline of the ISD process. The essential features of the ISD concept are:

NOTES:

PRODUCT IMPROVEMENT PROGRAMS TO UPGRADE TECHNICAL AND TACTICAL CAPABILITY OF SYSTEM. EACH HAS TRAINING IMPLICATIONS.

CURRENT SYSTEM TRAINING PROGRAMS WILL REMAIN ACTIVE. ITEMS APPROVED FOR RESERVE FORCE WILL HAVE A TRAINING PROGRAM WITH FOCUS TO MAXIMUM USES OF EXTENSION TRAINING MATERIAL.

IMPROVED HAWK TRAINING INCLUDES SPECIAL UNIT TRAINING PROGRAMS FOR A UNIT PACKAGE TO GAIN COLLECTIVE TASK MASTERY OF CREW DRILLS.

COMMENTS:

1. IN THE TRAINING TIME LINE FOR NEW SYSTEM TWO ACTIVITIES ARE REPRESENTED. FIRST, THE INDIVIDUAL AND COLLECTIVE TRAINING TO FIELD AND COMPLETE UNIT, AND SECOND, TRAINING REPLACEMENTS FOR REFILLS TO ALREADY DEPLOYED UNITS. THESE ARE CONCURRENT ACTIVITIES WITH THE REPLACEMENT TRAINING TAKING ON A GREATER IMPORTANCE AS NEW UNITS ARE DEPLOYED TO THE FIELD.

2. SYSTEM TRAINING WILL CONTINUE FOR THE CURRENT UNITS IN SOME FORM OR ANOTHER FOR RESERVE AND ALLIED TRAINING REQUIREMENTS.

Figure 4.

■ It is a total process that includes all elements of a training system.

■ It is focused on the identification of critical tasks for which individual soldiers are to be trained.

■ It takes into account the stratification of the five enlisted skill levels to train only for those tasks immediately applicable.

■ It is focused on the design of each course and lesson based on a validated task listing of the job requirements for each military occupational specialty.

■ It encourages analysis of competing media to enable the student to gain maximum benefit of time, subject matter, and media selection.

■ It delineates responsibilities for the five separate phases of training developments: task analysis, design, development, implementation (instruction), and evaluation.

■ It provides common linkage to all supporting literature efforts through the constant focus of attention on the critical tasks selected for training.

■ It encourages feedback from all sources to adopt or change the task ordering and media selection.

■ It integrates the feedback from skill qualification tests as a measure of training effectiveness of the courses and supporting materials at the School and in the field.

■ It provides a clear linkage between individual tasks and collective tasks for training and evaluation.

■ It provides a contrast for evaluation of the need for trainees to have training devices and simulators as part of the media selection process.

■ It expands the methods of instruction from the old standard lecture, conference, demonstration and practical exercise to a greater selection of other media options.

The future of Army air defense looks exciting because of the unique missions it will continue to provide. The new family of weapons to be placed in full-scale development, production, and deployment through 1985 will combine the best features of

CM F16

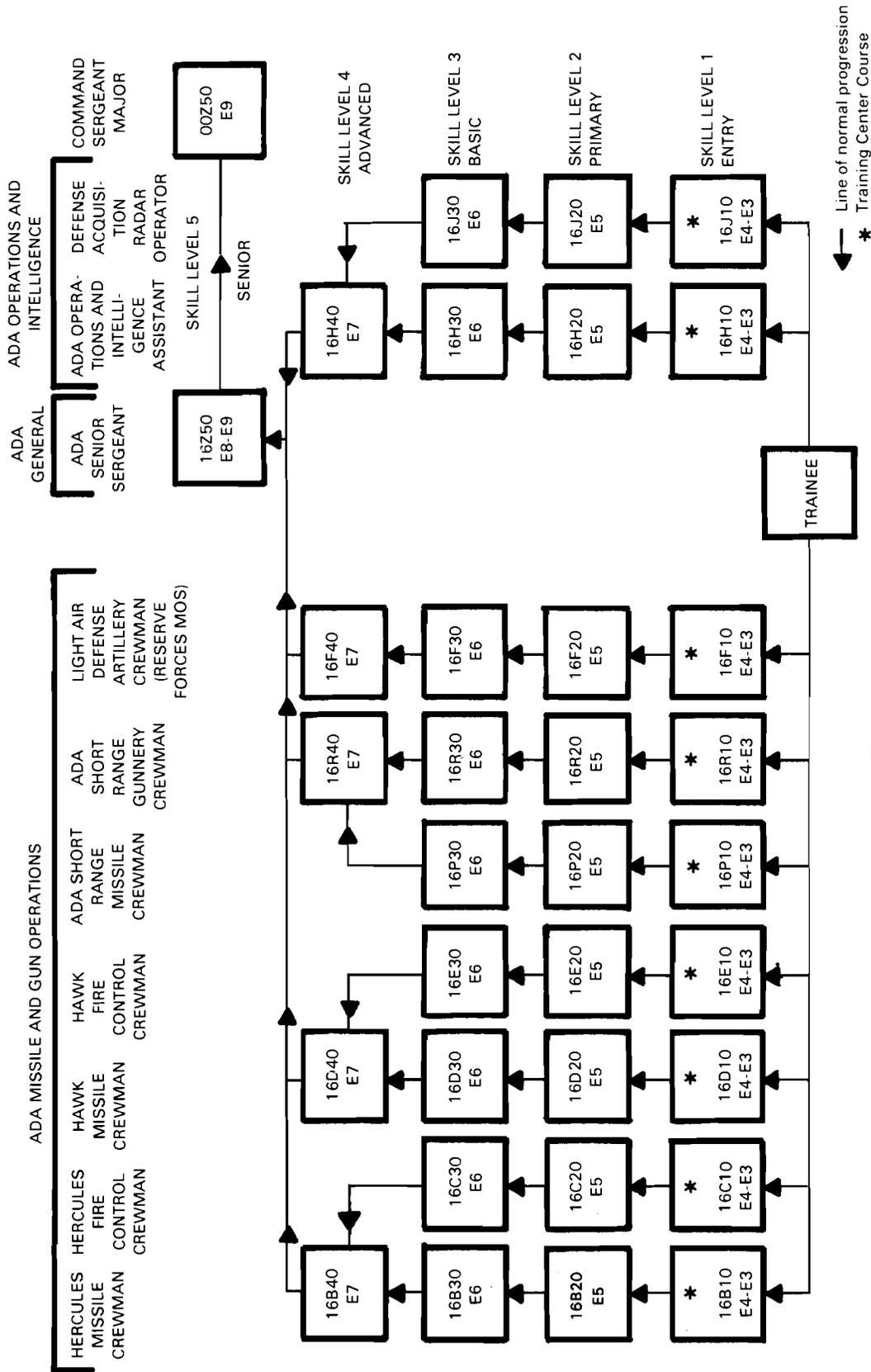


Figure 5

CAREER MANAGEMENT—AIR DEFENSE MISSILE MAINTENANCE (23)

CMF 23

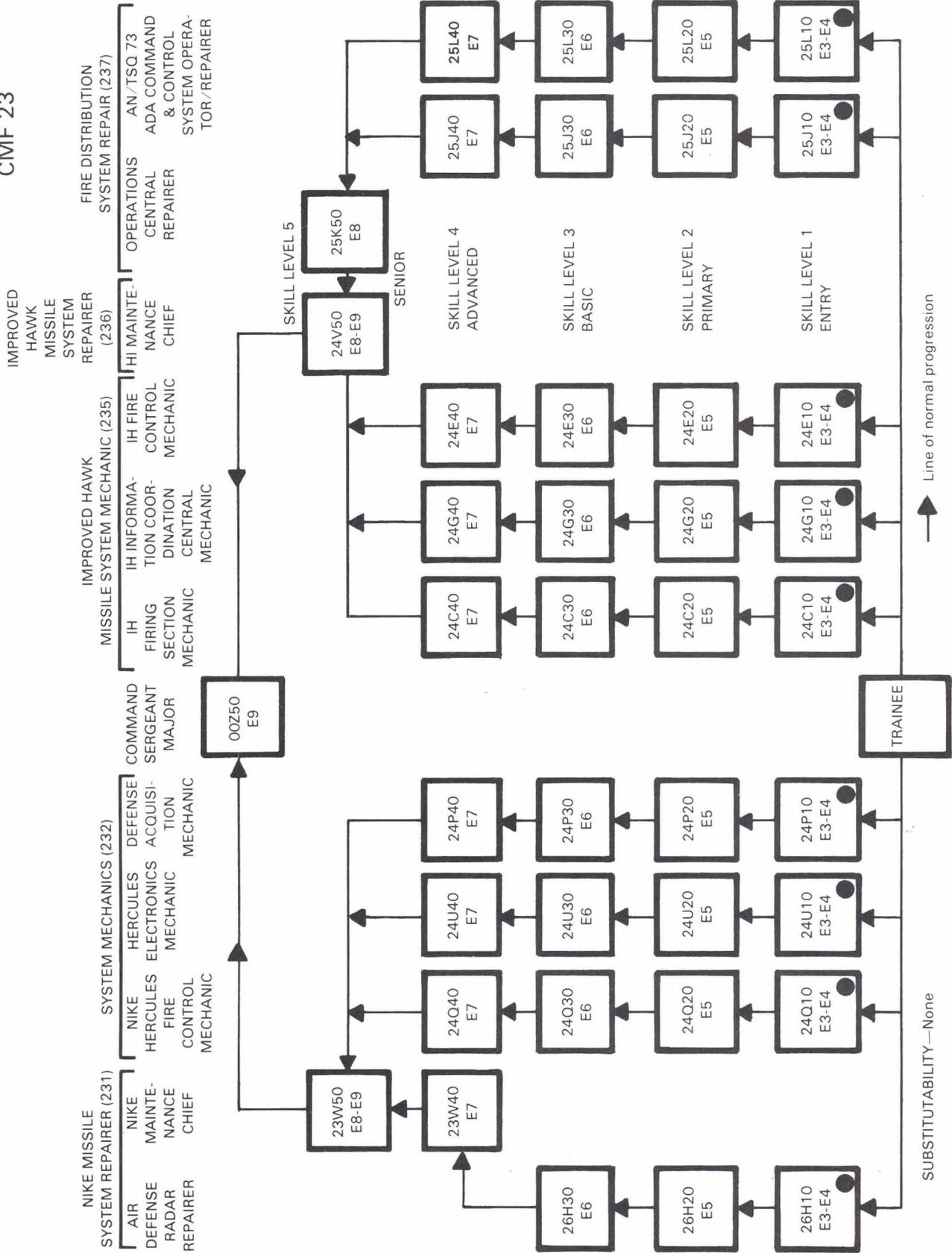
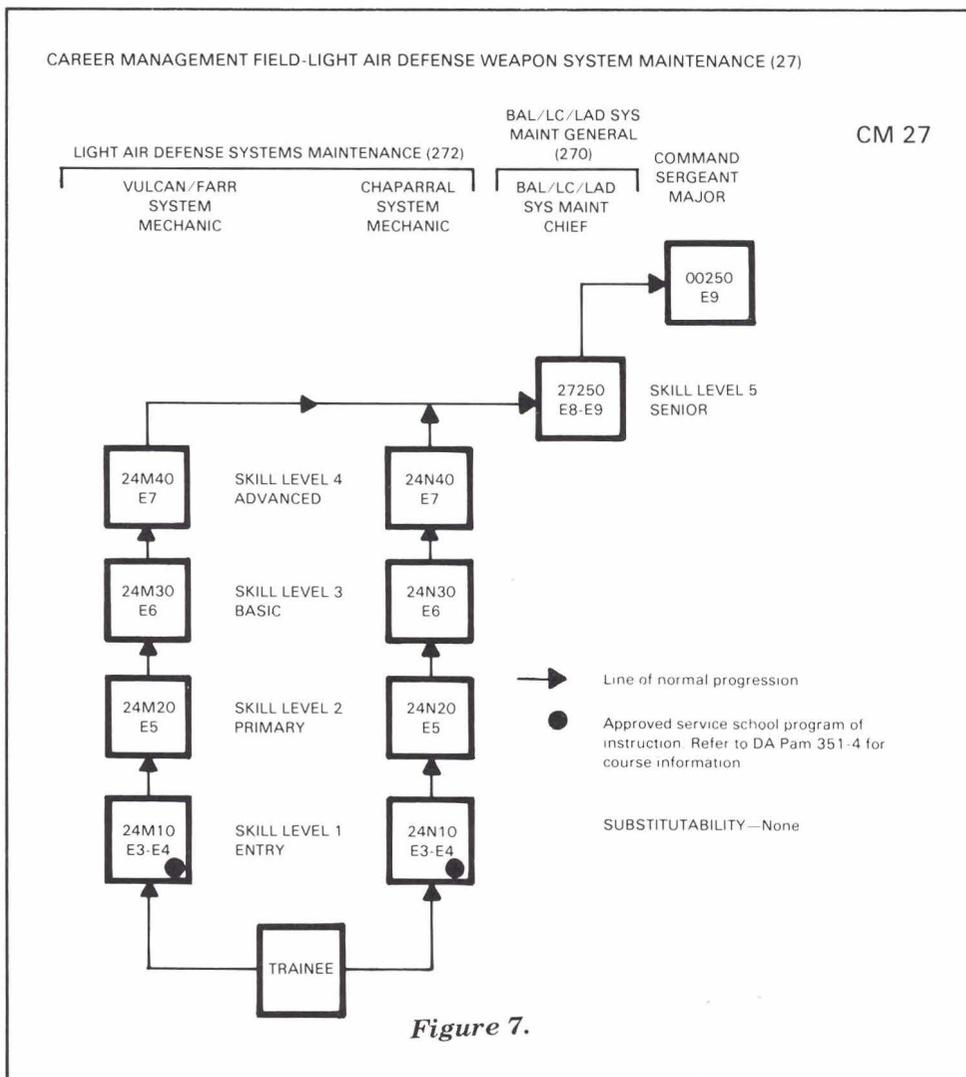


Figure 6.



combat capability with the latest simulators, trainers, and training skill performance aids available. Simulators on which to train are a lot cheaper than the real item of equipment. With an instructional process focused on criteria-referenced instruction on the actual equipment, some actual equipment will always be required at the School. However, simulators or trainers will offer many features in feedback not available in the real hardware. The new ISD process places a high demand on the need for resources initially.

The Training Matrix (figs 3 and 4) highlights the School's commitment to training by Army air defense system during 1980-1985. Recognition of the true dynamics of this situation cannot be captured by this depiction. What is hidden beneath are the actions to develop the course, build the facilities, order the equipment, validate the instruction, prepare

the instructors to proficiency in the new equipment, and evaluate the use of the many educational approaches available to each program of instruction.

Currently, three enlisted career management fields (CMFs) are supported by air defense training at the entry, basic, or advanced noncommissioned officer level. These are: CMF 16, 23, and 27, with two active military occupational specialties for enlisted personnel (figs 5, 6, and 7). Warrant officer specialties include five maintenance codes (fig. 8). Commissioned officer specialties include system-related codes: 14A, 14B, 14C, 14D, 14G. The introduction of the new systems (Stinger, Patriot, Roland, and the DIVAD Gun) will increase this total number. The current active POIs prepared, maintained, and taught at USAADS total 89. The training developments for the Patriot, Stinger, Roland, and DIVAD Gun must also be considered, as well as the training tasks for the product improvement programs for the Vulcan, Chaparral, FAAR, and Improved Hawk.

Collective training is a vital function at the Air

ARMY AIR DEFENSE ARTILLERY
WARRANT OFFICER MILITARY
OCCUPATIONAL SPECIALTY CODE

| CODE | TITLE |
|-------|---|
| 221B | Nike Hercules Electronic Maintenance Technician |
| 222B | Improved Nike Hercules Fire Control System Technician |
| 223B0 | Improved Hawk Organizational Maintenance Technician |
| 224B | Chaparral/Vulcan System Technician |
| 287A | Data Processing System Repair Technician (Additional skill identifiers 3P, 3Q, 3R.) |

Figure 8.

Defense School. It involves the application of all resources at Fort Bliss in a coordinated effort to bring together all the components of a newly created unit and supports the unit through every aspect of organization, training, evaluation, and deployment. Our most recent efforts have been directed to the Improved Hawk Training Package for Europe and the deployment of the AN/TSQ-73 sections in Europe. The success of the former has prompted a similar effort for Hawk units in Korea. The new family of ADA weapons will require considerable coordinated efforts to accomplish the density of collective training to be conducted at Fort Bliss during the 1980-1985 time frame.

The Army Training System, with the ISD approach, has been developed to support the Enlisted Personnel Management System (EPMS) and the Officer Personnel Management System (OPMS). Thus, the goals of all systems are mutually supporting. The addition and deletion of new career fields will be accompanied by corresponding activities in the training arena. This linkage provides for checks and balances throughout the Army to insure proper training and proper utilization. The Noncommissioned Officers Education System interfaces directly with the EPMS to provide proper training experiences and preparation for advancement in appropriate duty position and at the appropriate grade level (fig 9). The Army Training System clearly recognizes that the trainee, no matter how well trained, lacks the experience and self-confidence that can be obtained only in a field situation. The soldier's manual and exportable training packages to support the soldier in the field guarantee success to the individual and the unit as experience is gained in the unit of assignment. As the Army Training System seeks its level of organization proficiency, greater emphasis will be placed on exportable training packages. Today, the extension training materials in the field include 22 separate areas of need based on task analysis and feedback from the field. The philosophy espoused by extension training material developers is to provide the soldier in the field everything that is required to train him to do his job. Extension training management materials are provided to the field in the form of three generic product titles:

Lieutenant Colonel Wessling has served in a wide variety of ADA units, in both battery command and staff positions. A graduate of Command and General Staff College, he also holds a Bachelors Degree and several Masters Degrees. He is also a candidate for a Doctorate in Education at Texas Tech University. He is currently Chief, Training Literature Division, Directorate of Training Developments, US Army Air Defense School.

| NONCOMMISSIONED OFFICER EDUCATION SYSTEM | |
|---|------------------------|
| COMBAT ARM MOS | |
| Sergeants Major Academy | Skill Level 5 E8-E9 |
| Senior NCO Course | Skill Level 4 E7 |
| Advanced NCO Course | Skill Level 3 E6 |
| *Basic NCO Course/Combined Arms | Skill Level 2 E5 |
| *Primary NCO Course/Combined Arms | Skill Level 1 E1-E4 |
| *For other than MOS 16P and MOS 16R, primary leadership is provided for both those courses. | |

Figure 9

Training Extension Courses (TEC), correspondence courses for the Institute of Professional Development (IPD), and skill performance aids (SPA). The SPA program is specifically designed to provide a single training development effort whereby the technical documentation and extension training materials are developed as a cohesive unit. In the past, training materials in the form of Training Extension Courses, correspondence courses, and technical documentation were developed by different agencies and under different goal objectives. This new method allows for total training development along with the hardware development, the goal being a cost and training effective group of training materials that assists the soldier in doing his job.

In summary, the purpose of the School is to provide the field commander with materiel, doctrine, and trained personnel to accomplish his mission.

The introduction of the new weapon systems and the training actions they represent, combined with the density of courses already offered at the School on current systems, will represent a sizable training load. This training load will occur during 1979-1985. It will be the result of maintaining current training programs active as the new systems are introduced. We cannot afford to lose the present edge in air defense posture in the employment of the present systems as the new systems are introduced to the field. This is a manageable program, but a rise in personnel requirements is foreseeable during this period.



AI

NEW MEXICO N

Specialist Four

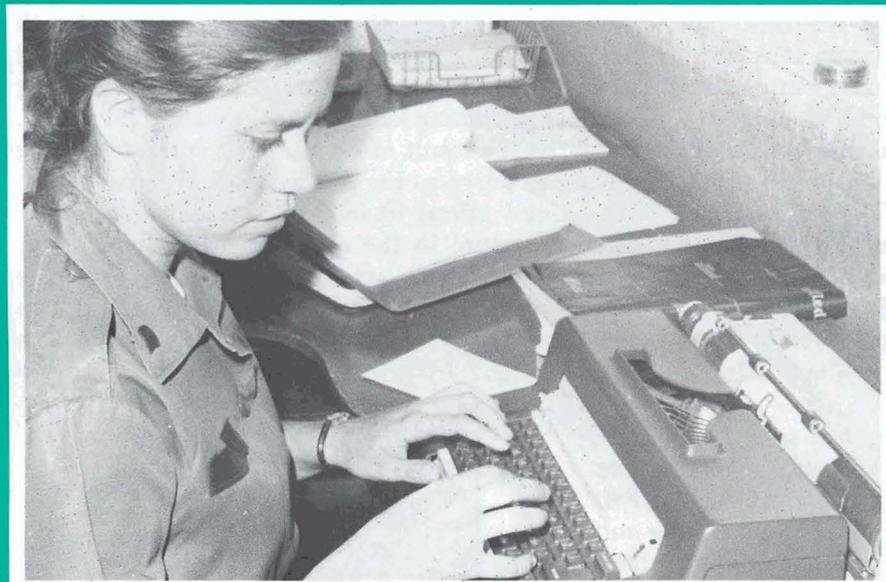


COMMANDERS DISCUSS PLANS. Brigadier General H. Tom Taylor, Commander of the 111th Brigade and Major General Franklin E. Miles, Adjutant General of the State of New Mexico, review summer camp training schedules for the 111th ADA Brigade.

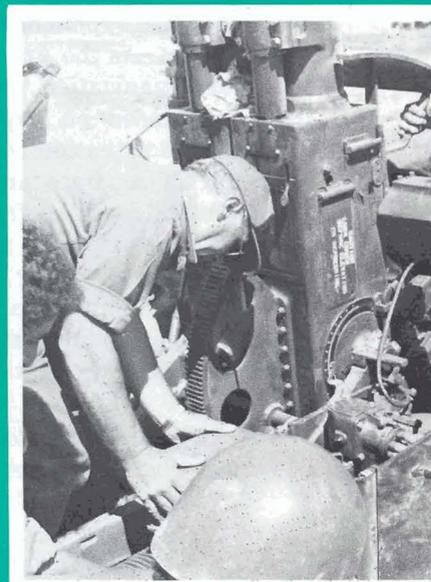
By a commitment to military professionalism and community service, the New Mexico Army National Guard's (NMARNG) 111th Air Defense Artillery (ADA) Brigade and the 200th ADA Detachment form the living tradition of citizen-soldier in line with the One Army concept.

Men, muscle, and machines make up the 111th and 200th, which train primarily in combat arms and air defense skills.

Commanded by Brigadier General H. Tom Taylor, the Albuquerque-based 111th Brigade trains annually with its Active Army



CLERK TYPIST. Keeping up with the paperwork, even in the field, Eileen Garcia of the 515th Maintenance Battalion, Santa Fe, New Mexico, said, "I enjoy working under simulated combat conditions," which occurs frequently in the 111th ADA Brigade.



PROBLEM SOLVED. Warrant Officer Tony Trujillo smiles confidently as he repairs the turret of an M42 Duster. The 642d Maintenance Company, Las

DA

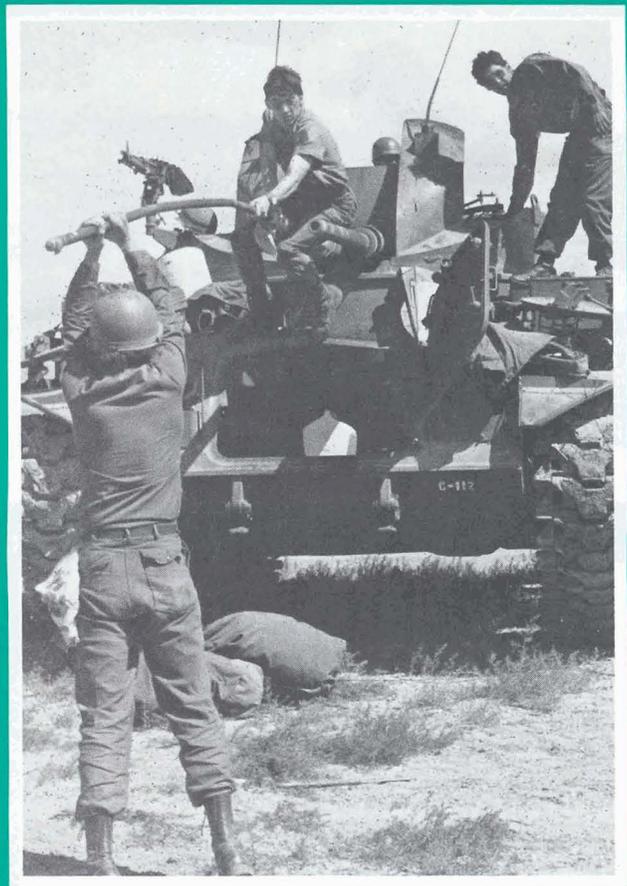
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NATIONAL GUARD

Susan Picco

counterparts in subordinate air defense groups. The mission of the Brigade is to provide air defense training for command personnel. According to General Taylor, the unit is the only Reserve Component air defense brigade in existence. In the event of a national emergency and mobilization by the President, NMARNG headquarters would combine forces with Active Army components.

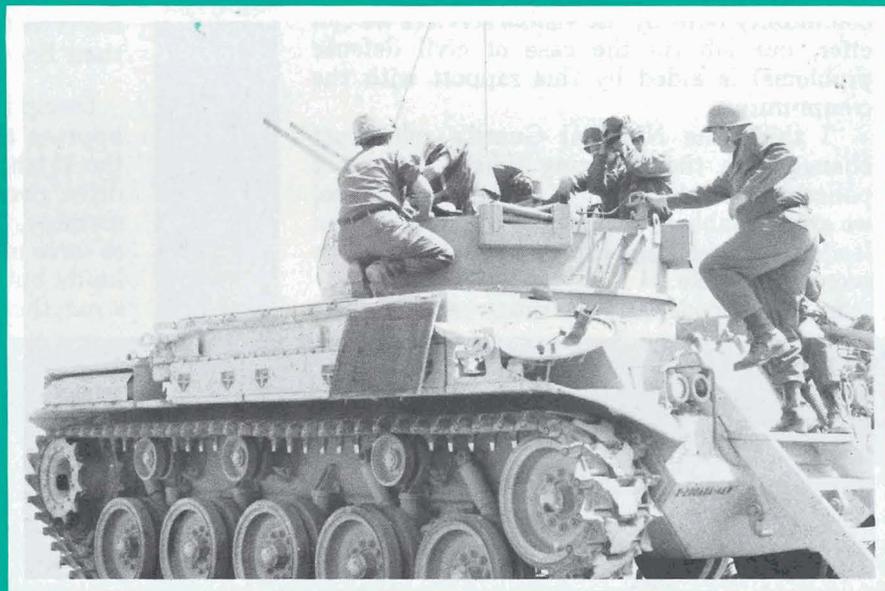
Recently returned from a 2-week summer camp in Darmstadt, Germany, this annual training provided the 111th Brigade Headquarters the opportunity to develop a



CLEANING UP. Members of the 200th ADA Detachment clean Duster barrels after a day of firing. Dusters are the primary training tool used by ADA Reserve units throughout New Mexico.



Cruces, maintains heavy equipment and track vehicles for the NMARNG's 200th ADA Detachment during summer camp.



COMBAT READINESS. Guardsmen from Raton, New Mexico, practice combat skills at Fort Bliss. Using the M42 Duster and M60 machinegun, the "line" batteries also engage in night maneuvers, gas chamber exercises, and small arms familiarization.



Sharpening up with the M60.

more efficient readiness program through sharing of combined skills and experience with Active Army troops.

Understanding the National Guard's role in civil defense, according to General Taylor, hinges on dependable communication. "New Mexico guardsmen, in carrying out their individual obligations as members of the Armed Forces, are encouraged to participate in community activities, service clubs, and to act as community leaders.

"In many small towns and rural areas throughout the state, much of the community life centers around the armories. Blood drives, March of Dimes, and the Special Olympics are only a few of the voluntary activities in which New Mexico guardsmen participate.

"Once we have a supportive element in the community built by the visible services we can offer, our job (in the case of civil defense problems) is aided by this rapport with the community.

"I think the National Guard's role must change with the changing times. We're not policemen. In the event of a civil disturbance, we are available to enforce the policy of civilian leaders, but we want things back to normal as soon as possible."

In mud, floods, and the dusty sands of New

Mexico, the NMARNG's 200th ADA Detachment trains primarily on the M42 Duster (air defense track vehicle), constantly perfecting its combat arms skills.

Previously called the 200th Coast Artillery, the detachment's World War II members were destined for heroic action in the Philippines. The infamous Death March at Bataan-Corregidor, and internment in Japanese prison camps, killed over 800 of 2,000 New Mexico guardsmen during the war. Relatives of the WW II heroes, as well as others familiar with the action of the 200th Coast Artillery, comprise much of the detachment's present personnel strength.

Annual training includes a 2-week tactical training exercise, usually at the Fort Bliss Dona Ana or Oro Grande ranges. The desert training, a test of men and machines, allows guardsmen to improve their proficiency with the M42, M60 (machinegun), and the M16 rifle. After daily training, the troops are drilled in night maneuvers, along with gas chamber exercises and small arms familiarization.

The action happens in the field and, according to Captain Kim Burnam, Commander of the Clovis, New Mexico, Battery D, 4th Battalion, 200th ADA, "These citizen-soldiers (part-time professionals) are the best I've ever worked with. I don't think I've ever seen any state troops more effective than the New Mexico National Guard." The Clovis unit has proved itself by receiving a C-2 rating from the Army Readiness Testing Program held at Fort Irwin. The rating, which is second from the highest possible, is generally reserved for units with much more manpower than Battery D.

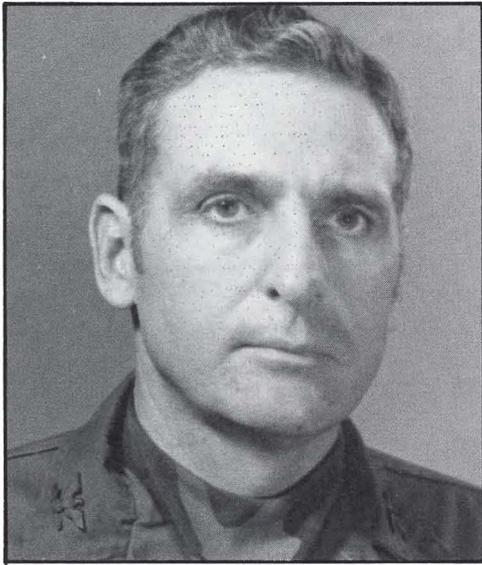
Discipline, knowledge, and the willingness to improve their expertise mark the members of the 111th and 200th ADA as individuals with drive, persistence, and pride. According to one member, "The Guard gives me the opportunity to serve myself and my country. I found out my limits but, more importantly, I'm learning my strengths."

Specialist 4 Susan Picco joined the New Mexico National Guard in 1978. She has worked for civilian and military newspapers as a writer, editor, and photographer. During General of the Army Omar N. Bradley's visit to Santa Fe, New Mexico, in 1978, she was responsible for setting up press conferences and electronic media interviews.

A 1979 graduate of the College of Santa Fe, Specialist 4 Picco is interested in pursuing a career in photo-journalism and public relations.



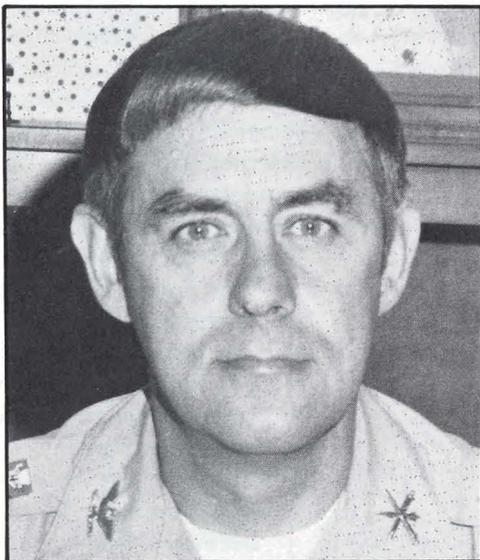
TRADOC SYSTEM MANAGERS



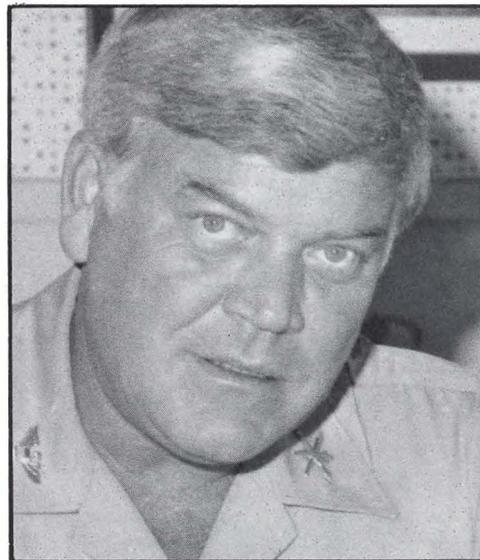
COL RUSSELL W. PARKER (ROLAND TSM).
Source of Commission — US Military Academy. *Formal Education* — MS, Georgia Tech; C&GSC; Army War College. *Major Assignments* — Air Defense Board; DIVARTY, 4th Div, Vietnam; Office Chief of R&D, DA; G3, 32d AADCOM; Proj Mgr, Army Gun AD Sys; DCD, USAADS; Cdr, 1st ADA Tng Bde.



COL GARY C. MAHAN (DIVAD Gun TSM).
Source of Commission — AAA and GM OCS, Fort Bliss, TX. *Formal Education* — U of FL; BS, St. Benedicts Col (suma cum laude); C&GSC. *Major Assignments* — 7th Div, Korea; 3d Div, Germany; Asst G3, II Field Force, Vietnam; Congr Asst to Army C of S; Cdr, 31st ADA Bde; DPT, Fort Bliss; Cdr 1st ADA Tng Bde.

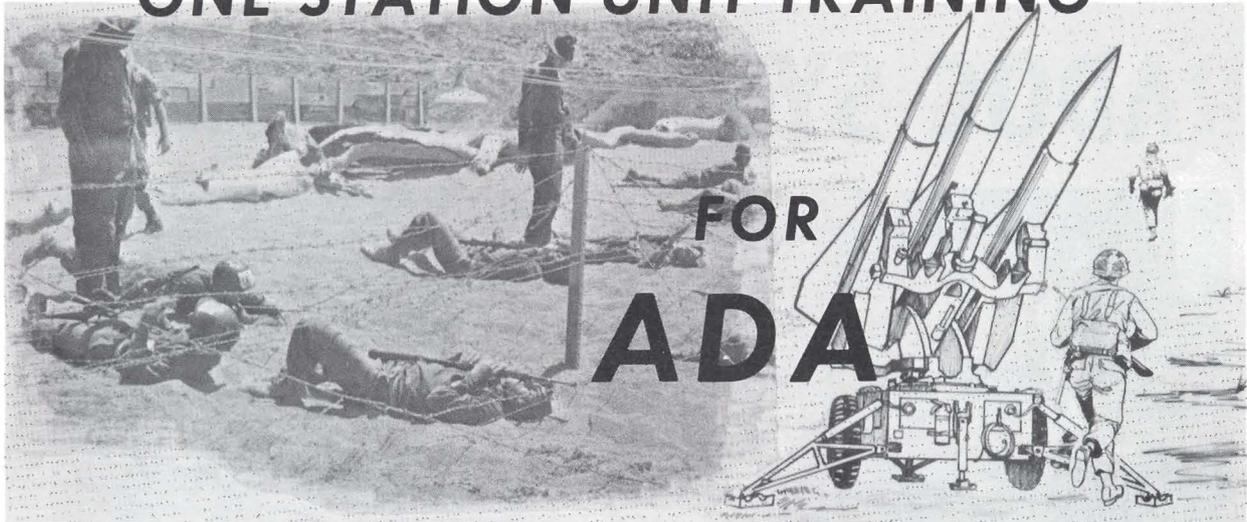


COL SAMUEL L. HAYTON (PATRIOT TSM).
Source of Commission — VPI graduate. *Formal Education* — MBA, N Tex St; C&GSC. *Major Assignments* — S3, 6/56, Vietnam; G3 Plans Off, V Corps; Deputy Chief Plans & Op Ofc, DA; Cdr 2/55 (Hawk); S3, 38th ADA Bde.



COL JAMES E. CAUDILL (STINGER TSM).
Source of Commission — ROTC, Eastern KY U. *Formal Education* — BS, Eastern KY; C&GSC. *Major Assignments* — Cdr 4/57 (Hawk); Tng O, USARADCOM; Chief, P&A Div, Ofc AC of S Force Development; Staff Off, Combined Arms Cen, Fort Leavenworth.

ONE STATION UNIT TRAINING



FOR
ADA

Colonel Russell W. Parker
and
1st Lieutenant Lary D. Reed

Separate Basic Training (BT) and Advanced Individual Training (AIT) have disappeared from Fort Bliss. In their place has come a training concept called One Station Unit Training (OSUT) that united BT and AIT into one continuous training cycle in the same battery.

On 9 February 1979, the 1st Air Defense Artillery Training Brigade (1st ADATB) began to phase in OSUT for all air defense operator MOSs (including National Guard 16F Duster crewmen). Since that time, all new enlisted soldiers with an air defense MOS receive their initial training within the 1st ADATB. In the past, some air defenders received their basic training at other training centers while some non-air defense personnel received basic training at Fort Bliss. In each case, the soldier was transported to a new post for AIT. The implementation of OSUT insures that Air Defense Artillery will now train its own at Fort Bliss and,

most importantly, that the soldier will stay in the same unit for the entire initial entry training (IET).

To implement OSUT, the Brigade underwent a number of changes, including relocation of all AIT batteries from main post at Fort Bliss to the adjacent Logan Heights area where the entire Brigade is now located.

The integration of AIT with basic training caused a complete reorganization. Four battalion headquarters and 15 training batteries became two battalions, each having seven training batteries (fig 1). Instruction throughout the Brigade is handled by the newly activated Instructor Group, which consists of a headquarters battery, three instructional divisions, and a maintenance division. The instructional divisions and their specialties are: The Committee Group (basic skills instruction), Missile Division (Hawk and Hercules operator MOS qualification), and FAW Division (forward area weapons operator MOS qualification). The US Army Reception Station organization remains unchanged.

organization remains unchanged.

A significant addition to the Brigade also occurred in February 1979. Women were integrated into OSUT. Although the Brigade has been training female air defense operators since March 1978, no women had gone through the basic phase at Fort Bliss. This has now changed and the women are doing a super job. There are currently three female drill sergeants

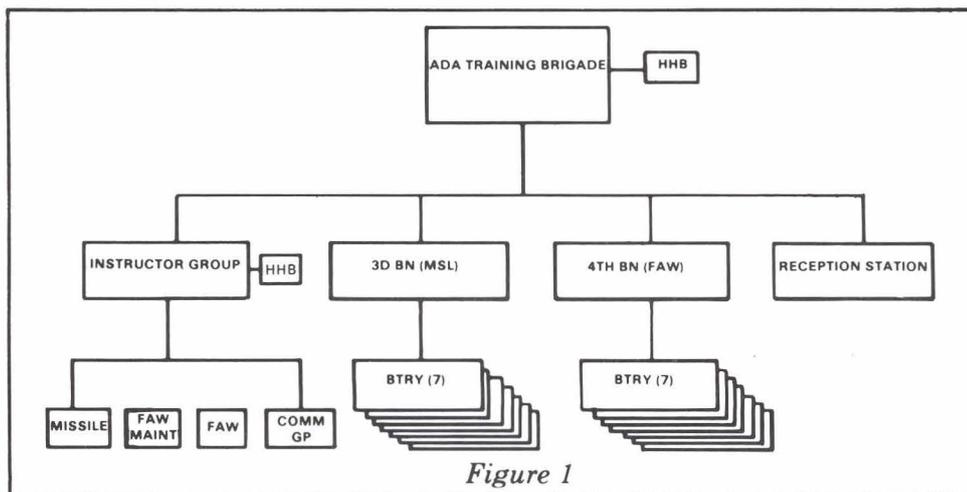


Figure 1

on duty with the Brigade and three more pending assignment after completing drill sergeants school at Fort Sill.

Another change within the Brigade involved modification of the BT and AIT programs of instruction. The previous 16-week POIs (BT-8, AIT-8) were reduced to 14 weeks, including a fill week. Primarily, this was accomplished by eliminating double administrative processing and reducing the number of discretionary training hours allotted to the battery commanders. Even though the overall length of the training cycle has been reduced, the quality of training has not decreased. As an initial effort to introduce the trainee to Air Defense and insure integration of the two cycles, AD subjects (Introduction to Air Defense, Familiarization with AD Systems, and the History of Air Defense) are scheduled early in the training cycle, while some basic subjects are included in the MOS phase.

To obtain optimum integration and produce a better-trained soldier, these additional actions are being taken:

- The introduction of an improved Basic Training POI.

- The formation of a committee to study further integration of BT and MOS subjects in line with the OSUT concept.

- The writing of new OSUT POIs reflecting the maximum BT/MOS integration.

- The use of individualized or performance-paced instruction in the majority of the MOS-producing courses.

The training and billeting areas of the brigade are widely separated as shown in figure 2. The basic subjects are taught in the Logan Heights area and on the Meyer Small Arms Range complex. Although the troop billeting is at Logan Heights, the trainees live at Meyer Range for three weeks during their weapons and field training. The MOS training is conducted at several locations on Fort Bliss main post. The new soldiers are bussed to and from their MOS classes. The Forward Area Weapons class fire their weapons every other week at McGregor Range sites 4 and 10 and the North McGregor Redeye range.

OSUT has several advantages over the split basic and advanced individual training method. The reduction in time and money spent in initial entry training by reducing the cycle from 16 weeks to 14 weeks and eliminating 210 spaces from the TDA are the most obvious. However, some of the less obvious and even intangible advantages may be of greater benefit in the long run. Soldiers enlisting for an air defense MOS now can see immediate evidence of the Army preparing them to work in the field of their choice. This helps them keep their goals in sight while they undergo the "turning green" process.

Editor's Note: This article was written when Colonel Parker was still Commander of the 1st ADA Training Brigade.

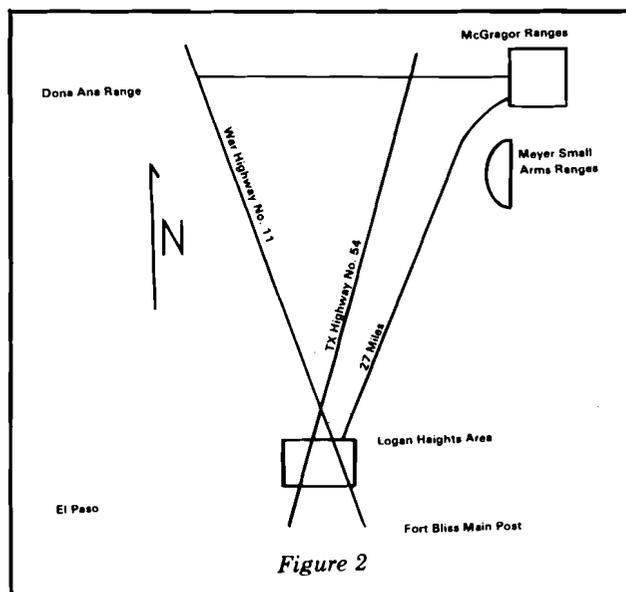


Figure 2

Under OSUT all air defense soldiers are trained to be operators of their equipment. The soldiers who enlist for CMF 23 and 27 are now better prepared for learning the highly technical information presented in the maintenance courses. Those who fail a maintenance course are no longer lost to another branch of the Army. Instead, they are immediately awarded the operator MOS that they have already earned and assigned to a unit to fulfill their enlistments as air defense equipment operators.

The OSUT training cycle allows the new soldier to remain in the same battery throughout the period of initial entry training. This eliminates the confusion and stress that a new soldier often experienced as the result of a transfer early in his career.

Unit training also allows the battery cadre to become more familiar with each trainee's strengths and weaknesses. Provisions can be made to capitalize on individual strengths and minimize individual weaknesses. This is particularly important during MOS training when the more capable trainees can be used to assist those soldiers who are having difficulty in grasping technical information.

The OSUT concept, particularly the operator training for maintenance personnel, is a tremendous step forward for air defense. Placing the responsibility for training new air defenders in the hands of experienced air defenders insures that the field units will receive well-trained air defense apprentices. Because Fort Bliss is the proponent for air defense, we want air defense orientation for the new soldier to begin with his first day in the Army. We are convinced air defense OSUT is the most effective means not only to accomplish this very important mission but also to give us the flexibility to act as a laboratory for air defense training concepts for present and future systems.



SCORING and BULLET COUNTERS

for

IMPROVED AD TRAINING

George R. Tetreault

BRRRRRRK — BRRRRRRK — BRRRRRRK!!!

The gunner of the Vulcan 20-mm air defense weapon tried to maintain his sight reticle steady on the target as the Vulcan belched smoke and steel at the rate of 3,000 rounds a minute.

The target continued to sail through the sky as the gunner prepared to engage the next target pass. At the same time, a loudspeaker announced that 13 hits had been registered on the target.

The gunner was firing at a tow target equipped with one of the latest training devices designed to improve gunner training and confidence in his weapon system — a bullet counter that detected and counted all bullets entering a predetermined radio-frequency (RF) field around the target.

This positive and immediate feedback enhances the training of both gunner and crew. It engenders a sense of accomplishment in the gunner and a feeling of confidence in the squad leader regarding his weapon and crew. So air defense artillery training can be significantly improved by using these new training devices, and they are currently available in the Army inventory.

In recent years, tests were conducted by the Human Resource Research Organization and Fort Bliss to determine the effect of crewman motivation on air defense artillery training programs. These tests proved conclusively that training effectiveness and retention were dramatically improved when the crewman was properly motivated.

Motivation could be accomplished in many ways. The problem was to maintain the crewman's motivation over a long period of time. Of the many programs developed to motivate the crewman, only two were successful in maintaining a high motivational level over an extended period.

One program was to allow the crewman to fire directly at an MQM-34D drone target instead of a banner towed by the drone. The MQM-34D drone is jet-powered and is approximately one-third the size of a threat aircraft. Unfortunately, this program had to be restricted to advanced individual training trainees because target losses for unit crewmen made the program prohibitively expensive.

The second program, which achieved and maintained a high motivational level, used scoring and bullet counting systems. The knowledge that his

weapon would have hit a threat aircraft, even though he could not actually see any target hits, resulted in the crewman maintaining a high level of motivation and increased his confidence in the weapon system. Test scores for the classes participating in these two programs were significantly higher than the test scores for classes that did not have the opportunity to participate in these programs.

Since these tests were accomplished, the Targets Management Office, US Army Missile Materiel Readiness Command (USAMICOM), Redstone Arsenal, has developed and improved scoring and bullet counting systems for use in air defense artillery training. These devices are currently in the Army inventory at the Scoring Facility, located at Fort Bliss, Texas.

The Scoring Facility is operated by Cartwright Engineering, Inc., under contract to the Targets Management Office, USAMICOM. The Scoring Facility is tasked to support scoring requirements of TRADOC and FORSCOM units. Currently, the Scoring Facility has requirements to support units located at Fort Bliss, Texas; Fort Stewart, Georgia; Fort Shafter, Hawaii; and National Guard units. The facility is also tasked to support Army research, development, test, and evaluation programs at White Sands Missile Range and Fort Bliss. Navy and Air Force programs are supported when directed by the Targets Management Office.

The Scoring Facility will be tasked to support other posts, camps, and stations upon receipt of a written requirement from the requesting command, including USAREUR and Korea. The program is funded at DA level and not by the requesting command. Written requests for scoring and bullet counting support should be forwarded to the following address:

Targets Management Office
US Army Missile Materiel Readiness Command
ATTN: Mr. Pero Perette, DRSMI-TM-E
Redstone Arsenal, Alabama 35809

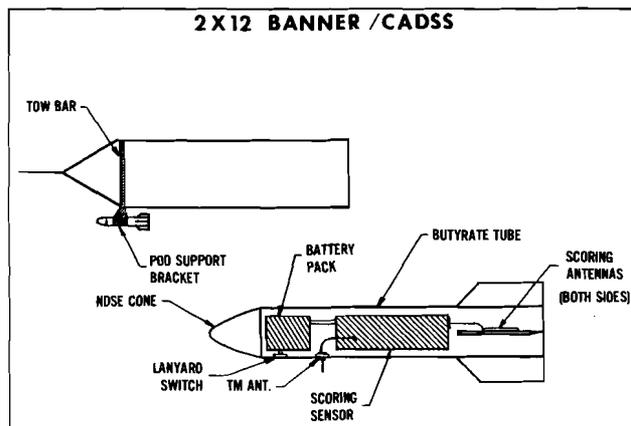
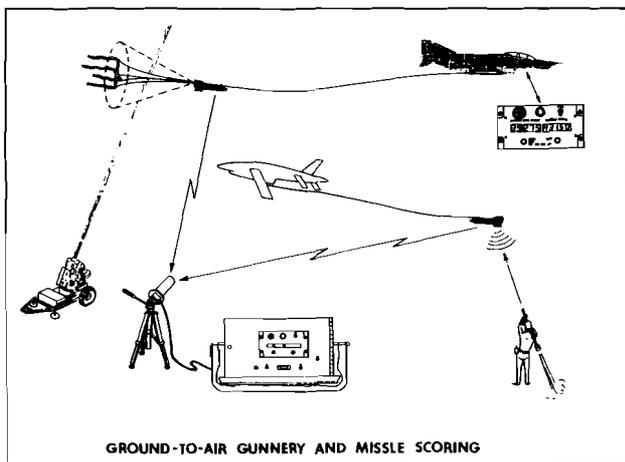
(Note. Mr. Perette may be reached by AUTOVON 746-4153 or Commercial 205-876-4153.)

The basic scoring and bullet counting systems include an airborne package consisting of a sensor, scoring antennae, telemetry antenna, power source (battery or wind-powered generator), connecting

cables, and a ground station. Scoring information is transmitted to the ground station in the vicinity of the firing units. Bullet counts are displayed in real time on a digital counter in the ground station and on a portable digital counter, which can be remoted up to 500 feet from the ground station. A switch permits both counters to be reset at either counter after each firing pass. Scoring data for missiles and bullet counts are also recorded on magnetic tape in real time at the ground station and can be provided as permanent records from a print-out on an oscillograph that is a component of the ground station.

The following scoring and bullet counting systems are available to support air defense artillery training:

| | |
|--------------------------------|---|
| Item | RCMAT (radio-controlled miniature aerial target). |
| Installation Kit | CIK-122. |
| Part No. | 1534-1013. |
| Supported Weapon System | Guns — 7.62-mm and larger, Chaparral, and Redeye. |
| Target System | RCMAT. |
| Description | The system is installed directly on the RCMAT. Bullets will be detected out to a range of approximately 16 feet from the antenna (approximately 32-foot diameter circle around the target). Actual detection area is governed by the type and location of the scoring antennae. A digital counter in the ground station and one remote counter located up to 500 feet from the ground station will give an instantaneous readout (real time) of all bullets passing through the sensor radiation field. |



Availability

Approximately 145 CIK-122 scoring systems are in inventory.

Remarks

Due to the added weight of the scoring system, the RCMAT cannot be hand launched. Approximately 70 feet of hard surface is required to launch the RCMAT. A zero length launcher is currently under development for launching the RCMAT.

Item

2 ft x 12 ft tow banner scoring system.

Installation Kit

CIK-121.

Part No.

1530-1012

Supported Weapon Systems

Guns — 7.62-mm and larger.

Targets

MQM-34D (Firebee), MQM-107 (Streaker), and RCAT.

System Description

The scoring system is located in a 4-inch diameter x 30-inch plexiglass pod attached to the banner tow bar. A radar reflector for the Vulcan range-only radar is also attached to the banner tow bar. The scoring RF pattern extends approximately 16 feet behind the tow bar (covering the tow banner), approximately 10 feet in front of the tow banner, and approximately 8 feet above and below the tow banner. The tow banner is towed approximately 700-900 feet behind the drone targets. The system is recovered with the 2 foot x 12 foot banner.

Availability

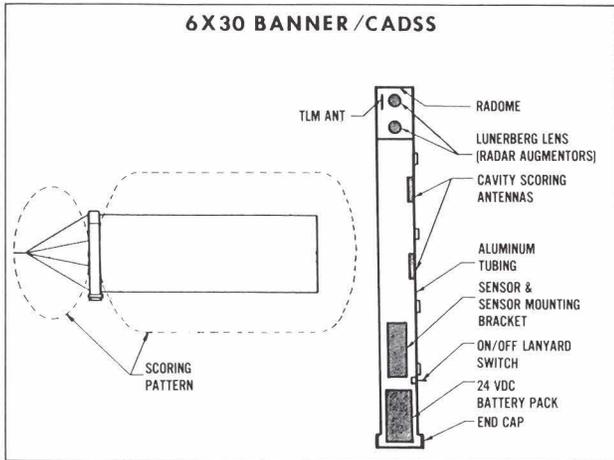
108 systems are in inventory.

Item

BATS scoring system.

Installation Kit

CIK-111.



Part No. 1534-1003-1.
Supported Weapon Systems Guns — 7.62-mm and larger, Chapparral, and Redeye.
Target Ballistic Aerial Target System.
System Description The scoring system is attached to the approximate middle of the BATS target. Four scoring antennae are employed to insure full coverage due to the rotation of the BATS in flight. The scoring RF pattern extends approximately 14 feet forward and behind the antennae and approximately 8 feet above and below the antennae. For Chapparral and Redeye missile support, the scoring system may be located nearer the missile aiming point (IR pot or flare). An on-board timer will eject the scoring system from the BATS for parachute recovery after the CEASE FIRE point has been reached.

Availability Item 292 systems are in inventory. 6 ft x 30 ft tow banner scoring system.

Installation Kit CIK-120.

Part No. 1534-1011.

Supported Weapon Systems Guns — 7.62-mm or larger.

Target T-33 aircraft.

System Description The 1½-inch tow bar of the 6 ft x 30 ft banner has been replaced by a 4½-inch aluminum tube containing the complete scoring system. Luneberg lens are mounted on top of the pole for the Vulcan range-only radar. The scoring RF pattern extends ap-

proximately 32-35 feet behind the tow bar, approximately 5 feet in front and 10 feet above and below the tow bar. The system is recovered with the 6 ft x 30 ft banner.

44 systems are in stock and 50 systems are due in.

Availability

Remarks

The 6 ft x 30 ft scoring banner is part of the manned aircraft tow target system (MATTS). The current MATTS contractor is Flight Systems Inc. (FSI). The FSI MATT system consists of a T-33 aircraft with a pod attached to the underside of the aircraft fuselage containing two 6 ft x 30 ft scoring banners. The banners are air launched after the tow target arrives at the firing site. They are towed 5,000 feet behind the tow aircraft and are released in designated recovery areas for retrieval by ground personnel.

Requirements for MATTS support are normally presented at the Annual Worldwide Targets Conference (WWTC). However, requirements materializing subsequent to the WWTC should be forwarded to the following address: (**Note.** Requirements submitted subsequent to the WWTC may not be funded.)

Targets Management Office
 US Army Missile Materiel Readiness Command
 ATTN: TM-S
 Redstone Arsenal, Alabama 35809

Questions relating to the technical operations of scoring and bullet counting systems may be addressed to the Scoring Facility Manager:

Cartwright Engineering, Inc.
 P. O. Box 4106
 ATTN: Mr. Sidney L. Chavers
 El Paso, Texas 79914
 Telephone: AUTOVON 978-9658/9659
 Commercial (915) 568-9658/9659

George Tetreault, a retired warrant officer, holds a Bachelor of Science Degree in Education, a Masters Degree in Education, and has nearly completed the work for a Doctorate of Education. He is now working with targets for our present and future air defense weapons as a training specialist with the Program Management Division, Directorate of Training Developments, US Army Air Defense School.



THE VETERANS' EDUCATIONAL ASSISTANCE PROGRAM

Colin R. Doane

To provide educational benefits for soldiers entering the service after the Vietnam era, the Department of Defense developed the Veterans' Educational Assistance Program (VEAP). The details of the VEAP are spelled out in Chapter 4 of AR 621-5. Soldiers who entered the service after December 31, 1976 are eligible to participate in VEAP. Those who entered the service before 1 January 1977 are eligible for the GI Bill instead. Soldiers are eligible for one benefit or the other, not both. Some soldiers who came on active duty after December 31, 1976 are eligible for the GI Bill if before December 31 they signed a contract to come on active duty. Soldiers who are planning to use their educational benefits and who may fall into one of these categories should visit the nearest Army education center to clarify their status on educational benefits.

VEAP is a voluntary program and is essentially a way of helping a soldier save money for future education. The soldier puts money into a fund set up by the Veterans Administration (VA). The VA makes a contribution to the soldiers account after his first term of obligated service, when the soldier or veteran is going to school.

If a soldier wishes to participate in VEAP, he should visit the personnel office that services his unit. There he will make out the standard Army allotment form to initiate an EDSAV allotment, which will go into an account the VA will set up in his name. The soldier may select any amount for monthly payments, from \$50 to \$75 inclusive, in even increments of \$5. This amount will be taken from his pay each month and deposited in his VA account. The soldier must leave the allotment in effect for at least 12 consecutive months, although if he has a bonafide financial emergency he may stop the allotment before that time with the approval of his unit commander. Under these circumstances, he may also withdraw the money he has already put into the account, although he is not required to do this. The maximum amount the soldier can put into his account is \$2,700, which equals the maximum monthly amount: \$75 a month for a period of 3 years.

After completing his first term of obligated service, the soldier or veteran may receive payment from his account if he is going to school. The number of monthly payments he will receive is the same as the number of payments he made into the fund. Thus, if a soldier paid into the fund each month for 3 years, he would receive 36 monthly payments from the VA. The amount of each payment depends on how many courses the student is taking. If the

student is going to school full time, as defined by the institution, he will receive the full payment, which is his monthly contribution plus twice that amount contributed by the VA. Thus, if a student contributed \$50 each month, he would receive \$150 if going to school full time. Similarly, if he contributed \$75, he could receive \$225 each month. Full time is generally defined by colleges as four or more courses each month. There are also three-quarter and half-time rates for students whose other obligations prevent them from going to school full time. The rate of payment in these cases is just three quarters or one half of the full-time rate. So, if a student paid \$75 per month into the fund, his payment each month would be \$225 for full-time schooling, \$168.75 for three quarter time, and \$112.50 for half time. The soldier has 10 years from the date of his last discharge to use the money in his fund. If it is not all used by that date, the VA will automatically refund to him whatever amount of his contribution remains in the fund.

This figure of \$225 per month adds up to quite a respectable total if continued for a 3 year period. The \$2700 that constitutes the maximum a soldier can put into the fund will yield \$8100 if the soldier is going to school full time. Besides, the Department of the Army will award additional sums to the accounts of soldiers enlisting in certain MOSs. This is an enlistment option only and is not available to soldiers already on active duty. Details are contained in DA Circular 621-17.

Finally, if a student has completed his education and still has money in his account or if he decides after establishing an account that he doesn't need any more education, the money that he contributed is not lost. After his first term of obligated service, the soldier can withdraw the money he has put into the account (not the money the VA would put in if he were going to school), simply by notifying the VA that he would like the money returned to him.

The availability of VEAP introduces another element into educational planning for soldiers. The soldier would first estimate how many months he will need to complete his education and then contribute to VEAP for that length of time. This assures the soldier that he will be receiving payments for the length of time needed to reach his educational goal. The amount of each monthly payment is another consideration. Generally, it should be as large as the soldier can afford, since the return is three times the amount he contributes.



THE ENLISTED PERSONNEL MANAGEMENT

Air Defense Artillery

The Enlisted Personnel Management Directorate is responsible for worldwide assignments and the professional development of enlisted personnel. These functions are delegated to Career Divisions which, in the case of Career Management Field (CMF) 16, is the Combat Arms Career Division. Within the Combat Arms Career Division is the Field Artillery/Air Defense Artillery Branch, which has assignment managers and professional development NCOs who work exclusively with CMF 16 personnel actions for E-1 through E-8.

ADA PROFESSIONAL DEVELOPMENT TEAM (Career Management Field 16)



SFC Royal E. Dance:
Chief, Professional Development/
Career Advisor. Ext. 8053

SFC Roger W. Midgette:
Professional Development/
Career Advisor. Ext. 8053

SFC Kenneth D. Underwood:
ADA Professional Development/
Personnel Actions Advisor, Ext. 8052

SFC Lloyd M. Thorpe:
Reclassification NCO. Ext. 0595

Mrs. Sarah J. Jones:
Education Manager/ANCOES,
SGMA and Reclassification, Ext. 8053

Mrs. May Coleman:
Assistant Education Manager, Ext. 8053

ADA ASSIGNMENT TEAM (Career Management Field 16)



Mrs. Elizabeth L. Currle:
Team Supervisor
Ext. 8052

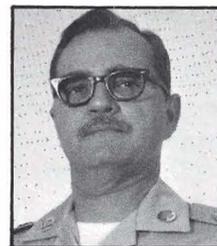
Mrs. Carol Segretto:
Assignment Manager
MOS 16B and 16C. Ext. 8053

Mrs. Sally Gallagher:
Assignment Manager
MOS 16E, 16D and 16H. Ext. 8053

Mrs. Carolyn Langley:
Assignment Manager
MOS 16J, 16R and 16Z. Ext. 8053

Mrs. Carolyn Brooks:
Assignment Manager
MOS 16P. Ext. 8052

SERGEANT MAJOR



William R. Goetz
Ext. 8051

BRANCH



LT Ma
Ext.

COMMUNICATIONS- (Career Management Field 16)

SERGEANT MAJOR



Wisheart F. Hudson, Jr.
Ext. 8353/8354/0137

BRANCH



LTC Bernard
Ext. 8353/

Members of these career

US Army Milit
ATTN: DAPC-
2461 Eisenho
Alexandria, V
Commercial P
AUTOVON: 2

MANAGEMENT DIRECTORATE

by Career Managers

These personnel are available to answer any questions concerning assignments, professional development, and the scheduling of DA-directed schools. If you are not sure of "who does what for whom," contact your appropriate career adviser and he will handle your problem or advise you as to the appropriate action office.

You can contact your career adviser at:
US Army Military Personnel Center
ATTN: DAPC-EPK-A
2461 Eisenhower Avenue
Alexandria, Virginia 22331

H CHIEF



win Bihn
038

CHIEF ASGMT SEC



Mr. Gerald W. Rusch
Ext. 8051

ELECTRONICS BRANCH

(23, 27, 28, 29, 31, and 84)

H CHIEF



K. Kellom, Jr.
8354/0137

CHIEF ASGMT SEC



Mr. Roy R. Bonser
Ext. 8353/8354/0137

Fields can contact advisors at:

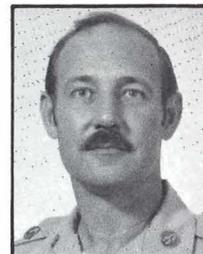
ary Personnel Center
PL-C
er Avenue
22331

one: (202)325-xxxx

1-xxxx

MISSILE MAINTENANCE PROFESSIONAL DEVELOPMENT TEAM

(Career Management Fields 23 and 27)



MSG Ray Fichter:
Chief, Professional Development/
Chief Advisor Ext 8048/8342

SFC Cary Carrillo:
Professional Development/
Career Advisor Ext. 8048/8342

SSG(P) Rolf Shave:
Reclassification/ANCOES
Ext. 8048/8342

Mr. Ellis Nichols:
CMF 23/27 Assignment Supervisor
Ext. 8048/8342



ASSIGNMENT MANAGERS

Mrs. Cora Webster:
MOS 22L, 22N, 23N, 23U, 23W, 24H, 24J, 24K,
24L, 24P, 24Q, 24U

Mrs. Fanny Hornburg:
MOS 24C, 24E, 24G, 24V, 25J, 25K, 25L, 26H

Mrs. Carole Waddell
MOS 21G, 21L, 24M, 24N, 27B, 27E, 27F, 27G,
27H, 27Z, 46N

GRADES E8 AND E9

Personnel in grade E9, and E8s selected for promotion to E9 are managed by the CSM/SGM office which can be contacted by writing to:

US Army Military Personnel Center
ATTN: DAPC-EPZ-E
2461 Eisenhower Avenue
Alexandria, VA. 22331

Commercial Phone (202) 325-7686/7687
AUTOVON: 221-7686/7687
MSG Johnson: 16Z SGM Manager
SFC Smith: CSM Manager



TERRORISM – Counter

Captain Edw

Recent terrorist activities in Europe give us cause to believe that international terrorism may constitute a serious threat to critical US Army materiel and installations there. Organizations, such as the Red Army Faction, Red Brigades, Revolutionary Cells, Black September, and Irish Republican Army, have been responsible for violent assaults against prominent people and facilities of some European governments. Indications are that these attacks will continue and that radical groups will become more aggressive as their experience and confidence grow. According to the Ford Foundation-sponsored Mitre Report of 1977, "The past few years have seen an upsurge in the size, sophistication, and capabilities of terrorist groups. Although kidnapping and assassination are favorite tactics, assaults on military targets are also attractive to some factions." It is possible that US targets abroad may become inviting to terrorists because they symbolize organized authority.

A particularly appealing and vulnerable-appearing target could be the sophisticated weapons at a remote Air Defense Artillery (ADA) tactical site. The ability of an ADA unit to deter an armed attack could well be tested. Success in stemming such an engagement would be dependent upon the unit commander's proper assessment of the threat, the physical security measures employed, and the level of training within that unit.

One of the first problems of defending against terrorism is developing an understanding of the threat itself. Because of its rapidly changing nature and character, terrorism for our purpose can be best dealt with if it is not considered ideology inspired but rather as an insurrection involving people of exceptionally diverse political convictions.

We know that terrorism is nothing new. Some of the earliest systematic terrorist movements evolved from fanatic religious protest groups in the 1st Century A.D. Later, organizations resorted to acts of terror as a means of actively resisting what they considered tyranny and despotism. The NARODNAYA VOLYA (1878-1881) was probably the most influential of these second-generation terrorist groups. It was a highly organized, nationalistic movement in Russia, responsible for a reign of terror culminating in the assassinations of the Governor-General of St. Petersburg and the head of the tsarist political police, as well as the sentencing to death of Tsar Alexander II. This movement was influenced by Karl Heinzen, a contemporary German writer who advocated political chaos and upheaval.

The two decades following World War II were marked by many guerrilla wars in the country side, where all Communist theoreticians maintain revolt should begin. Urban terrorism was considered a supplement. Some of history's most dedicated revolutionaries disavowed the *concept of terrorism*



ing the Threat in USAREUR

Partridge

as a viable method for promoting their causes. Both Fidel Castro and Che Guevara considered the city the graveyard of the revolutionary freedom fighter; however, recent years have seen the advent of new urban groups in Europe, North America, and Japan that have reestablished systematic terrorism. For the most part, their doctrine and tactics mirror forms of political violence seen previously in many parts of the world.

Today's transnational terrorists must be considered a possible threat to the US Army in Europe. Although relatively few terrorist groups have engaged in systematic attacks on major organizations and facilities, these targets can become increasingly attractive as society grows indifferent toward assassinations and kidnappings. The sophisticated technology required for extensive, nationally disruptive acts of violence is available. For example, today's terrorists have access to modern Soviet individual and crew-served automatic weapons, surface-to-air missiles, and antitank rockets, and are trained in their use against hardened targets, regardless of the weather. More alarming are the prospects that terrorists are studying and stockpiling chemical and biological weapons. Elements of the Red Army Faction reportedly stole quantities of mustard agents from West German ammunition bunkers in 1975 and have since threatened their use. With the abundance of targets, the dedication of relatively small groups of

well-trained extremists, the availability of sophisticated weaponry, and the apparent ease with which terrorists have been able to intimidate some governments, there is indeed cause for concern.

The key to the ADA unit's defense against the terrorist threat is the Physical Security Plan (PSP). In this document, the unit vulnerabilities are identified along with specific and detailed instruction on employment of all the various protective measures. An excellent reference for the preparation of the PSP is FM 19-30, *Physical Security*. The PSP must be written in sufficient detail to ensure all-around security and security-in-depth, yet be easily understood by every soldier in the unit. One of the salient portions of the plan deals with liaison with civil authorities. Close, continual contact must be maintained to ensure adequate augmentation of on-site security forces in the event of an emergency.

Upon completion and approval by the appropriate headquarters, the PSP must be periodically tested and evaluated. These unannounced exercises should be conducted at night during inclement weather — conditions most favored by terrorists.

As previously mentioned, unit training is an extremely important factor in deterring terrorists. The commander must ensure that threat briefings are conducted regularly as part of the unit's ongoing security awareness program. The battalion S2 can provide the commander with current intelligence

summaries, and these should be used in personal briefings.

Unit training should be realistic and demanding. It is essential that trainers stress the fact that the individual soldier — not structural barriers — will most probably determine the success or failure of a terrorist assault. As with the site defense plan, training should be conducted regularly under adverse weather conditions and during darkness so that soldiers will become familiar with the conditions they can expect during an actual attack.

Physical barriers will enhance site security and are especially effective against the curious interloper or petty thief. But defense against a dedicated, well-equipped terrorist group must be sophisticated and intricate to have significant value. Highly trained and motivated terrorists armed with modern demolitions and weapons can penetrate virtually any existing structural barrier. An array of vibration, sound and heat-detecting unattended ground sensors (UGS), combined with a closed-circuit television (CCTV) system, is the best of the counter-terrorist techniques. Exercises in Europe have proved that fixed guard posts are particularly vulnerable to terrorist assault tactics and should be used only to bolster roving patrols, with or without sentry dogs.

Frequent, random foot patrols are the most effective defense against a calculated assault. These patrols should be conducted in force whenever possible. Irregular communications checks and a secure challenge/reply system are mandatory, along with a detectable duress reporting procedure. Barriers and obstacles should be continually assessed for deterioration and deliberate damage. Alternative measures must be readily available should existing barriers suddenly become nonoperational or ineffective. This is particularly important in Europe, where environmental conditions tend to degrade the reliability of chain-link fences and concertina barbed wire.

These same environmental conditions also result in reduced visibility. Sufficient lighting should be available to illuminate the entire site perimeter during darkness to aid in detecting intruders. Power sources for lighting must be afforded extra protection, since they will be early targets in a terrorist attack.

A peculiar weakness almost inherent in US Army physical security doctrine is the penchant for regularity and uniformity. The terrorist is trained to detect patterns in a unit defense and use them to his advantage. For this reason, the defense scheme must not become methodical. Random patrols, irregular communications checks, and alternating guard shift routines will confuse the terrorist and perhaps deter an assault. Routine activities irregularly scheduled

are the best way to deny the terrorist knowledge about exactly where and when a unit is most vulnerable to attack.

Compounding the conventional threat presented by the terrorist is the ability of modern extremist organizations to employ a wide variety of special-use weapons. With the assistance of sympathetic foreign powers, some terrorist groups have been able to obtain biological and chemical agents and be trained in their use. Government organizations aren't the only sources for such materials. Commercial variants of many deadly toxins and pathogens are readily available on the open market. Installation commanders, therefore, should be prepared to expect some form of chemical or biological attack as part of a terrorist assault. The unit must be trained to operate effectively and perform its antiterrorist mission in such a toxic environment.

Finally, there is the specter of the nuclear-armed terrorist. While few scientists believe an extremist organization could actually manufacture a fission-driven weapon, the hijacking or capture of a nuclear component or facility is possible. Terrorists frequently believe that the act by itself is nothing; it is the attendant publicity that makes it important. According to the US Nuclear Regulatory Commission, "Terrorist groups may find themselves in political situations where they feel they have nothing to lose by an act, no matter how outrageous . . . Terrorists might sabotage a nuclear facility as an act of vengeance. Alternately, they might attack and gain control of a nuclear facility and hold it hostage to destruction unless certain demands were met. These groups are certainly aware of the power which any sort of nuclear action would give them."

The threat posed by organized transnational terrorism is indeed formidable. The ADA commander in USAREUR must carefully consider this in establishing a defense capability commensurate with the threat. Whether left wing or right wing, today's terrorist knows that terror is always more popular against foreigners than against one's own countrymen. Present conditions in Europe must be considered favorable for terrorist attacks on US military organizations, and considerable effort must be directed toward the peacetime mission of countering this threat.

Captain Partridge holds a Bachelor of Science in Computer Science from the University of Southern Mississippi. He attended the Defense Language Institute and graduated from the Air Defense Artillery Officer Advanced Course. He has served as Security Officer and Team Commander in the 59th Ordnance Brigade in Germany and is currently S1, 1st Battalion (Hawk), 65th Air Defense Artillery.



**2d
BATTALION**

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ENGAGEMENTS

**51st
ADA**

If you command an air defense unit in the middle of Kansas, your choice of flying objects to track is limited. What do you look for in a relatively planeless sky — the Wizard of Oz, the Cowardly Lion, or the Wicked Witch of the North?

Soldiers from the 2d Battalion, 51st Air Defense Artillery (ADA), recently found an excellent way to track aircraft. Fifty miles west of the unit's post, Fort Riley, is an Air Force bombing range where members of the Air National Guard are regularly engaged in bombing practice. It is also

adjacent to the Salina Municipal Airport where, between scheduled flights, major airlines train their pilots.

"I came to Fort Riley from an ADA outfit in Germany, and we didn't have any place like this to get this good training," 1st Lieutenant Mark Brierre, the Assistant S3 (Plans and Training) Officer, said. He says that the unit discovered the range by accident, and credits the former S3, Captain R. L. Greer, with the discovery.

"I agree, it was really a find," stated 1st



EYE ON THE SKY. Members of Battery A, 2d Battalion, 51st Air Defense Artillery, from Fort Riley, Kansas, use the Smoky Hill Bombing Range to track aircraft of the Air National Guard using the range as part of their training. The Hawk missile is organic to the 2d Battalion, 51st Air Defense Artillery.



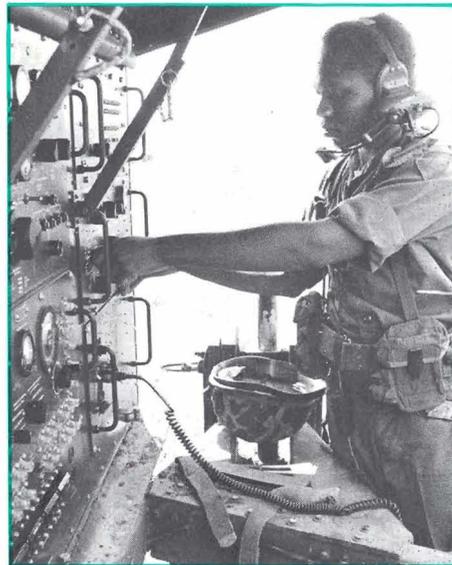
RADAR REALISM. Lieutenant James Garigan, Battery A, 2d Battalion, 51st Air Defense Artillery, assigns targets to fire control operators through a radar scope during the unit's week-long training at Smoky Hill Bombing Range, some 50 miles from the unit's home post, Fort Riley, Kansas.

Lieutenant Richard Limehouse, the Commander of Battery A, which used Smoky Hill recently for training. "Several Air National Guard units were in bombing practice during the week, and this gave us an opportunity to track low-altitude, high-performance aircraft flying sorties exactly as they would in combat."

Activated at Fort Riley about 1 year ago, the 2d Battalion, 51st Air Defense Artillery, uses an elaborate multiunit radar system, and the Hawk missile "can ruin an enemy pilot's entire day," as one of the unit's missilemen put it.

"The deadly missiles come over the target and strike from above," said Sergeant First Class Perry Frink, platoon sergeant, adding that the missile is extremely accurate.

Naturally, no missiles were fired at the National Guardsmen or student pilots of the airlines, "but we took missile launchers and training missiles down there because it gave the launcher crews good prac-



CHECKING THE "THING." PFC Washington Lindsey of Battery A, 2d Battalion, 51st Air Defense Artillery, checks the signal processor on a radar unit during tracking training at Smoky Hill.

tice in setting up," Limehouse said. "Don't worry, it was coordinated with the Air Force so they understood when they saw our missiles staring up at them."

But in combat, when a target aircraft is within striking distance of the missile, radar information is fed into a computer system and then into the missile. At this point the order is automatically given to launch the Hawk. Using a homing system, the missile follows a radar signal right back to the target aircraft. At full combat strength, each battery would have the punch of nine missile launchers with three missiles per launcher.

Pilots over the Smoky Hill Bombing Range and Salina Municipal Airport will be on watch again and again because the 2d Battalion, 51st Air Defense Artillery, is fond of its new discovery

and will use the area many times in the future. If it were not for the Salina County facilities, the unit might have to be content to be "Off to See the Wizard."



History of Air Defense

Japan

The Japanese planes in operation in 1941 were superior in quantity, maneuverability, and altitude capability to those available to US forces. Also, their pilots were well prepared, plus having had combat experience in the war in China.

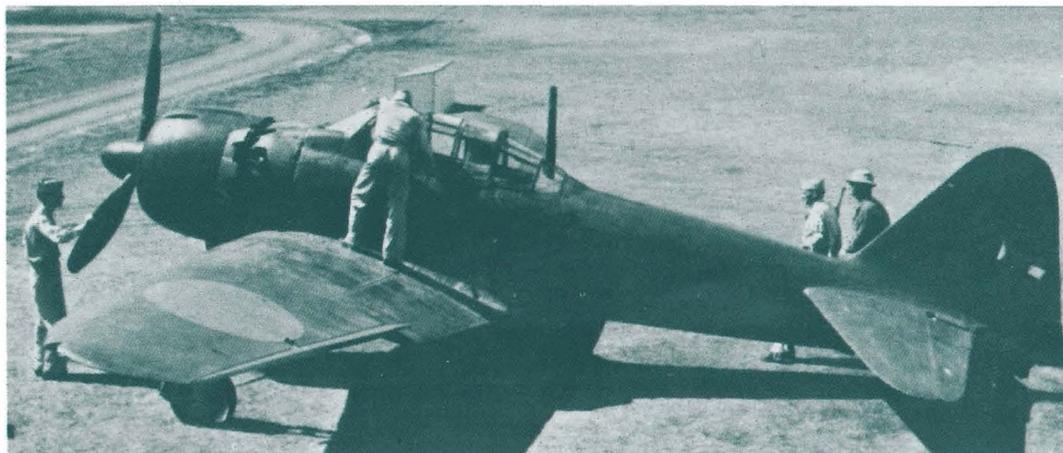
Japanese planes were built for maximum maneuverability. They had almost no armor protection and were structurally weak. As a result, they were very vulnerable to Allied fighters and anti-aircraft. Also, if the earlier fighters attempted to match the dive of their opponents, they could lose their wings or go out of control. As the war progressed, the Japanese fighters improved, but production could not meet their requirements. The principal Japanese fighters that saw service during World War II are described briefly in the following paragraphs.

The Mitsubishi Zero-Sen Zeke was the backbone of the Japanese fighter force. More Zeros were produced than any other Japanese warplane. It was the world's foremost carrier-based fighter and was the first such plane capable of besting its land-based opponents. The Zero had complete mastery of the air

over the Pacific until the battle of Midway in June 1942. From then on, its value as a fighter steadily declined, and it was used as a Kamikaze plane during 1944-1945. The Zero had a maximum speed of 334 mph at 16,570 feet and a range of 1,130 miles. Armament consisted of two 7.7-mm machineguns and two 20-mm cannon, and it carried two 66-pound bombs.

The Kawasaki Hien Ki.61 Tony was the standard Japanese army fighter during 1943-1944. It was one of the finest all-round army fighters. The diving ability of the Ki.61 was far superior to other Japanese fighters and could hold its own in a dive against the heavier American fighters. It was used on suicide missions against B-29s, as its design enabled the pilot to jump clear just before impact. The Ki.61 had a maximum speed of 348 mph at 16,400 feet and a range of 1,118 miles. Armament consisted of two 12.7-mm machineguns and two 20-mm cannon.

Further development of the Ki.61 produced the Ki.100. A much superior aircraft, the Ki.100 was infinitely more maneuverable at high altitude and had a better rate of climb. Performance began to fall at 26,000 feet, but at lower altitudes it was



The carrier based Navy fighter-fighter bomber Zeke.



An Army fighter-fighter bomber Tony.

superlative. It was a match for the best of the Allied fighters, including the P-51 Mustang. The outcome of Ki.100 versus P-51 engagements was usually determined by pilot skill and numerical advantage rather than any discrepancy between the capabilities of the two fighters. The Ki.100 was used mainly for home-defense duties.

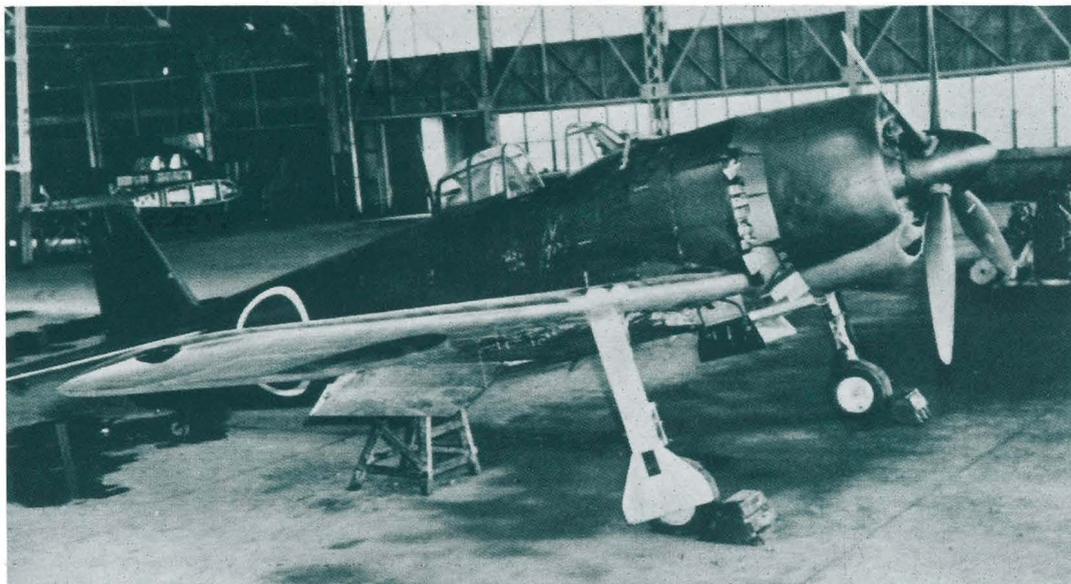
The Kawanishi Sniden 21 George was outstanding in fighter-versus-fighter combat. It was fast, powerful, and maneuverable. In the hands of an average pilot, it was equal to any Allied fighter, even the late model American P-51. However, because of its poor climbing ability, it was not effective against the B-29s. The Sniden 21 had a maximum speed of 370 mph at 18,370 feet and a range of 1,069 miles. Armament consisted of two 7.7-mm machineguns and four 20-mm cannon, and it carried 1,250 pounds of bombs.

The Nakajima Ki.43 Oscar fighter bomber had a maximum speed of 320 mph at 19,680 feet and a range of 1,865 miles with external fuel tanks. Armament consisted of two 12.7-mm machineguns, and it could carry 1,150 pounds of bombs.

The Nakajima Ki.44 Tojo fighter bomber had a maximum speed of 376 mph at 17,060 feet and a range of 497 miles. Armament consisted of four 12.7-mm machineguns. Its bomb capacity was two 220-pound bombs.

The Nakajima Ki.84 Frank fighter bomber had a maximum speed of 388 mph at 19,680 feet and a range of 1,815 miles with external fuel tanks. Armament consisted of two 12.7-mm machineguns and two 20-mm cannon, and it carried 1,100 pounds of bombs.

The Kawasaki Ki.45 Nick night fighter had a maximum speed of 340 mph at 23,000 feet and a



The Army fighter-fighter bomber George.

range of 930 miles. Armament consisted of one 37-mm cannon and two 20-mm cannon.

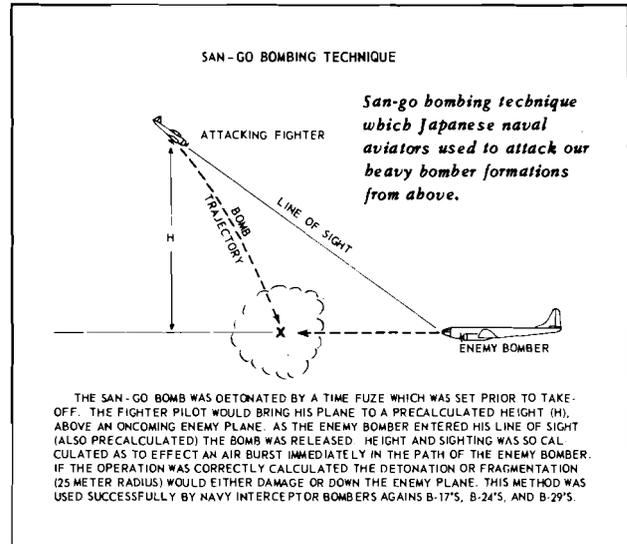
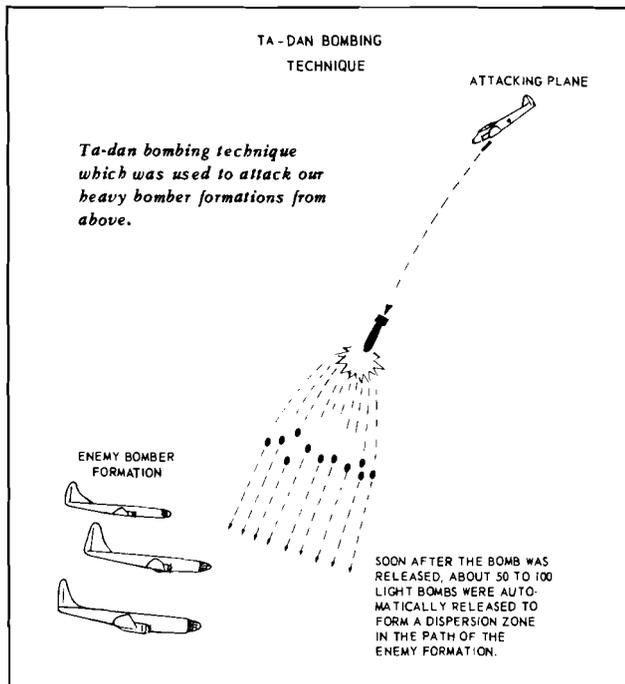
The Kawanishi PiY38 Frances night fighter bomber had a maximum speed of 325 mph at 17,700 feet and a range of 1,380 miles. Armament consisted of three 20-mm cannon, and it carried 1,764 pounds of bombs.

The Nakajima J1N1-S Irving escort fighter had a maximum speed of 315 mph and a range of 2,485 miles. Armament consisted of four 20-mm cannon.

Japanese Fighter Tactics and Techniques

The Japanese changed their tactics several times during the war. As the quality and quantity of Allied fighters and other aircraft improved, the Japanese fighters became more evasive. This was largely due to a decline in the quality of Japanese pilots. The training program could not provide sufficient adequately trained pilots to offset the first-line pilots lost in combat.

In October 1944, the Japanese Air Force, no longer able to match the American planes and fliers, started using suicide (Kamikaze) attacks. Japanese pilots would deliberately crash their explosive-packed planes into enemy targets, most frequently a ship. A wide range of tactics was used. Some would drop their bombs on one ship, then dive on another one. Others would crash into a ship still carrying their bombs. Altitude of attacks varied from sea level to 20,000 feet, most of them being made from



3,000 to 6,000 feet. Kamikaze attacks accounted for 50 percent of the damage to American vessels during the entire war.

The Mitsubishi Zero was the primary Kamikaze plane, but almost every type of aircraft was used. Obsolete planes and any aircraft that could be repaired so that they could make one-way flights were adapted for suicide missions. Also, new aircraft were produced specifically as Kamikaze instruments.

Kamikaze attacks were attempted against the B-29s but did not prove satisfactory. The armament of the B-29s made it necessary to attack at a steep angle from above. The operational altitude of the bombers made it extremely difficult to attain a position to attack at the correct angle, and only the best pilots were capable of successfully executing such an attack.

Debriefings of bomber crews would occasionally produce reports of Japanese planes dropping bombs upon airborne US bombers when they were approaching the targets. It became particularly noticeable when phosphorous bombs were used, but when high explosive bombs were used, it was unlikely that the exact bomb dropping procedure would be noticed. These two types of operations (see figures, San-Go and Ta-Dan bombing techniques) were used by the Japanese Navy fighters but apparently Japanese Army fighters did not adopt the practice. Occasionally, an aircraft would receive a direct hit and be lost, as happened to a B-24 over Balikpapan. There were occasional reports of phosphorous bombs being dropped during aerial operations in New Guinea and the Solomons. However, this technique was not used much until the Okinawa campaign operations.



VIEW from the FIELD

FAAR AIRMOBILITY TEST Second Lieutenant William P. Leavenworth

On 9 May 1979, members of the 1st Battalion (Vulcan) (Towed), 3d Air Defense Artillery, successfully air-transported a forward area alerting radar during a tactical field training exercise. The FAAR was providing alert warning for the tactical operations center (TOC) of the 2d Battalion, 503d Infantry. During the exercise, orders came in for TOC to relocate and the FAAR section was given a warning order to be prepared for an air assault operation. Upon receipt of the order, the crew



The hook-up man about to discharge the static electricity from the Chinhook prior to hooking up the 5-kw generator trailer.



The 5-kw generator being lifted off.



The FAAR being lifted off.

deenergized the system, put it into the air lift configuration, attached the slings and spreader bar, and installed the truss kit.

The lift was completed in two sorties by a B model Chinhook. The first sortie took the 5-kw generator with trailer and the second one took the Gama Goat and the FAAR.

To prepare for the air assault movement, the Battalion had requested air transportability data from the Air Defense Board and received current information on the subject from Fort Eustis. Everything was soon ready to begin testing the air lift procedures.

In testing the rigging procedure, a 10-ton crane was used to lift the FAAR. No problems were encountered so we had a Chinhook lift a FAAR and carry it around a drop zone. This test was also successful and the FAAR platoon was now ready for the final test.

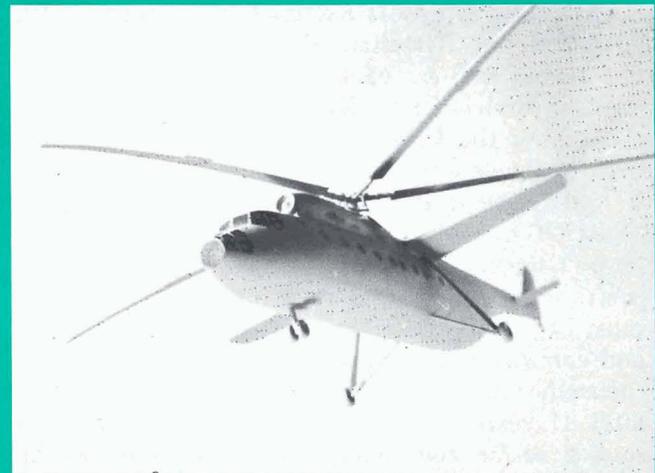
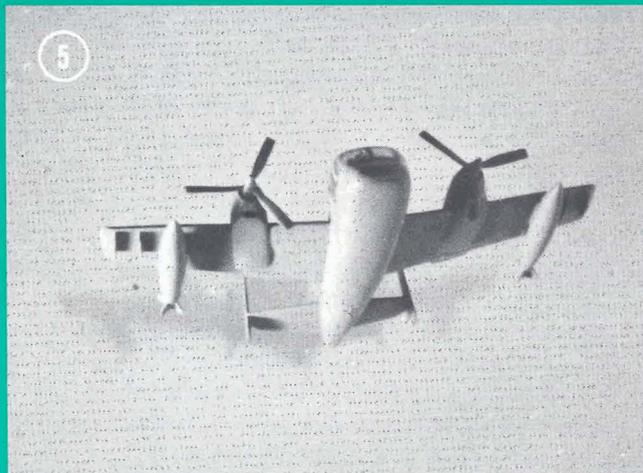
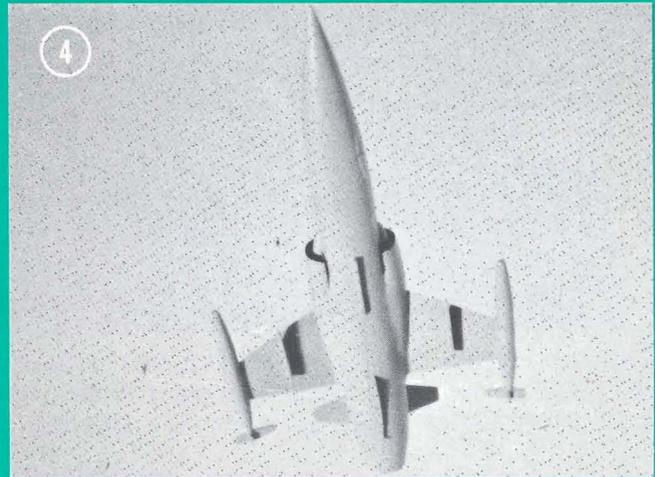
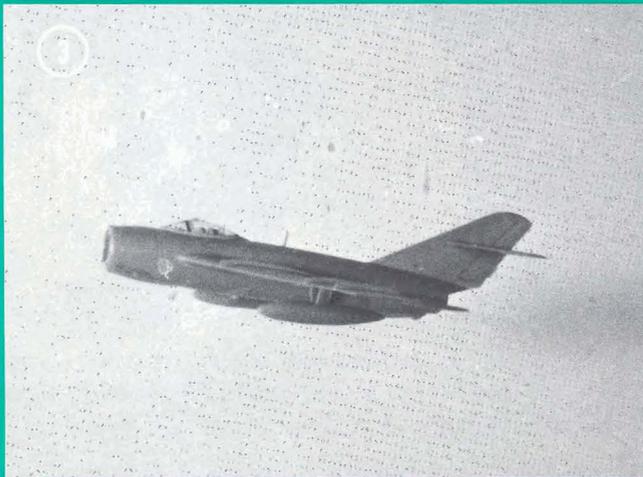
The actual air assault move took less than 2 hours to complete and covered a distance of more than 15 kilometers. The move went smoothly, with both the FAAR and crew arriving at the landing zone without damage or injury. The 1st Battalion (Vulcan) (Towed), 3d Air Defense Artillery, is now ready for any airmobile requirements the 101st Airborne (Airmobile) Division may have.



AIRCRAFT RECOGNITION QUIZ



Can you identify these aircraft?
(Answers on page 45.)



ARMY'S TOP DRILL SERGEANT

This year's top honors for the outstanding Drill Sergeant of the Year 1979 went to an air defense artilleryman. Sergeant First Class Robert E. Hall, Fort Bliss, Texas, was named the Active Duty Drill Sergeant of the Year.

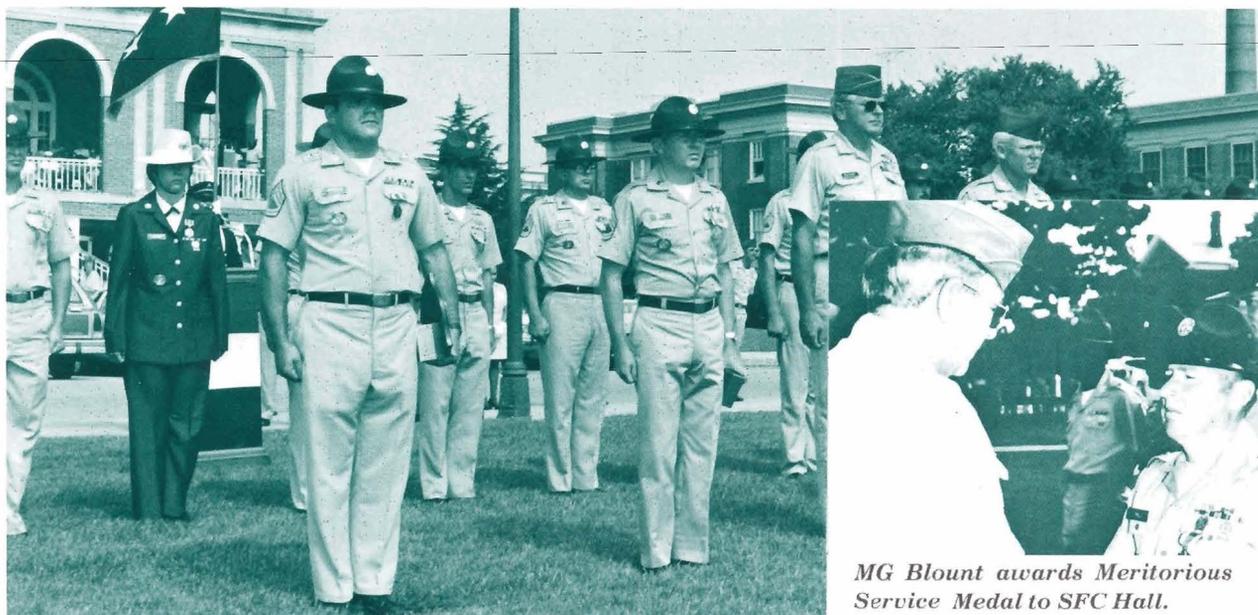
All of the 10 Active Army and 13 Army Reserve drill sergeants competing were already winners, having been selected as the top drill sergeant at their local commands prior to entering the Training and Doctrine Command's final competition. The task of selecting the two honorees from this elite group fell to an Army selection board which personally interviewed each of the 23 candidates.

The drill sergeant is more than the individual who teaches new soldiers to march. To the new recruit, he

is the United States Army. He meets the new enlistee at the reception station and guides the fledgling soldier through the critical weeks of basic training. The drill sergeant has primary responsibility for the training and administration of the new soldier.

To a 40-50 person basic training platoon, the drill sergeant is instructor, drill master, counselor, motivator, and evaluator as the recruits are introduced to the intricacies of military life — discipline, leadership, esprit de corps, military bearing, customs, and traditions.

The Army recognizes the importance of drill sergeants by authorizing additional pay and allowances for those who have qualified. Their distinctive campaign hats also set them apart from



MG Blount awards Meritorious Service Medal to SFC Hall.

This year's Active Duty Army Drill Sergeant of the Year, SFC Robert E. Hall (front row, second from left), views the Drill Sergeant of the Year Ceremony with MG John B. Blount, Chief of Staff, TRADOC; Haywood F. Wren, TRADOC CSM (to Hall's left); and SFC Edward C. Morris, Jr., Reserve Drill Sergeant of the Year.

other noncommissioned officers.

SFC Hall, who was assigned to Battery C, 4th ADA Training Battalion (Forward Area Weapons), has been a drill sergeant for about a year. With 11 years of service, he has had air defense assignments throughout the United States. Oversea tours have been in Korea and Germany. Speaking of training, in which the drill sergeant is the cornerstone of TRADOC's training mission, SFC Hall said, "The entire noncommissioned officer corps will have to be professional to train these people. Army training must begin in basic training with the drill sergeant and committee group cadre and cannot stop until the soldier leaves the military. If I am still learning after 11 years of service, why should we expect a soldier to be completely trained as soon as he

graduates from basic training or advanced individual training? I see myself and the rest of the noncommissioned officer corps as a saving grace in today's Army. We can help the recruits by setting realistic standards which we insist they meet. We must be ready and able to assist them when necessary."

As the Active Duty Army Drill Sergeant of the Year 1979, SFC Hall will receive the Stephen Ailes Award — named for the former Army Secretary who established the Drill Sergeant Program in 1964. The ceremony will take place at the Pentagon later this year. SFC Hall has been reassigned to Headquarters, TRADOC, as an adviser to the command on initial entry training and also as a point of contact for other drill sergeants and the headquarters.

OSUT PARTICIPANTS COMMENT

Bonnie Corrice

What do you get when you combine basic training and advanced individual training in the Logan Heights area of Fort Bliss? The 1st ADA Training Brigade has the answer. It's One Station Unit Training (OSUT).

OSUT puts the enlistee through 228.5 hours of basic training and 284 hours of MOS training to graduate a capable air defense soldier.

In the basic training phase, soldiers learn rifle marksmanship, drill and ceremonies, tactical training, and baseline physical training.

Major emphasis in OSUT is directed toward the soldier's MOS. Those MOS taught by the Brigade are part of the 16 series career management field. Something new has been added for personnel with a maintenance MOS (24-series). They now take operator training on the system they will eventually maintain in addition to the normal MOS training.

Battery A, 4th Training Battalion, graduated the first OSUT class at Fort Bliss in June this year. According to 1st Sgt James E. Fields, the unit's 65 soldiers also led the way as the first to participate in a field training exercise involving Chaparral, Vulcan, and Redeye.

Another first for OSUT was the inclusion of women trainees. Drill Sergeant Timothy A Kissire, from Battery C, 2d Training Battalion, said of men and women training together, "The training hasn't been appreciably varied to accommodate women. I see no adverse attitudes from either men or women. The women are really giving it their all; they hate to fall out or quit."

With the addition of women soldiers in OSUT, the arrival of women drill sergeants has also taken place. One of these women drill sergeants, SFC Margaret Nater, trains troops for Battery A, 2d Training Battalion. She says, "I haven't run into any special



Pvt. 1 Gonzales

problems because of the fact that I'm working with male trainees and a male cadre. If the trainees give me a hard time, I straighten them out soldier to soldier. If the other 'drills' hassle me, I hassle them right back."

But who better than OSUT soldiers can discuss the training they receive? Two soldiers: PVT1 Dolores M. Gonzales and PVT1 Theodore P. Stilwell, both from Battery B, 2d Training Battalion, are recent graduates from OSUT. Gonzales, an Albuquerque, New Mexico, native, joined the Army "for a change and education."

"Travel, mental and physical conditioning, and education" were the benefits Stilwell listed as incentives to join. Private Stilwell, who hails from Syracuse, New York, said, "I was active in sports during school and I looked forward to the physical training."

Gonzales chose MOS 16H (Operations and Intelligence Assistant) while Stilwell selected 16B (Nike Hercules Missile Crewman). Both said ADA sounded "challenging" and they were ready to test themselves.

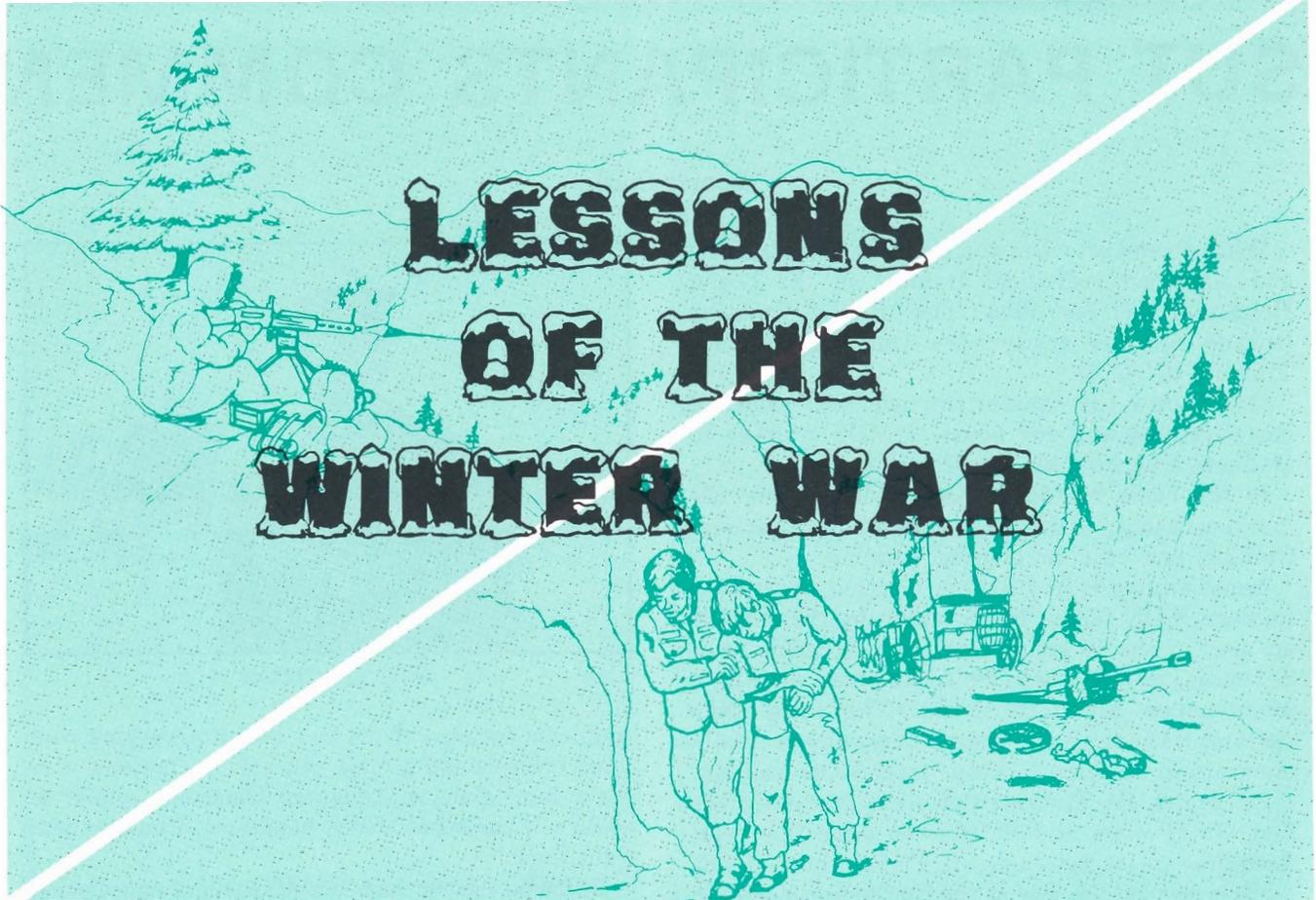
"I wanted to be with other females during training, but being with men has worked out," Gonzales said. Stilwell added, "I'm very proud of the women. They did well throughout OSUT."

Both soldiers had only one complaint. Stilwell commented, "There's so much to learn and not enough time. Our 13 weeks flew by." He continued, "There wasn't much time to write letters or polish our boots." Gonzales said, "There was a lot to do with lots of tests."

Both agree, however, that OSUT has paid off. Gonzales said, "It feels wonderful to be finished and now I'm ready." Her counterpart added, "I'm ready to go out and put the skills I've learned into practice."



Pvt. 1 Stilwell



Captain Roger L. Vogel II

As the commander looks out over the peaceful European countryside and watches for movement across the border, attack seems imminent. While he sees only the usual border guards, he knows that a massive Russian buildup is already in progress. The number of Soviet troops gathered along the border is staggering, and their front line forces outnumber the defenders in every category. The Russian Air Force, too, holds great air superiority and will probably dominate the battlefield.

The local forces are alert and ready. They'd better be. There will be no reinforcements except from overseas; i.e., the US or Great Britain, and these cannot be counted on. A blitzkrieg — Soviet-style — is about to begin.

But this is not Germany, and the defending forces are not NATO Allies. The time is November 1939 and the field commander raising his glasses to look at the border is Finnish. That Soviet attack came within a matter of days and in the first 3 months of pitched fighting, the Finnish ski troops, attacking the flanks of the road-bound Russians, fought a series of brilliant battles and delaying actions. They were so successful that, even though they had been limited to strategic defense from the outset of the war, the enormous number of casualties they inflicted on the Russians forced Stalin to offer

Finland a favorable armistice rather than continue the bloodbath. The Finns knew how to “fight outnumbered and win.” I think the bloody lessons of the 1939-1940 Winter War should be studied by our military leaders in Europe who today face almost identical tactical circumstances with the Warsaw Pact forces.

There are several lessons of the Winter War that seem especially appropriate to US forces today. The Finns were masters in the use of key defensive terrain. Also, the Finns practiced a sort of elastic defense not unlike the active defense tactics US generals may be called upon to employ. The Finns would often retrograde, using key terrain expertly to inflict terrible losses on advancing Soviet rifle and mechanized forces, while suffering only light casualties themselves. Frequently, they would leave the Russian attackers totally exhausted by nightfall and then launch a furious night counterattack which would regain some or all of the ground lost the day before. Seldom were there reserve forces available to the Finns who had very little field artillery and whose ammunition supplies were small. More importance was placed on small barrages of timely, well-planned, accurate artillery fire than on mass barrage tactics such as the Soviet's attacks, which sometimes went on for hours without causing any appreciable casualties. The Finns knew how to make

the most out of what they had.

Perhaps the most interesting lessons of the Winter War were those dealing with air defense. The reader must remember that during the Polish campaign earlier in 1939, the Luftwaffe achieved air supremacy quickly and terrorized cities, especially Warsaw, with impunity. The prophets of air power such as Billy Mitchell and Giulio Douhet seemed correct in their predictions about the overwhelming power of a modern air force.

Scarcely 3 months later, the largest air force in the world, the formidable Soviet Air Force, attempted to bomb the will to fight out of the Finnish population. They failed utterly, beaten not by anti-aircraft guns or fighter interceptors but by a skillfully employed passive air defense.

The Finnish Air Force of 1939, composed of some 60 usable aircraft, was ineffective against the 500 first-line aircraft employed by the Russians. Front-line units had very few anti-aircraft guns, since most had been sent to the rear. The Soviets enjoyed complete air supremacy but never seemed to be able to put it to maximum advantage. By constantly using clever camouflage, existing concealment, and maximum possible dispersion, the Finns rarely offered the Soviet Air Force a good target. Frequently, deception was used to trick the Russians into bombing dummy troop concentrations and fortifications. The Finns had good small unit control and discipline, which enabled them to accomplish any necessary moves at night. In addition, they frequently conducted their attacks at night, thus negating the Soviet air advantages. These tactics spared the Finns numerous casualties in the face of a serious air threat. These same techniques could easily be employed by units engaged in any conflict in modern-day Europe.

The limited active air defense of the Finnish Army provides modern military leaders with an excellent example of an important air defense concept—mass. The Finnish strategy was to employ all available anti-aircraft assets in the concentrated defense of the capital, Helsinki. Rather than spread their assets very thinly through the battle area, as the Poles had done earlier against the Germans, the Finns massed their meager forces at one key target and achieved staggering results. It is estimated that the anti-aircraft defense of Helsinki cost the Soviet Air Force more losses in 3 weeks than the Luftwaffe lost during the entire Polish campaign. By the end of the third week of the Russo-Finnish War, the Soviets would bomb the city only from the semisecurity of high altitude, which limited accuracy greatly. The Finnish anti-aircraft defense had earned great respect.

The technology of war has changed markedly since 1939-1940, but the lessons learned then still merit attention. The courage displayed while executing difficult operations in the face of a superior enemy, and the innovativeness shown in quickly developing effective air defense tactics in a totally new environment, coupled with intelligent tactical decisions, enabled the Finns to use limited resources to accomplish a nearly impossible task. Today's military leaders would do well to study the Winter War and the tactics used by the Army of Finland, the only nation ever to survive the mechanized Soviet juggernaut.

Captain Vogel wrote this article while a student in the Air Defense Artillery Officer Advanced Course. Upon graduation, he was assigned to the Tactics Department, US Army Air Defense School, Fort Bliss, Texas.

ANSWERS TO AIRCRAFT ID QUIZ

Photo 1: MRCA Tornado. The MRCA (Multirole Combat Aircraft) Tornado is being developed for use by NATO forces. It is a variable geometry wing aircraft and exists in interceptor and ground attack/interdiction versions.

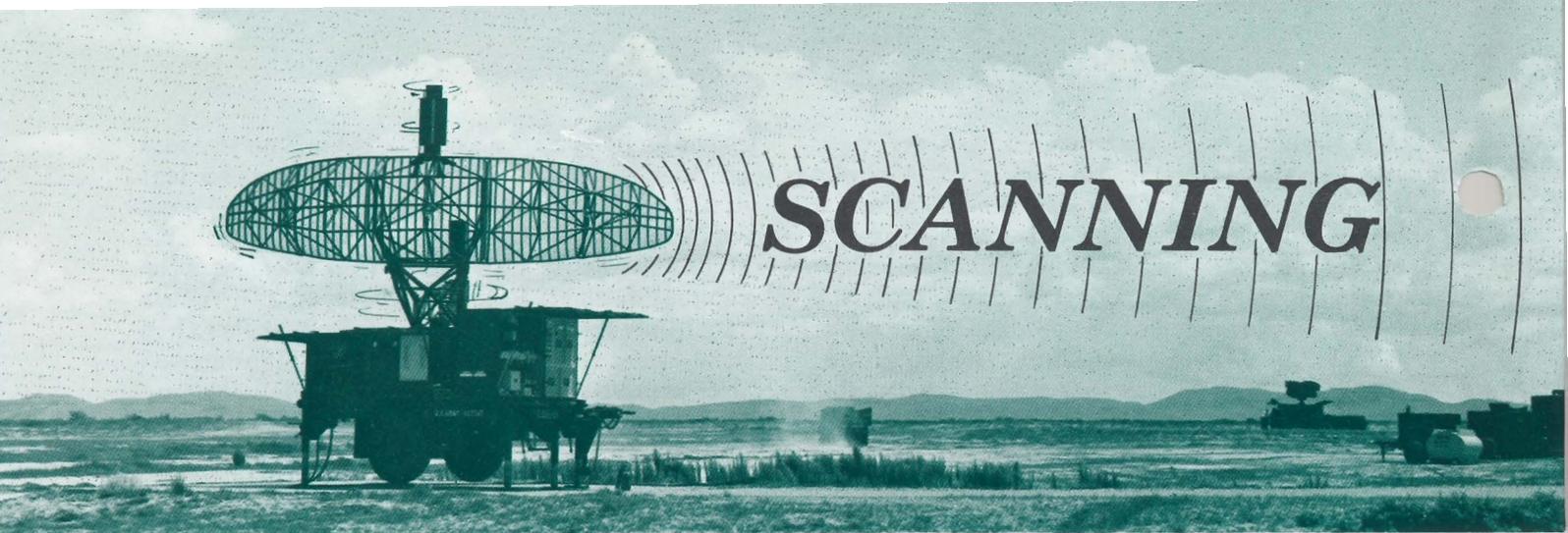
Photo 2: A-4 Skyhawk. The Skyhawk has long been a standard attack type aircraft in use with US and Allied forces. It was originally designed for the US Navy and still serves with US Marine Corps and US Naval Reserve units.

Photo 3: MiG-17 Fresco-C. This Soviet fighter was originally flown in the 1950s but still remains in service in many air forces of smaller nations. In addition to the standard fighter version (Fresco-C), radar-equipped interceptor versions armed with guns (Fresco D) or missiles (Fresco E) also exist.

Photo 4: F-104 Starfighter. The Starfighter was originally designed as a point defense interceptor (F-104A) for the US Air Force. Later versions still serve in front-line service as fighter-bombers as well as interceptors with several NATO countries and Jordan and Mexico.

Photo 5: OV-1 Mohawk. This is a US Army observation and surveillance aircraft used for battlefield reconnaissance. It is often seen with a side-looking aerial radar (SLAR) pod attached to the lower right side of the nose.

Photo 6: Mi-6 Hook. The Hook is a Soviet-built, heavy-transport helicopter. It is quite large, being about as long as a C-130 Hercules. Hooks are used extensively by the Soviet Union for airmobile operations.



Q-73 MCPE SYSTEM

Eleven years of engineering development have resulted in a toxic-free environment for the crew of the most advanced Army air defense command post yet devised. The AN/TSQ-73 Missile Minder will soon incorporate the modular collective protection equipment (MCPE) system developed by the Chemical Systems Laboratory.

The MCPE system is designed to provide an environment free of chemical and biological contamination. Protection for the Missile Minder crew is maintained by over-pressurizing the shelter, thus causing a continuous leakage of filtered air outward and preventing outside airborne contaminants from entering the shelter.

The air supply to the Missile Minder shelter and protective entrance is filtered by both gas and particle filters. The resulting protection means the individual soldier need not wear a protective mask or restrictive clothing, thus enabling him to work in a more comfortable environment.

Future applications for the MCPE system include the tactical fire (TACFIRE) direction system, the Patriot program, as well as communications centers, medical shelters, and rest and relief areas.

Current plans call for a two-man Army team from Edgewood Arsenal to go to Germany as technical advisers and to aid in the training and installation of the MCPE into the Missile Minder systems for the European-based Seventh Army.

The AN/TSQ-73 Missile Minder is a flexible command and control system that can be easily reprogrammed to combine the features of a surface-to-air distribution unit, a command and control center of manned interceptor vectoring, or an air traffic control system. The Missile Minder provides control, coordination, and management of the US Army air defense activities at battalion and group levels. With the addition of the MCPE, the Missile Minder has a new and vital defensive feature to add to its versatility and effectiveness.

AD TARGET REQUIREMENTS STUDY

The US Army TRADOC System Analysis Activity (TRASANA), White Sands Missile Range, New Mexico, is conducting an Air Defense Training Targets Performance Requirements Study for the US Army Air Defense School (USAADS). The final report will be USAADS' Training Target Input to the Target Management Office, Redstone Arsenal, Alabama.

Air defense weapon systems will be analyzed to determine which functions performed by the system can be translated into operator-performed or monitored tasks.

Postulated threat capabilities will be compared with weapon system functions and operator tasks to

determine threat capabilities that must be provided by aerial targets.

External parameters such as environment, gunnery range, and electronic warfare restrictions will be considered in determining the specific performance requirements for each air defense weapon system training target.

The training target requirements will be placed in categories and compared with characteristics of existing aerial targets. Those training target requirements which cannot be met with current targets will be identified for possible target modification or new target development.

The final report will be published in late 1979 with findings announced to the field.

PATRIOT TRAINING

Soldiers who will conduct operational tests on the Patriot missile system this fall have been training at White Sands Missile Range, New Mexico.

Graduation ceremonies for the 90 soldiers involved in the training were conducted 28 July 1979. About two-thirds of the soldiers are assigned to the Patriot Test Operations Office of the Army Materiel Test and Evaluation Directorate at White Sands. The rest are members of the 4th Battalion, 62d Air Defense Artillery, Fort Bliss.

The training, which included both classroom instruction and hands-on practice in the field, was designed to acquaint the soldiers with the Patriot air defense missile system. Operational testing, to be done at the national range this fall, should demonstrate that Patriot meets all design requirements and can be operated effectively and maintained in the field by the troops.

All training was conducted by contractors from the Raytheon Company of Bedford, Massachusetts. Raytheon was awarded the Army contract to build



HANDS-ON TRAINING — SSGT Thomas A. Todsen uses both hands to operate the Patriot air defense missile system's data link terminal. The terminal acts as the communications system between the Patriot's radar and launcher station. Assisting Todsen is SGT Ramiro Herrera. All soldiers here are assigned to the Patriot Test Operations Office of the Army Materiel Test and Evaluation Directorate at White Sands.



THE END RESULT — A Patriot air defense missile exits its launcher station at White Sands Missile Range. During recent training, soldiers were taught all aspects of how to operate and maintain the Patriot system.

the Patriot system. Martin Marietta of Orlando, Florida, a system subcontractor, also had civilians at White Sands for support in field repair and maintenance of equipment they built for the system.

Patriot is billed as the Army's air defense system of the 1980s. The surface-to-air missile system is planned for both battlefield and continental air defense. It is designed to simultaneously detect, identify, and destroy large numbers of attacking high-performance aircraft or short-range missiles.

The system is highly mobile and capable of being mounted on tracked or wheeled vehicles. A Patriot fire unit will contain a radar unit, engagement control center, electric power plant, antenna mast group, and up to eight launcher stations.





ENLISTED CAREER NEWS

INDIVIDUAL AND COLLECTIVE TRAINING THE LAST 9 YARDS

Training our soldiers in individual tasks is not left to chance. It is the basis on which our army training system functions. It is no secret to the graduate of advanced individual training or the squad leader who receives the newly trained soldier that he is just a novice in the profession of arms. His resident training must be reinforced at the unit through individual training, crew drills, and squad, section, platoon, and battery collective training.

Vince Lombardi, the former, great coach of the Green Bay Packer's Football Team, put a successful team together year after year based on several sound principles of training and a concept of professionalism. These same principles can be applied to our profession with even greater emphasis because our goal is not only to win but also to be prepared to defend the country and preserve lives while performing our mission.

Lombardi's principles:

- Be a professional.
- Know your opponent.
- Commit yourself to total effort.
- Be confident in your ability.
- Pursue your goals with zeal.
- Practice, practice, and more practice.
- Give it your second effort.

As soldiers, let us look at this formula from a training point of view.

Be a Professional

Our training system tells you what tasks must be mastered to begin the climb to professional status. The plan and steps to professional status are not

hidden, they are contained in the soldier's manual for you to use.

Know Your Opponent

You are told what to expect from an opponent. Our scouts have provided this information to you in our play book, the How-To-Fight Manuals. So the use of the How-To-Fight Manuals will give you the game plan of the opponent.

Commit Yourself to Total Effort

You joined the Army for a variety of reasons, but key among them was to discover success. Success is measured in a variety of ways. In football it is a winning score. In the Army, promotion and recognition are just two external measures of success. The real key to success is your own satisfaction of completing a job that YOU know you gave total commitment to accomplish. The skill qualification test (SQT) is a measure of individual success. The Army evaluation and training program is a measure of collective success in peacetime. The SQT is not just a measure of you against your peers but a measure of you against your total commitment or effort — one rung on the ladder to success.

Be Confident in Your Ability

The design of our training programs involves a go/no-go or pass/fail criteria. It isn't meant to fool you. It is meant to show you that you have the ability to perform the task — a go.

Before scrimmage with the team, the linebacker practices with a tackling dummy to gain confidence, develop style, and improve his agility. His training

progresses from the simple to the complex. Your training follows the same principles. You gain more confidence in yourself every time you achieve "a go" in training because you are progressing from the simple tasks to the more complex collective tasks. It doesn't make a bit of difference if the training is in a TEC lesson in the field or a performance check at the School. The desired result is to demonstrate your ability to develop your confidence.

Pursue Your Goals With Zeal

As things stand, we are going into the next war outgunned and outnumbered. However, training will make the difference. The professional football team goes into a ballgame convinced it will win. The team that does win is better-trained, takes advantage of the opponent's errors, and pursues the common goal to win with zeal. Half-hearted efforts are out. Your zeal will be reflected in your professionalism, which will be a product of the army training system's total commitment to train you to the peak of individual combat efficiency. All the training support products are provided to build your zeal to soldier. Look at the visual evidence. Look around. Your unit commander is a graduate of the Officer Advanced Course. The platoon leader completed West Point (4 years) or ROTC (4 years) or Officer Candidate School and the Officer Basic Course, and a weapon system training program.

The first sergeant and platoon sergeants are graduates of the Advanced Noncommissioned Officer Course (ANCOC). Your squad leader or section chief has completed the Primary Leadership Course or the Primary NCOC and/or the Basic NCOC.

You completed basic training and advanced individual training. As professionals, all are pursuing these goals with zeal. The Department of the Army zeal is reflected in its commitment to these resident courses. It doesn't end there. The Training Extension Courses and the Army Correspondence Course Program reflect more commitment to supporting your pursuit toward your goals with zeal. All the necessary equipment and tools are there to help you over the last 9 yards — and more.

Practice, Practice, and More Practice

Doing a task one or two times will not make you an expert.

The professional football team works out individually, in special units, as the offensive team, defensive team, kicking unit, and punt-return unit. Skull sessions meet to chalkboard plays and discuss assignments and opponent's possible actions. They scrimmage again and again to perfect drills and plays; this they do day after day to sharpen their skills individually and collectively.

All leaders know that practice is required for individual and team (unit) proficiency. All must practice to be experts because being experts or professionals is the cutting edge to the game plan. Practice gives you the added sense of well-being and the confidence necessary to attain personal and team success in your mission and the mission of your squad, section, or platoon. Your professional commitments must be honored if you are to gain self-respect and dignity. Hours of sincere practice reviewing the technical manual, soldier's manual, TEC lesson, and crew drill have paid off. No one has to tell you that you did a great job — you know it. Training or practice really isn't a pain in the neck. It is the route of the professional to success.

Give It Your Second Effort

The guy in top mental and physical condition is capable of second effort. Second effort doesn't exist within the abilities of those marginally prepared. It is the product of self-discipline and the reflection of self-confidence in your own ability and zeal. "I did my share and more to prepare for this mission," is your claim. Your achievement is reflected in the successful completion of the ARTEP, ORTT, Tac Eval, and Annual General Inspection — back to back, if required. You can take pride in your ability because you gave it that second effort in training.

You picked the Army and yet the Army picked you just as the professional teams pick their bonus players, because both have something to offer each other. Mr. Lombardi's formula for a professional fits the soldier with ease. The pay is better with the Green Bay Packers, no doubt about that; however, the stakes are greater in the Army. In the military profession we must train harder because the options, in combat, are reduced to life or death. From general to private, we are required to give greater commitment to training.

Soldier, understand your job. Your commander and unit leaders must train you and polish your skills learned in resident training. The Army must provide you with the training plan, training support, and evaluations to insure the quality of training. This is equally true in the School as it is for your unit. You can find all of the training and training support materiel you need in the field. Talk to your squad leader, section leader, platoon sergeant, platoon leader, first sergeant, and unit commander. If you are not getting trained, tell them sincerely and respectfully. Believe this — they will be encouraged with your zeal and it could be contagious.

Remember, whether it's on the battlefield or on the football field, it's the ability to make that last 9 yards that will determine victory or defeat.



BARS to STARS

OPMD UPDATE

CHANGES IN EDUCATION PROGRAM

Changes in the Army Officer Education and Training System were announced by the Army Chief of Staff recently. The changes will be implemented over the next 10 years and will affect all levels from precommissioning programs through career completion.

Some key changes include:

- Improved accession assessment in medical, physical fitness, motivation, and leadership areas of ROTC scholarship and ROTC cadets applying for contract status.

- Creating an office to develop legislation and identify funding to test alternatives to the current 4-year ROTC program.

- Developing military qualification standards (MQS) for each officer entry level. These MQS will provide the basis for early career development of officers in both school and unit environments.

- Reviewing the lengths and compositions of the existing officer basic and advanced courses based on further training analysis.

- Creation of a 9-week combined arms and services staff school at Fort Leavenworth, Kansas.

This school will provide staff training to officers soon after they are selected for promotion to major.

These changes are the result of a study directed by the Army Chief of Staff that began in August 1977.

CIVILIAN SCHOOLING UPDATE

The following is an update of the officer civilian schooling programs for FY 80. Selection for graduate study is designed to meet specific Army requirements in predetermined disciplines. Prerequisites for selection are an outstanding performance record, entry specialty qualification, and an academic record which will support an officer's designated (or anticipated) course of study. All officers interested in graduate schooling should contact their management division, or the civil schools officer, to determine current shortage disciplines (Army requirements) prior to submitting an application: Company Grade, Combat Arms Division, MAJ Magaw, AUTOVON 221-7818/7819. This advice is also applicable to those officers who, because of a PCS, are unable to complete a degree being pursued during off-duty hours.

Company Grade, Combat Arms Division, has 47 openings remaining in the following disciplines for fully funded, advanced civil schooling during FY 80.

Selected officers study for a period up to 18 months and are required to serve a 3-year utilization tour immediately following graduation. If interested, call as directed above and/or apply under the provisions of Chapter 4, AR 621-1, 6 May 1974.

| Discipline | Quotas |
|--|--------|
| Command, Control, Communications | 2 |
| Procurement | 1 |
| Operations Research/Systems Analysis | 16 |
| Analysis (ENG) Comptrollership | 6 |
| Auto Data Processing (Engineering) | 1 |
| Guided Missile Engineering | 1 |
| Organizational Eff/Personnel Mgmt | 3 |
| Electronics Engineering | 1 |
| Nuclear Physics | 1 |
| Engineer Nuclear Effects | 1 |
| Area Studies | 10 |
| Education Mgt/Curr Design | 2 |
| Geodetic Science | 2 |

| | |
|--------------------------------|---|
| Aeronautical Engineering | 0 |
| Journalism | 0 |

Combat Arms Division also has openings for officers to enter graduate school for the purpose of obtaining a Masters Degree and remaining at the same institution to serve a 3-year tour as an ROTC instructor. In cases where a university does not have a masters program, the graduate degree will be pursued elsewhere. If interested, call and/or apply under the provisions of AR 621-101, 1 May 1974. Officers must study in one of the shortage disciplines

listed above.

Undergraduate schooling (Degree Completion Program) is currently available to officers whose records support promotion and retainability. Consideration is generally limited to those officers who have completed the Officer Advanced Course and can complete the degree in 12 months or less. Civil schooling applications (see AR 621.1, 6 May 1974) are accepted any time and remain in your Career Management Individual File (CMIF) until you are selected, notified of nonselection, or otherwise become ineligible.

TWO-WAY OER COMMUNICATION

The new officer evaluation report (OER) system will increase two-way communication between the officer and his rater through the use of Support Form, DA Form 67-8-1.

Within the first 30 days of the rating period, the officer and rater will be requested to use DA Form 67-8-1 as a guide to discuss the officer's duties, responsibilities, and performance of objectives. The form will also serve as a guide to the officer's performance and the rater's counseling and coaching during the rating period.

When completed, the form will reflect the officer's duty description, major performance objectives, and any significant contributions. The rater will comment on the accuracy of the duty description and performance objectives.

The form then accompanies the officer's OER through the rating chain. It is eventually returned to

the rated officer after it is read and considered by the senior rating official.

When properly used, DA Form 67-8-1 will provide the following benefits:

- Increase the officer's awareness of his job responsibilities.
- Provide performance information to the rater from the rated officer's point of view.
- Will provide the rating officials with a more complete and valid evaluation.

Instructions for using the Support Form, DA 67-8-1, are contained in AR 623-105.

The Army will change to the new OERs 15 September through 1 November 1979. Officials advise that virtually all officers will receive one final OER using the current form during this transition period.

GI BILL EDUCATIONAL BENEFITS

Some officers are having difficulty in getting GI Bill benefits approved through local Veterans Service Centers, say officials at The Adjutant General Center (TAGCEN).

Earlier this year, it was announced by TAGCEN that officers who entered the Reserve Officers Training Corps program before 1 January 1977 and were commissioned and served on active duty before 2 January 1978 were eligible for educational benefits under the GI Bill.

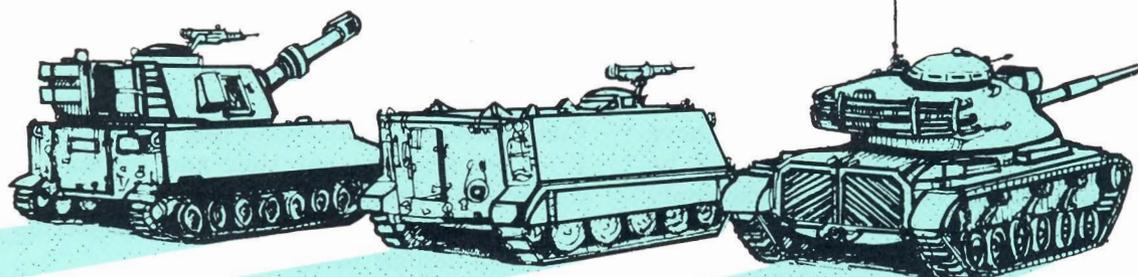
The Veterans Administration (VA) announced the new policy in Change 9, Appendix P, DVB Circular 20-76-84, in April 1978. Veterans Administration officials say that the change has been circulated throughout the VA organization but that those officers having difficulties should refer the Veterans Service Center officials to the new circular. The

circular has also been distributed to Army installation education services centers.

The GI Bill, which provides servicemembers with up to 45 months of financial aid of education programs, was replaced with the Veterans Educational Assistance Program (VEAP). The old GI Bill was ended by Public Law 94-502 for persons entering the service after 31 December 1976. The new VEAP requires that servicemembers contribute to their own education benefits. The VA provides two dollars for each dollar set aside by the soldier for post-service education.

The ruling applies only to officers who took part in ROTC programs before 1 January 1977 and served as officers before 2 January 1978.





7TH AIRBORNE ACCS

The 7th Airborne Command and Control Squadron (ACCS) was born September 1965 at Tan Son Nhut Air Base in what then was South Vietnam. The unit was created to provide aircraft that could act as extensions of ground-based, tactical air control operations. Each of the organization's aircraft could provide command and control over tactical aircraft for air-to-ground support of friendly forces.

Seven such aircraft (C-130, four-engine turboprops) fill the squadron's roster. The planes have been modified to carry an airborne battlefield command and control center (ABCCC) capsule. The 40-foot capsule, which weighs close to 20,000 pounds, costs \$1.4 million per copy. It contains 16 airborne battle staff positions, 20 different radios, secure teletype and voice communications capability, and automatic radio relay capability.

The airborne battle staff includes a minimum of 12 people encompassing 9 specialties. Command is held by a lieutenant colonel in charge of overall operation. A battle staff operations officer and four controllers assure proper assignment and direction to target of tactical aircraft. An air targets officer and an air intelligence technician keep the battle staff updated on current intelligence, insure that pertinent rules of engagement are followed and, if

necessary, assist in validation of targets. Finally, there are two radio operators, a teletype operator, and a maintenance technician for the ABCCC capsule.

In 1966 the 7th ACCS was moved from Tan Son Nhut to Da Nang Air Base. However, enemy rocket attacks reached such intensity that the unit relocated to Thailand, at Korat and Udorn. In 1974 the 7th moved to Clark Air Base in the Philippines, followed by a shift in 1975 to its present home at Keesler AFB, Mississippi.

The 7th ACCS played an important role in the conduct of air operations during the Vietnam war from 1965 to 1972. During that time, the squadron had a minimum of two aircraft airborne 24 hours a day. The squadron operated as an extension of the 7th Air Force Tactical Air Command Center at Tan Son Nhut.

In 1975 the 7th ACCS acted as airborne mission commander for the evacuations of Phnom Penh, Cambodia, and Saigon. Later that year, the squadron filled the same role in the recovery of the merchant ship *Mayaguez*, which involved the US Marine assault on Koh Tang Island.

Recently, the 7th ACCS visited Portland and took part in a joint exercise with the 153d Tactical Air Control Center and 116th Tactical Control Squadron.

NATIONAL TRAINING CENTER

Fort Irwin, California, has been selected as the site for the Army's National Training Center (NTC), according to a DA announcement.

Fort Irwin was selected over Twentynine Palms Marine Corps Base, California, and Yuma Proving Ground, Arizona.

The NTC will be used by combat battalions of the Army for training. By 1984, 42 battalions plus support units, totaling about 30,000 soldiers, will rotate through the NTC for 2-week training sessions each year.

Fort Irwin has about 640,000 acres, and is isolated from densely populated areas. The varied and rolling terrain offers realistic battlefield environment for training. Fort Irwin currently is used primarily for annual and weekend training of units of the California National Guard and Army Reserve. Despite the activation of the NTC at Irwin, National Guard and Reserve training will continue.

Fort Irwin is located amid Death Valley, Bakersfield, San Bernardino, and Needles in Southern California.

IMPROVED PHOENIX

The first of 15 engineering development models (EDM) of the improved AIM-54C, Phoenix air-to-air missile (prototype), has been delivered by Hughes Aircraft Company to the US Navy Pacific Missile Test Center at Point Mugu, California.

Hughes Missile Systems Group is upgrading the radar-guided Phoenix to meet anticipated airborne threats through the 1990s under provisions of a Naval Air Command contract. The current model, the AIM-54A, now carried on the Navy's F-14 Tomcat fighter, is the service's primary long-range air defense weapon, and regarded as one of the world's most technologically advanced tactical missiles. According to the contractor, the improved Phoenix incorporates a new digital electronics unit which will be more flexible and have greater reliability than the analog unit which it replaces.

Improvements to the AIM-54A include a solid state transmitter/receiver unit that has increased capability over the klystron tube now in use. A new target-detecting device, being developed by the Naval Weapons Center at China Lake, California, will give the Phoenix AIM-54C an increased effectiveness against a broader range of targets.

All 15 EDM missiles delivered to the Navy will be captive-flight tested. This testing involves exercising

the missile's on-board electronics and computer functions under the stress of a high-speed flight environment without actually firing it.

Following the captive-flight tests, 12 of the developmental models will be launched against various targets to verify the missile's overall performance. The first firing is scheduled for late this year. The joint Navy/Hughes tests of the EDMs will continue until the end of 1980.

The first production model of the improved AIM-54C Phoenix is scheduled to be shipped from Hughes' Tucson, Arizona, manufacturing facility in 1982, with deliveries of approximately 1,400 anticipated through 1990. There also is a possibility of retrofitting the 2,000 AIM-54A Phoenixes currently in the Navy inventory with the new AIM-54C electronics.

As many as six Phoenix missiles can be launched against six separate targets from a single F-14. Targets may range from small, highly maneuverable aircraft or missiles through larger high-speed threats. In more than 140 flight tests and Navy operational launches, the AIM-54A Phoenix has had an 85 percent success rate, including a hit on a target at a range of more than 100 nautical miles.

NAVSTAR GLOBAL POSITIONING SYSTEM

Magnavox Government and Industrial Electronics Company has been awarded a \$63.7 million contract from the Air Force Space and Missile Systems Organization (SAMSO) for full-scale engineering development (Phase IIB) of signal receiver sets for the Navstar Global Positioning System. The Navstar System is designed to permit worldwide, all-weather, and day-or-night navigation with an accuracy of 10 meters (33 feet).

Magnavox will miniaturize receiver sets so that they can be placed on operational systems requiring Navstar accuracy in the decades ahead. Vehicles for which navigation sets are to be designed include F-

16, A-6, B-52 aircraft, submarines, aircraft carriers, tanks, and helicopters.

When the Navstar program is fully operational in the late 1980s, 24 satellites are expected to be in orbit, 10,900 nautical miles in space, beaming signals to earth. To receive the signals, an operator pushes buttons on his set which will automatically select the four satellites most favorably located, lock on to the signals, and compute and display the navigation information.

The Army, Navy, Defense Mapping Agency, and some NATO member countries are participants in the program's development.

NEW AIR FORCE PLANES

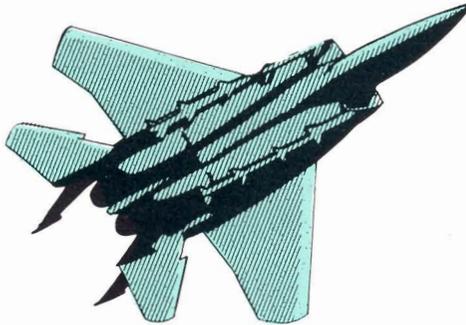
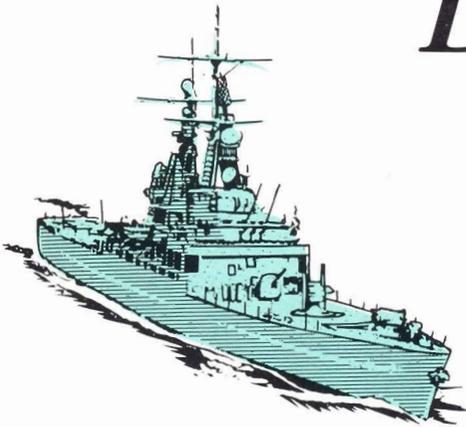
The Tactical Air Command is gaining 324 new aircraft which will be distributed to 4 air bases. The planes are F-15s, F-16s, and A-10s. The air bases to receive them are MacDill AFB and Homestead AFB, Florida; England AFB, Louisiana; and Nellis AFB,

Nevada.

The planes being replaced by the new aircraft are the F-4s, RF-4s, and A-7s which will be released to Air Reserve and Air National Guard units.



DEVELOPMENTS



AIR-LAUNCHED CRUISE MISSILE

The air-launched cruise missile (ALCM) flyoff between competitive Boeing and General Dynamics models began in mid-July and will continue through December 1979, with some 30 flight tests of each design over parts of California, Nevada, and Utah.

The first 10 tests will be captive carry flights — that is, the cruise missile will direct its B-52 missile carrier over a predesignated route to test the missile's guidance system. The next 10 will be free-flight launches from the sea off the California coast to the Utah Proving Grounds some 1,400 nautical miles away.

Elaborate safety precautions have been taken for these flights over the western part of the US. Included are FAA-approved routes over sparsely populated areas, F-4 chase planes with positive control over the missiles, and a parachute system in event of chase plane failure.

The purpose of the tests is not only to find out which company has the best missile but also which is

the cheapest in terms of total life-cycle cost. The subsequent production run involves 3,000 missiles worth \$1 million each, for a total, with spares included, of \$3 billion.

Contract selection is expected in the February-March 1980 time frame. The first B-52 with ALCMs won't be on alert until December 1981, and it will be yet another year before the first Air Force squadron with ALCMs will be operational.

Both cruise missile models are similar in size and performance, and they share the same type engine. The General Dynamics model looks somewhat like an aerial torpedo with an air scoop on bottom, while the Boeing design has a rounded triangular cross section with an air scoop on top.

Both are small, subsonic, pilotless jet aircraft, harking back to the early missile era. Their self-contained, electronic guidance systems with terrain avoidance radars make the big difference — a high degree of accuracy to the impact area.

TAWDS

A target acquisition and weapons delivery system for defense against mass armor attack is being developed by Hughes Aircraft Company's Radar Systems Group. The defensive system will detect and track enemy armor at long range, then guide air- and ground-launched missiles to critical target areas. The new tactical concept, called target acquisition weapons delivery system (TAWDS), is part of a broader assault breaker program, designed to defeat enemy armor before it moves into a battle area.

TAWDS consists of a long-range, airborne radar with a data link to a ground-based, data processing and control station. The side-looking radar uses a scanned-array antenna that will function in real

time during all weather conditions. Capable of detecting fixed and moving targets, the airborne radar sends surveillance, detection, and tracking information via data link to the ground control center. The ground station evaluates the threats, computes guidance commands, and sends task information to air and ground missile-firing units.

Once a missile is launched, TAWDS' radar guides it to the target area.

Hughes has been awarded a \$12 million contract by the US Air Force Rome Air Development Center and the Defense Advanced Research Project Agency to develop and test TAWDS. The new system uses radar to seek out targets over a selected surveillance area.

GENERAL SUPPORT ROCKET TESTS

Vought Corporation, aerospace subsidiary of The LTV Corporation, successfully ripple-fired 13 general support rocket system (GSRS) rockets from the self-propelled launcher loader (SPLL) in 4 separate tests in June and July. Vought is one of two finalists in the US Army's GSRS competition.

On 2 July, six rockets were ripple-fired — or fired from the launcher in rapid succession. In other tests, two rockets were ripple-fired on 26 June, three on 21 June, and two on 12 June. Vought engineers said the system can fire its entire 12-rocket salvo in less than 1 minute.

Each of the rockets measures 4 meters (13 feet) in length and 227 millimeters (9 inches) in diameter. During ripple-fire operation, they are quickly and automatically fired by the fire control system, which

repositions and reaims the launcher loader module after each shot.

In a 2 July firing all six rockets were ripple-fired from the same launch pod container. The container is an important feature of the GSRS. It contains six rockets, preloaded and sealed into the launch tubes of the container. The loaded container will have a 10-year storage life without requiring any special environmental protection or any field maintenance.

The highly mobile SPLL is designed to carry and launch up to 12 rockets from 2 launch pod containers. Vought has launched more than 50 GSRS rockets at White Sands Missile Range, New Mexico. All firings since 30 March have been from the mobile launcher, which is designed to permit battlefield troops to fire quickly, move away, reload, and fire again.

AD BATTLE SIMULATION

The 4th Infantry Division (Mech), commanded by MG Louis C. Menetrey, has fulfilled the requirement for "realistic" air defense play in battle simulation exercise, that has existed for many years. The 4th Battalion (C/V), 61st Air Defense Artillery, under the command of LTC Domenic P. Rocco, Jr., has developed an air defense battle simulation model which can be used at all command levels of CPX play within the division. It is called "Raider."

The model was developed around the battle simulation game Pegasus, but can be adapted to most other battle simulations with little or no modification. Most air defense models that were developed were either highly sophisticated R&D types or overly simplified versions such as the Pegasus, First Battle, and Dunn Kempf.

The objectives used when designing the Raider were:

- Make real-time evaluation possible.
- Evaluate critical areas of an engagement —
 - Detection.
 - Identification.
 - Crew capability.
 - Maintenance.
 - Mobility.
 - Suppression.
 - Weapon capability.
- Develop the highest resolution possible.
- Develop ways to assess hostile aircraft damage on friendly targets.

The objectives, less real-time play, were realized through the use of programable calculators. The

"real-time" delay has been the calculator's inability to process the data rapidly.* With the planned use of a computer, the real-time objective will be met easily. The model evaluates the following areas:

■ Early warning. For our purposes a random-numbers generator with a positive response 25 percent of the time gave this input. Any value can be substituted in the generator or "live" data could be used equally as well.

*It must be noted, however, that during a division CAMMS exercise, it was much faster, with greater resolution, than any of the air defense modules used before.

■ Probability of participation. Based on the course of the aircraft and the location of the air defense system in relation to the aircraft's intended target, what is the probability that a crew would be adequately prepared to engage the hostile aircraft? The aircraft courses evaluated are ingress, target area, and egress. (The values here were selected from classified sources and, therefore, beyond the scope of this article.)

■ Movement. For the purpose of this test, a random-numbers generator selected a value of movement based on the fire unit's proximity to the FEBA and type of weapon system; i.e., Redeye and Vulcan movement is more probable than Chaparral, and both Redeye and Vulcan have a shorter reaction time than Chaparral. The random-numbers simulation was selected primarily to save manpower. This information could be obtained from the playboard if player resources are available.

■ **Maintenance.** Again, a random-numbers generator makes a comparison against the known division operation readiness rate for the item of equipment evaluated.

■ **Weapons control status.** This is a test of the crew/gunner; can they determine if the target aircraft meets the hostile criteria defined by the weapons control status in effect? The values used for positive response were:

- Weapons Free — 90 percent
- Weapons Tight — 60 Percent
- Weapons Hold — 10 Percent
- Self-Defense — 99 Percent

Any air defense weapon within 500 meters of the hostile aircraft's target was considered to be firing in self-defense.

■ **Suppression.** This is a test to determine if an air defense weapon was unable to fire due to hostile fires other than aircraft or nonlethal suppression such as IR flares, radar jamming, etc. (Values used were derived from classified sources.)

■ **Range.** A determination by vectors whether or not the target aircraft's course is within the maximum effective range of the air defense system.

■ **Probability of kill.** Based on engagement methods outlined in appropriate field manuals, this is the probability that the air defense weapon will kill the hostile aircraft target. (Values were obtained from classified sources.)

■ **Battle damage assessment.**

— **Versus target.** Each platoon-size element within the division is assigned a numerical value based on how critical it is to combat and its vulnerability to air attack. Each hostile aircraft is assigned a numerical value for its capability to inflict damage on ground targets (a combination of amount and type of ordnance and delivery systems).

— **Versus ADA.** The OPFOR commander has the option of reserving air assets for suppression of enemy air defense (SEAD) missions. In our development study, 25 percent of the hostile aircraft available was reserved for on-call SEAD missions.

Additionally, 25 percent of all hostile aircraft sorties returned fire upon engaging air defense weapons. (BDA effectiveness tables were extracted from classified sources.)

The air defense battle is controlled by using an "extra" control board located away from the CPX ground play/controller board. Here the ADA systems' locations and hostile aircraft flights are plotted. An engagement sequence is activated when a hostile course comes within visual detection range of an air defense system based on the early warning status for that flight. The weapon system identifier and location are entered into the calculator and areas 2-4 are evaluated. If the weapon passes these tests, the aircraft and course identifiers are entered into the calculator and the remainder of the area is evaluated. If any of the areas (2 through 8) are failed, the reason for failure is provided to the calculator operator. Engagement (successful and unsuccessful) information is passed to the platoon/battery command posts where it is acted on as the commander elects.

The total time required to process one flight of hostile aircraft to and from a target located in the division area averaged 25 minutes. Our goal is 10 minutes (the minimum time, experience indicates, it will normally take to pass the same information from squad to battery under combat conditions).

This air defense battle simulation provides the means of providing realistic data about squad-level engagements to the battery commander during command post exercises. The percentage of hostile aircraft "killed" of those engaged has been approximately 35 percent during the four battle simulations which were conducted in the 4th Infantry Division (Mech). With the incorporation of a "true" computer into the model, the information will also be provided on a "real-time" basis. The computer will eliminate the need for a manually operated control board. Machine processing time will be greatly reduced over the programable calculator.

AN/ALQ-144 JAMMER

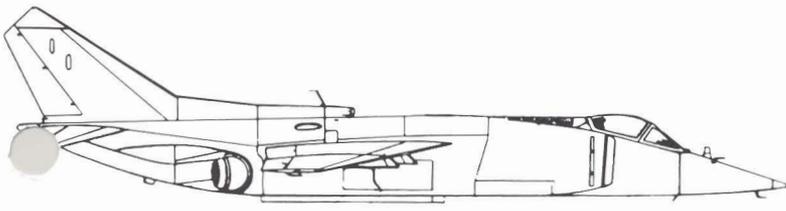
A contract for nearly \$11,700,000 was awarded by the Army Electronics Research and Development Command (ERADCOM) to Sanders Associates, Inc., Merrimack, New Hampshire, for production of the AN/ALQ-144 jammer. The contract calls for production of 450 units to be delivered in 18 months. The AN/ALQ-144 is a small, lightweight, omnidirectional, infrared (IR) jammer designed to protect small- and medium-size Army helicopters

from both ground-launched and air-to-air IR missile threats. It has four configurations, each consisting of a transmitter and control unit weighing less than 30 pounds.

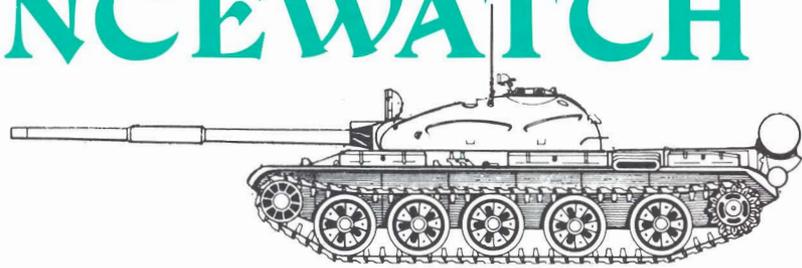
Development of the jammer has been under the direction of ERADCOM's Electronic Warfare Laboratory.

— from *U. S. Army Electronics Research & Div. Command*





INTELLIGENCEWATCH



SOVIET AIR DEFENSE

The Soviets have long realized the aviation threat to their forces — both high-performance aircraft and helicopters. For air defense, they have followed four paths.

The first is to provide self-protection to individual vehicles. Both the T-55 and the T-62 tanks were originally fielded *without* the dual purpose, turret roof machineguns. The 12.7-mm machinegun was *reinstalled* on the T-55 and the newer T-62 has a recast turret to accept a 12.7-mm mount, while both tanks mount a coaxial machinegun. Infantry carriers also had gun turrets installed.

The second path is the use of electronics and electronic countermeasures. New developments in fire control and ECM equipment have kept air defense systems current and increased their effectiveness.

The third path is to continue to develop and deploy mobile anti-aircraft systems. The ZSU-23-4 anti-aircraft gun system is the latest, appearing in 1965. Its all-weather capability is derived from an

on-board fire control radar and director, featuring components designed for effective employment in EW environments. It is also capable of direct fire against personnel and light armor. A moving target indicator to eliminate ground clutter, extensive backup options, and redundant subsystems make the ZSU-23-4 a formidable and versatile threat to close air support and Army Aviation.

The fourth path to air defense, the tactical surface-to-air missile family now ranges from the hand-held SA-7 at company level to the high-altitude SA-4 at army and front levels. Regiments now appear to have four SA-9s and associated command and control vehicles to complement the organic battery of ZSU-23-4s. The SA-9 employs a modified wheeled reconnaissance vehicle as the transporter erector launcher supporting four missiles in pods on launcher arms. The SA-9 is probably heat seeking, possibly with a cooled detector and proximity fuzing.

— *Armor*

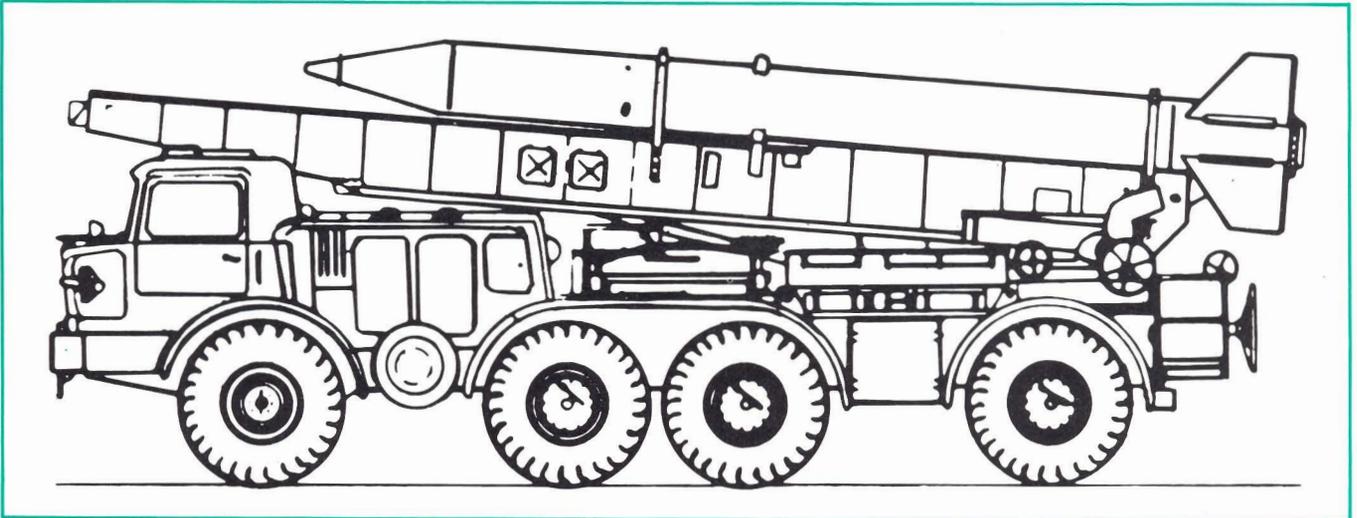
SOVIET THEATER "NUKES"

"The Soviets have undertaken a substantial and sustained program to modernize and expand their theater nuclear forces," Secretary of Defense Harold Brown said recently, following the NATO Nuclear Planning Group's (NPG) 25th annual meeting at Homestead Air Force Base, Florida. Doctor Brown pointed out that the long-range component of Soviet theater nuclear forces is being increased in capability and also in numbers of warheads by the deployment of SS-20 missiles and the Backfire bomber. "In our judgment, that effort does go well beyond what could be explained as meeting a reasonable defensive need," the Defense Secretary said. "I think that NATO needs to respond to avoid

a situation in which that unbalance in theater nuclear force capabilities becomes unmanageably large, but the appropriate nature and timing of the response must be an Alliance decision, and an Alliance decision both on modernization and parallel component of effort on arms control of long-range theater nuclear forces."

Doctor Brown pointed out that the NPG meeting was not designed to reach decisions, but that the interchange which took place did provide the basis for the Alliance to move forward toward a collective conclusion on modernization of long-range theater nuclear forces.

FROG-7



Description: The FROG-7 is the latest addition to the "Free Rocket Over Ground" family of unguided, spin-stabilized, short-range (battlefield support) artillery rockets. It employs a new transport-launch vehicle, designated Z1L-135, which carries an onboard crane on an eight-wheeled chassis. A similar vehicle is used to transport reserve rockets. The rocket is of conventional single-stage design, with a cylindrical warhead of the same diameter as the rocket body, giving it a clearer, more modern appearance than its predecessors.

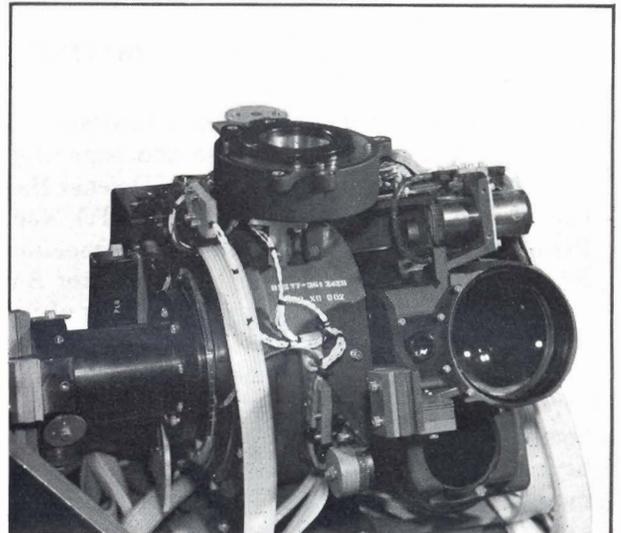
Capabilities: The range of the rocket is 60 kilometers (km), and the cruising range of the transporter-erector-launcher vehicle is 500 km. The

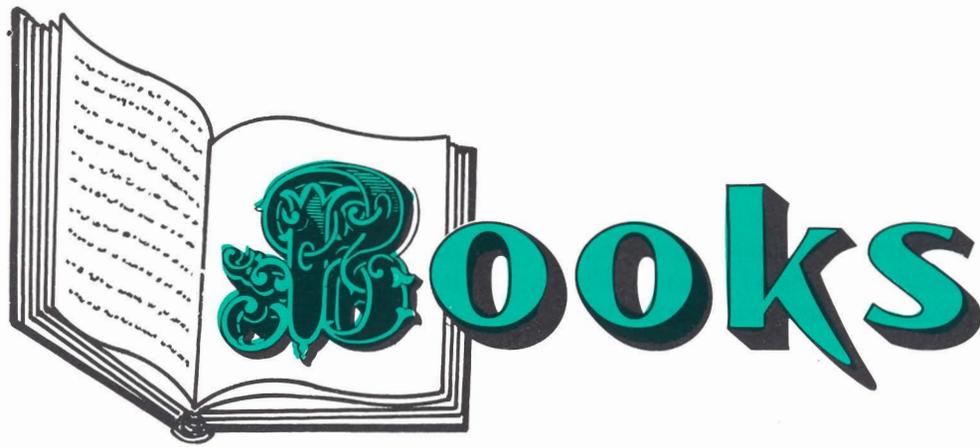
FROG-7 is capable of delivering high-explosive, nuclear, or chemical warheads. It may be found in the FROG battalion of Soviet divisions.

Remarks: The FROG-7 first was introduced in 1967 and since has been replacing earlier FROG variants, some of which had been in service since the mid-1950s. The FROG-7 originally was the counterpart of the US Honest John system. The Honest John has since been replaced with the Lance and Pluton missiles. The FROG-7 is to be employed against troop concentrations, logistics support facilities, enemy reserves, helicopter staging areas, and targets of opportunity behind the enemy's first echelon forces.

TOW TELESCOPIC SIGHT FOR BRITAIN

Shown here is the gimbal assembly of the telescopic sight unit for the TOW antitank missile system being installed on Britain's Lynx helicopter. Hughes Aircraft Company recently delivered the first of 12 preproduction sight units and associated TOW missile system control equipment that will enable the Lynx to destroy tanks. The British Ministry of Defense is arming the Lynx with the system for service with the British Army Air Corps in the 1980s. Hughes is developing the Lynx TOW system for the Ministry of Defense and its prime contractor, British Aerospace Dynamics Group, Stevenage/Bristol Division.





MOUNTED COMBAT IN VIETNAM, by General Donn A. Starry, Vietnam Studies Department of the Army, Washington, D.C., 1978, 226 pages.

Mounted Combat in Vietnam is one of a series of volumes (22 in all) prepared from firsthand accounts of the Vietnam conflict by senior officers who were there. This particular volume was written at Fort Knox, Kentucky, between 1973 and 1976. The book was completed by a task force under the direction of General Starry, then Commander of the Armor Center and Commandant of the Armor School. General Starry's book reports on the role of mechanized equipment (Armor) during the Vietnam War.

According to General Starry, the full potential of armor in combat was never fully exploited or realized in that conflict, certainly not during the first years of the war. This was due to the unsuccessful experience of French armored forces used in Southeast Asia some years earlier. Also because some military, including some Americans, believed that armored units would be at a disadvantage and incapable of moving effectively over rice paddies and against guerilla operations. Weather conditions in the area were supposed to prohibit armor operations and many military planners were of the opinion that tanks were not flexible enough to deal with an elusive enemy such as the North Vietnamese.

According to General Starry, the Army determined from a series of studies that armored cavalry was probably the most cost-effective force on the Vietnam battlefield. The book reports on a large number of tank battles, the success of which changed drastically the thinking of many on how very successful tank warfare could be in Southeast Asia. According to the book, mounted combat in Vietnam emerged as a powerful, flexible, and essential battle force.

In General Donn A. Starry's book, *Mounted Combat In Vietnam*, the power of armor in combat, when properly employed, is a powerful tool in the

hands of the commander. He also reminds us of the many lessons learned from Vietnam, including the use of armor. While this is not a full-fledged review of the book, it is intended to serve as a strong recommendation to armor personnel and students of Vietnam history to read the book. It contains many excellent action pictures, maps, and other illustrations.

GORDON GAMMACK: COLUMNS FROM THE THREE WARS, by Gordon Gammack, Iowa State University Press, 1979. 150 pages, \$10.95 (Illustrated).

"Lasting historical interest and elucidation of the American fighting man's experiences were the criteria for selection of columns to be included in this book." These columns were written by the author as a war correspondent while living among the combat troops along with such other noted war correspondents as Ernie Pyle of Scripps-Howard, Peter Arnett, Hal Boyle, and Don Whitehead of Associated Press, Keges Beech of the Los Angeles Times, and Victor Jones of the Boston Globe.

In a war there are various levels of activity, from the politicians and commanding generals down to the foot soldier, the G.I. Not many correspondents write about the guy in the sand and mud, but Gammack focused on them.

Arranged in the order that they were published, the historical columns recapture the drama of the moment and make it all seem real again to those who experienced combat in any of the three wars, (WW II, Korea, and Vietnam). He pursued Iowa G.I.s from the division headquarters books to regimental headquarters; then to the battalion, the platoon, and into the foxhole. Even though Gammack concentrated on soldiers from his home State of Iowa as he trudged the combat zone, his reports could be about any soldier from any state and do, in fact, include many others. The Iowans and the others all stood tall together.

Revealing our troops' experiences, comments, and

behavior (in carrying reports through the three wars), the author, intentionally or not, has provided the historian a record of emotional and value changes that finally evolved in the frustration, lack of discipline, and contempt that no doubt contributed to our dismal withdrawal from Vietnam.

The columns vividly describe all measures of pain, suffering, anguish, courage, valor, and death experienced or displayed by our men, both as fighters and as POWs. Almost impossible accomplishments under almost unendurable circumstances are portrayed in language that only a person living among the troops could be moved to utter.

This is one of those books that you hasten to get back to when circumstances force you to put it aside.

B-29 SUPERFORTRESS AT WAR, by David A. Anderton, Charles Scribner's Sons, New York, 1978. 176 pages, \$17.50

The B-29 Superfortress is best known as the bomber that dropped the first two atomic bombs. It is also well known for the famous fire raids against Japan which destroyed that country's industry and war-making ability. But other than these two notable accomplishments, surprisingly little has been written about this bomber, especially when compared to the other US "heavies" of WW II, the B-17 and B-24.

This new book, in the "At War" series, goes a long way toward correcting this shortage of information. In this reviewer's mind, the book is the most complete work on the B-29 that is generally available. It's all there, aircraft development and technical data, use in the Korean War as well as the Second World War, interesting crew reports, special versions, the atom bomb missions, and much more. The narrative is both informative and enjoyable. It is supplemented with extensive use of excellent photographs from many sources, including the personal scrapbooks of the men who were there "at war" with the B-29. The captions of the photos do more than just explain what the picture is. They add insight to what is happening in the photo, tell the history of the aircraft pictured, or in some other way supplement the narrative with more than just a mere description of the photo.

This is the best book in the "At War" series that this reviewer has seen, and it has to be one of the best researched, written, and thought-out books on military aircraft that has ever been written.

Regardless if the reader is an aviation historian, reading for adventure, researching military history of WW II, or a modeler in need of information for building a scale model of the B-29, this book has it

all and is highly recommended. The only things about the B-29 that are not mentioned are the use of the aircraft as the KB-29 tanker and how the basic air frame was used as the basis for the B-50/KB-50 aircraft. But this is of small consequence when one considers the value of what is included and how well it is presented.

DEADLY MAGIC, by Edward Van Der Rhoer, Charles Scribner's Sons, New York, 1978. 225 Pages, \$9.95.

The U.S. Government's interception and code-breaking of Japanese communications in World War II was not only one of our most top-secret strategies but an indispensable part of the US Navy's victory in the Pacific. In **DEADLY MAGIC**, Edward Van Der Rhoer tells the revealing story of his personal involvement in the Navy's OP-20-GZ, the secret intelligence group responsible for decoding and translating Japanese military and diplomatic communications. Our knowledge of Japan's exact military plans, minute by minute, resulted in surprise U.S. attacks and triumphs in the Battle of Midway, at Guadalcanal, in the destruction of almost the entire Japanese supply fleet, and in the dramatic ambush of Admiral Yamamoto's plane.

Miraculously, the Japanese never discovered that the Americans were reading their top-secret messages. All the intercepted material (codename: Magic) was guarded by our Communications Intelligence under the tightest security, and only a select group of men — Roosevelt and his top advisers — was allowed to read Magic. As the war progressed, Japan did not attribute its cumulative, devastating naval defeats to an American knowledge of her secret code. But, as Van Der Rhoer shows in fascinating detail, this was probably the single most important factor in Japan's final defeat. **DEADLY MAGIC** is a distinguished addition to the history of the Second World War.

A footnote:

The author tempers the theme of his story with this quote by the great author, educator, and statesman, George F. Kennan: "No other people, as a whole, is entirely our enemy. No people at all — not even ourselves — is entirely our friend."

HOW TO BECOME A CIVILIAN AND SUCCEED IN YOUR NEW CAREER, by **RADM John D. Blich**, USN (Ret), CS Publications, 8383 Center Drive, Suite K, La Mesa, CA 92041. Soft cover, 201 pages, \$8.95 ppd.

This new, unique guidebook is the first ever published for service people that reveals, in detail, how to make a successful transition to civilian life

and the right career through proven approaches that have already helped many to achieve their goals.

Authored by RADM John D. Blich, USN (Ret), a nationally known authority on post-military career placement, this valuable guide examines every facet of how to locate and land "the right job." It begins with a series of self-evaluation questions to help readers pinpoint their optimum skills, work interests, and civilian career goals. It also explores such issues as: Should you be self-employed? In what locale do you want to work? What type and size company do you want to work for?

Readers quickly learn how to formulate an effective plan of action, make useful contacts, and uncover job leads. Detailed illustrations show how to write a professional resume and cover letter with ease, and how to fill out job application forms.

Also explained is how to promote job interviews and then how to approach them with total preparedness. Readers learn why "being selfish" — and having a third-party endorsement — can boost their chances for success. They also are shown how to put their best attributes to work throughout the interview, as well as how to be "the right person" for the job — and get it.

Of special value to readers who are considering more than one career or position is frank, candid advice on how to assure job permanence through a careful choice of career fields and how to compare company benefits and profit-sharing pension programs.

The book has been called an outstanding guide for career transition by both officers and enlisted personnel who are familiar with the work.

POSTAL HISTORY OF AMERICAN POWs: WORLD WAR II, KOREA, VIETNAM, by Norman Gruenzner, published by the American Philatelic Society, P. O. Box 800, State College, PA 16801. 144 pages, hardbound, \$12.40 ppd.

Although published by the nation's largest

organization of stamp collectors, Norman Gruenzner's "Postal History of American POWs: World War II, Korea, Vietnam," is not written solely for the postal history buff. Gruenzner's book reads easily, whether the reader is a postal history student, ex-POW, veteran of one of the three wars covered by the book, or just interested in military history.

The book focuses on the POW camps, mail routes and regulations, and mail sent and received, rather than on the technical aspects of each postal marking.

It contains what is believed to be the only compilation of every POW camp in which Americans were confined during the most recent three wars in this country's history. The work is meticulously researched, with more than 100 illustrations and 4 large maps to guide the reader to the exact location of any prison camp.

The author begins "Postal History of American POWs: World War II, Korea, Vietnam" by examining the history of POWs from medieval times through World War II. He also reviews the Geneva Convention of 1929 and its effect on the prisoner of war. In the second chapter, Gruenzner examines the problems and duties of the International Red Cross, especially relative to the Japanese in World War II. This chapter also reveals the Japanese attitude toward the prisoner of war, as well as their treatment of the POW.

Chapter three deals with mail regulations in Germany during World War II. The remaining 10 chapters describe treatment of prisoners, mail regulations, and the locations of various prison camps of the enemy during the three wars.

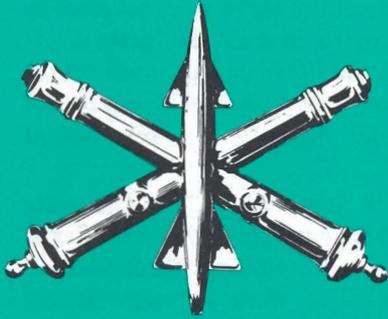
"Postal History of American POWs: World War II, Korea, Vietnam" is a detailed, analytical book. Not only does it locate prison camps and describe mail regulations, it also is personal, conveying the frustration of prisoners having their letters censored or their parents' letters returned to the US undelivered.

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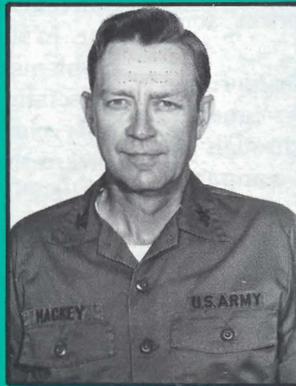
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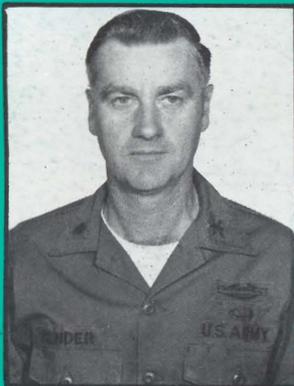


COMMANDING GENERAL
BG Victor J. Hugo, Jr.

38TH ADA BDE



DEPUTY COMMANDER
COL Wm. C. Mackey, Jr.



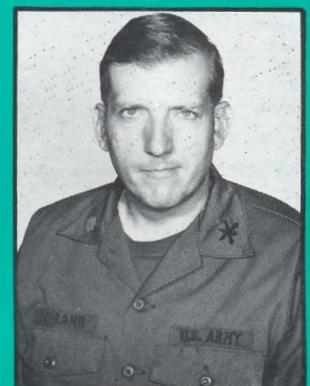
COMMANDER
1st BN, 44th ADA
LTC Lynn A. Bender



COMMANDER
2d BN, 71st ADA
LTC Decatur W. Morse



COMMANDER
1st BN 2d ADA
LTC Grady W. Barr



COMMANDER
Weapons Support Det
MAJ James D. Schramm