

**CONVENTION REPORT: AAAA CONVENTION IN ST. LOUIS**

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## Shaping the Future Through Modernization

by General Carl E. Vuono  
Chief of Staff, U.S. Army

(Excerpts of an address given during the 1988 AAAA Convention Awards Banquet in St. Louis, MO)

About five years ago, we decided to implement Army Aviation as a branch. I was privileged to be there at the time and remember what a great move it was. I remember some who were skeptical, but I also recall telling a group at Ft. Rucker that if we don't succeed, it's our fault.

But through much hard work and dedication on the part of many Aviation troops throughout the Army, I can report to you that Army Aviation as a branch is alive, is proud, is growing, and is improving every day. You have accomplished a great deal in a relatively short period.

First of all, you've established yourself as one of the combat arms branches. That took some doing, because we pulled Aviators in from a variety of branches and molded them together as a cohesive organization.

You've also made progress in developing and sustaining your tactics, techniques, and procedures. You have worked these out as part of the combined arms team, not just in isolation.

You participated in the transition to a set of new unit designs, the Army of Excellence series, that I believe has significantly increased the combat capability of Aviation in our Corps and in our Divisions.

### Splendid Training

At the Aviation School, moreover, you've developed courses of instruction to train our Aviators, from lieutenants through general officers and all ranks of warrant officers. I'm particularly proud of the accomplishments at Ft. Rucker, not only for the training of warrant officers and officers, but also for the splendid Noncommissioned Officers Academy.

Additionally, you've expanded and improved your unit training, training as members of the combined arms team — not just more narrowly as Aviators. I see this as I visit our Army in the field, and I see it as I visit our various combat training centers.

While you've done that, you've established tremendous safety records. I recognize that when we train, we train hard, and we train to high standards. In my view that's the key to safety — and nobody knows that better than Aviators.

Along the way, we've developed an outstanding corps of Aviation leaders, officers, and non-commissioned officers. Leaders who understand the meaning of tactical and technical competence; leaders who understand the meaning of commitment, dedication, competence, responsibility and selfless service.

You put that together and what you have is a very special team. A team that recognizes the importance of warfighting, that realizes the strongest deterrent that you can have in this nation is an Army that is ready to fight. An Army that is prepared for battle.

### The Future of Army Aviation

To maintain the momentum that we have in modernization, we must promote efficient development and acquisition strategies. That's going to take a team effort involving the Army, industry, and Congress. We've got to look at the most effective and the most economic systems. But let's make no mistake about why we modernize. We modernize to improve our combat capability.

The challenge is to pick the right programs and develop them for today and tomorrow, and I

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believe that the Army Aviation Modernization Plan that we're currently refining is a superb example of this strategy.

### **Improving Capability**

This plan concentrates and centers on warfighting and makes good common sense in terms of improving our warfighting capability. It is the centerpiece of our Army's modernization effort. Very simply, it focuses and prioritizes our ongoing Aviation modernization programs and lays out a strategy that enhances current capabilities as well as fulfills future system and organizational requirements for the Total Army Aviation force. It's got several parts.

First, we're going to continue the production of key systems: the APACHE, the BLACKHAWK, and the rebuilt OH-58s and CH-47s. We'll also acquire additional aircraft in support of our special operations forces.

In my view, this effort will provide the needed capabilities now to our highest priority active and reserve units.

Secondly, we'll product improve these fielded systems. Our plan is to periodically introduce modifications to those aircraft already in the inventory. This will work to protect our investment by keeping the warfighting capabilities of these systems in line with today's and tomorrow's battlefield.

We're also going to retire some aircraft that are no longer capable of surviving on the battlefield, or defeating the threat. As part of that process, for the first time I believe, we will establish the useful life criteria for the various types of airframes based on age and warfighting requirements. This will entail periodic assessments of our aircraft and the retirement of a significant number of airframes this year and over the program and budget years.

Now, this is a difficult step, but one that I think is necessary. I need your support to improve the overall capability of our Aviation force.

### **Research and Development**

The final part of the modernization plan is to continue the research and development of new systems for the 21st century. Central to this is the ongoing work on the light helicopter, the LHX, which is the centerpiece of our avia-

tion modernization strategy.

You know it well. It's a program that's received a great deal of attention over the last several years. It's a program that will set in place the next objective aviation system for the future. It gives us all something to shoot for. As a system, the LHX's enhanced capabilities will greatly add to our combat power and allow us to field our best affordable technology.

The LHX will be fully integrated into our overall warfighting system of systems. It will exploit advanced technologies in aircraft design, and give the United States the capability to defeat any enemy on the battlefield of the future. In short, it will be a lethal, agile, and survivable aircraft, capable of day and night operations under all combat conditions, regardless of the level of conflict or the region of the world.

The primary role of the LHX will be reconnaissance and attack, and the synergistic effect of the various new technologies we'll employ with that aircraft will provide the Army with an order-of-magnitude improvement of our reconnaissance and attack capabilities, compared to our current OH-58s, OH-6s, and AH-1s.

The LHX will team with the APACHE on the battlefield to enhance the lethality of our attack units. State-of-the-art target detection, designation, and acquisition systems will complement the firepower of the APACHE to provide us a fully integrated attack system.

To help us protect the LHX in the environment that it will be fighting in, it'll possess a defensive counter-air capability sufficient to defeat the growing number of threat helicopters intended for air-to-air combat.

As currently scheduled, we anticipate initial fielding of the LHX to occur in the mid 90's, and we're going to do everything in our power to stick to that schedule. I want you to know that I'm completely committed to the Army Aviation Modernization Plan and the timely fielding of the LHX.

### **Upcoming Challenges**

Now, I want to talk for a moment or so about some challenges that the Army and Army Aviation face.

The first challenge is to continue to concen-  
**(Modernization — cont. on p. 82)**



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The Guard, as part of the total force structure, needs the same equipment used by the active Army.

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## Aviation Readiness: The Spirit of '88

by Major General Ellis D. Parker, Chief,  
Aviation Branch and Commanding General,  
U.S. Army Aviation Center and Ft. Rucker, AL

On behalf of the members, family and friends of Army Aviation, I extend my sincere thanks to all of the people who made the 1988 AAAA National Convention one of the best ever. I offer a particular thanks to the Convention Committee for the enthusiastic "St. Louis hospitality" and professionalism displayed by all.

The 1988 AAAA Convention theme, "Aviation Readiness — The Spirit of '88," gives particular meaning to my comments this month. Despite the effects of the continuing budget cuts, we cannot afford to lessen Army Aviation combat readiness. We cannot sacrifice Army Aviation modernization goals, nor can we sacrifice the quality of training for our people. As Branch Chief, I will do everything in my power to see that aircraft production lines are kept open and that proper training is among the highest priorities of Army Aviation. This powerful mix of soldiers, equipment, and training is essential to victory on the AirLand battlefield.

In the February issue of ARMY AVIATION MAGAZINE, I touched on the realities of decreased funding levels and that training to meet new system/force modernization fielding plans would not be decremented. In this issue, I will bring you up to date on the effects of the latest budget cuts and highlight the Army Aviation Modernization Plan (AAMP). Making Aviation Readiness the Spirit of '88 will be a tough battle; but through strong determination, a lot of hard work and the concerted efforts of all aviation team members, we can make it happen.

### Additional Budget Cuts

The Army Aviation Center received further cuts to its fiscal (FY) 88 budget in late February, making this year's total budget now \$265 million — \$41 million less than the FY87's budget allocation.

The latest cuts will impact in the "undergraduate" Initial Entry Rotary Wing (IERW) Course and in the new systems training courses for the AH-64, UH-60, CH-47D and OH-58D. Previous reductions were in the "graduate courses," such as the Instrument Flight Examiner Course, Fixed Wing Qualification Course and the Rotary Wing Aviator Refresher Course. \*

The major impact area is the Army Aviation Center's lifeline, flight training, with a loss that began in April. This loss will equate to approximately \$12 million and 820 flight students. Added to the decrement that became effective in February, the FY's planned student load of 6,600 is reduced by one-third. There was a seven percent reduction in flight training hours from the new cuts, making a total of 17 percent reduction. As I stated before, flight students will be reduced but the "quality" of training will not. Aviation readiness will be sustained.

### AAMP

Another key to aviation readiness is the AAMP. We are currently finalizing an update of the FY86 edition of the AAMP to provide a strategy for equipping the aviation force with a modern yet cost-effective fleet. The overall thrust of the AAMP is to field a sustainable, fightable force capable of rapid deployment and maximum lethality, that meets budgetary and life cycle management goals. Through the application of modernization downsizing of the force, the current fleet of approximately 8,600 attack, scout, and lift aircraft will be reduced to approximately 6,500 new/modernized technologically superior systems, with near full force modernization being achieved by FY07.

The Army is committed to the modernization of its aviation force. The goals of the updated  
**(Readiness — Continued on Page 82)**



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## Time for Introspection: Flexibility vs. Constraints

by General Glen K. Otis, Commander in Chief,  
U.S. Army Europe and Seventh Army, and  
Commander, Central Army Group (NATO)

**T**he Army is now in the midst of a crucial period of transition as we enter a new era of diminished resources, only partial completion of modernization, post-INF concerns in NATO, and critical reappraisal of our national security strategy.

It is always timely for professional soldiers to reflect upon the lessons of the past and the problems of the present in order to develop a clearer vision of the Army for the future. Nowhere is this more imperative than in Army Aviation, because aviation's battlefield flexibilities and constraints as a member of the combined arms team are frequently unappreciated and misunderstood.

In a previous article in *ARMY AVIATION MAGAZINE*, I endorsed Brigadier Simpkin's assertion that "Rotor is to track as track is to boot." I challenged the readers to educate and train the commanders and their staffs on the capabilities of Army Aviation. The article compared the Army Aviation community of today to the tankers of the American Army in the 1930's. It argued that as the tankers used the period between the first and second world war for professional reflection and advocacy, so should the aviators of today prepare for the wars of tomorrow. Army Aviation has developed to the point where introspection is required.

### Critical Thought

Up front, be on notice that my intent is to provoke critical thought on Army Aviation's flexibility and on its limitations. Considerable progress has been made in educating the Army on aviation capabilities, but the Army as a whole does not yet fully understand nor appreciate the complexities of aviation constraints, so I will focus more on the latter. Caution! Do not mistake my critical remarks for an ill-informed attack on

Army Aviation. They represent the legitimate comments and questions of many ground commanders and their staffs. The challenge for Army aviators is to ask themselves these same difficult questions and then answer them for the rest of the Army. As the title of this article states, it is a time for introspection.

### Integration

Army Aviation can not cure all the problems of the modern battlefield. True, the AirLand Battle is incomplete without Army Aviation, but aviation must be properly integrated into the combined arms team. This integration is a constantly evolving process, since the combined arms team must be constantly adapting to a changing battlefield environment including new equipment and new threats. There is no room for complacency or doctrinal stagnation by anyone: infantryman, tanker, or aviator.

Aviators must be particularly innovative or we will fail to exploit the capabilities of new equipment and aircraft as combat multipliers. However, innovation in the present state of scarce resources will be a real challenge, as the current difficulties with the LHX program illustrate.

### The Threat

This is becoming all the more critical in light of Soviet advances in aircraft development and better tactics and techniques for aviation employment. The Soviets have built upon U.S. lessons learned and are undoubtedly learning their own in Afghanistan and Nicaragua, the most important of which seems to be the dramatic effect of shoulder-fired anti-aircraft missiles on helicopter operations. The recently developed Soviet Hokum air-to-air helicopter and the Mi-26 HALO heli-

**(Introspection — cont. on p. 84)**





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# Budget



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Maintenance  
Costs

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Reliability

UP 53%

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## Aviation Master Support Plan

by Lt. General Jimmy D. Ross  
Deputy Chief of Staff for Logistics, U.S. Army  
Washington, D.C.

As we head toward the year 2000, my mission as DCSLOG of the Army is to support and sustain warfighting readiness of the total Army now on a day-to-day basis and into the 21st century. A very important part of this mission is the support of Army Aviation as a vital member of the combined arms team. The chart below graphically portrays our Aviation Master Support Plan to accomplish this mission. I will highlight the long range thrust of high technological innovations in Army aircraft of the future, impact of the Aviation Modernization Plan, the very important question of overall affordability, and how we can arrive at all the foregoing with the essential element of quality in everything we do. It will be noted that the goal is to support and sustain aviation warfighting readiness into the 21st

century and the immediate objective is to assure a safe, reliable, maintainable, and affordable aviation fleet.

### High Technological Innovations

A major challenge of logistics is to take advantage of high technological innovations in order to arrive at a more supportable and affordable aviation fleet. With ever rising costs of Army equipment, reduced resources in men and money, it becomes ever necessary to take advantage of every high technology innovation to make these divergent paths come together. Here are some of the potentials:

- Composite materials which are lighter, stronger, more difficult to damage and easier to
- (Plan — continued on page 76)





## CALL FOR NOMINATIONS!

More than 3,900 AAAA members will elect candidates to the Army Aviation Hall of Fame in September, 1988 balloting. AAAA solicits your Hall of Fame nominations now!

An AAAA-sponsored **Army Aviation Hall of Fame** honors those persons who have made an outstanding contribution to Army Aviation over an extended period, and records the excellence of their achievements for posterity. The actual **Hall of Fame** is located at Ft. Rucker, Ala., where the portraits of the inductees and descriptive narratives are displayed.

Anyone may nominate a candidate. All persons are eligible for induction, except active duty military personnel. However, DACs are eligible prior to their retirement.

Nominations should be submitted to Chairman, AAAA Hall of Fame Committee, 49 Richmondville Avenue, Westport, CT 06880-2000, on or before **July 1, 1988**, and include:

- 1) the nominee's full name and address (if living);
- 2) a 75-100 word summary of the achievements for which the candidate is being nominated;
- 3) a current photograph (preferably in color) of the candidate, if living;
- 4) Additional background data NOT to exceed 1,500 words.

An eight-member **Board of Trustees** composed of members of the **Hall of Fame**, and chaired by **GEN Hamilton H. Howze, Ret.**, will meet this August and select a specific number of candidates from all nominees received.

The selected candidates, their qualifications, and their photos will be published in a ballot to some 3,900 AAAA members with seven or more years of current, continuous membership. These members will elect a specified number of inductees from those candidates appearing on the ballot.

The elected inductees will then enter the **Army Aviation Hall of Fame** in ceremonies held during an Induction Luncheon at the AAAA National Convention in Atlanta in April, 1989.

There are fifty-two current inductees in the **Army Aviation Hall of Fame**, of whom 36 are living. Forty-five of the fifty-two inductees are military members.

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## ST. LOUIS - '88



# 1988 AAAA CONVENTION HIGHLIGHTS



LTG Saint

MG Allen



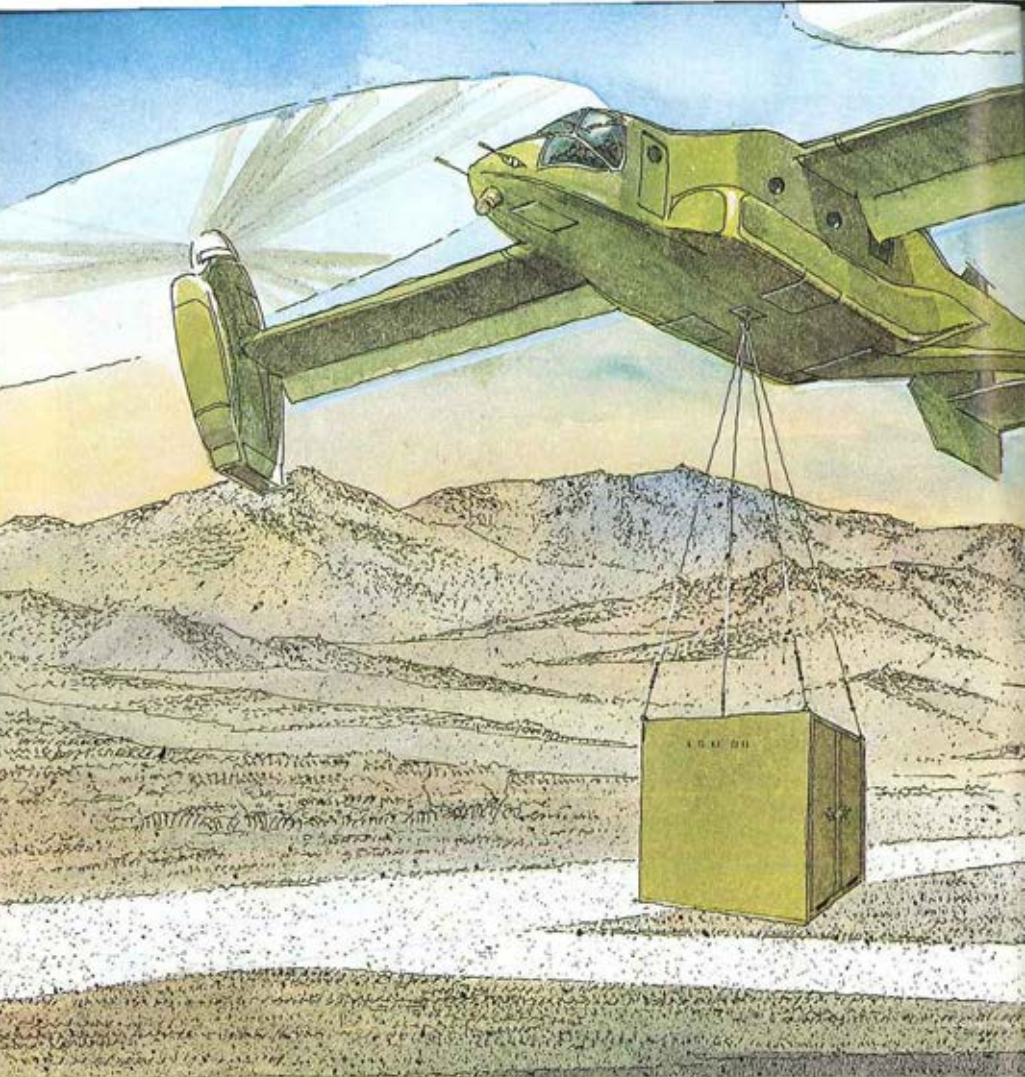
AAAA President MG Story C. Stevens, Ret., opened the 1988 AAAA National Convention, April 13-17, in St. Louis, MO (top left). The professional program was chaired by presentation chairman MG Ellis D. Parker (above left), Chief, Aviation Branch and CG, USAAVNC, Ft. Rucker, AL. MG Richard E. Stephenson (above right), CG, USAAVSCOM, St. Louis, MO was the Convention host and LTG Crosbie E. Saint (top center), CG, III Corps and Ft. Hood, TX was the keynote speaker.



COL (P) Mitchner

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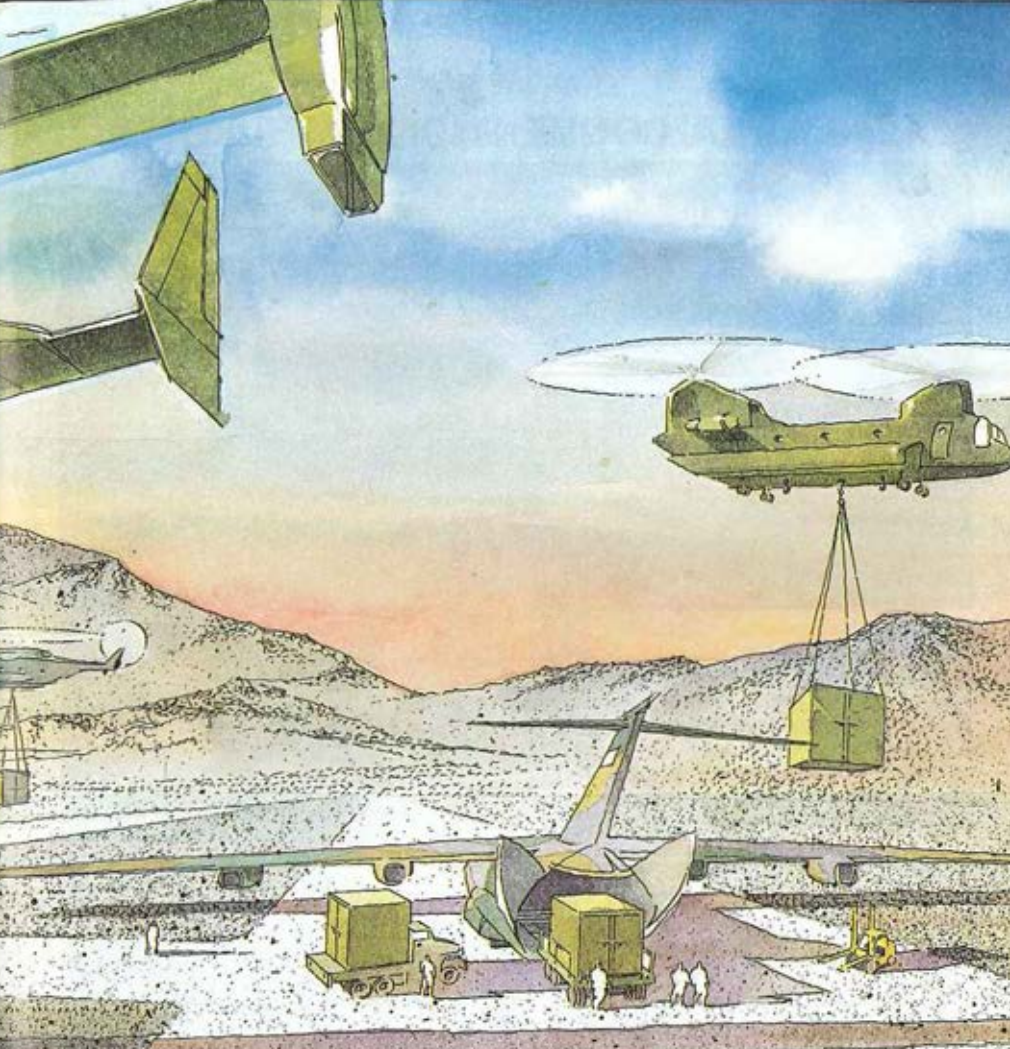
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# 1988 AAAA CONVENTION HIGHLIGHTS



Michele McCormick (l), Contributing Editor, ARMY TIMES, kicked off the spouse program Thursday morning with a well received presentation "Let's Call a Truce: Living Life the Army Way."



Branch CSM John P. Traylor (above l) during the NCO Professional Session. Seated (l to r) are CSM Wilson, CSM Pate, SGM Lloyd, SGM Morris, and MSG Newman. LTC William L. McCabe (above r), PM, Special Opns Aircraft, was one of many PMs who contributed to the 13 Aircraft Seminars. BG Rodney D. Wolfe (r) DCG, USAAVNC, moderated the professional sessions. Saturday speakers included MG Andreson (bottom l), PEO, LHX; George T. Singley (bottom c), PEO, Combat Support Avn; and BG William H. Forster (bottom r), PEO, Combat Avn.





# 1988 AAAA CONVENTION HIGHLIGHTS



Executive VP Art Kesten opens the Membership Luncheon (above). MG John L. Klingenhagen, Ret., President, AAAA Scholarship Foundation, Inc. is surrounded by AAAA Scholarship winners (l to r) Sharon Darley, Katherine Ray, Tamara Hawkins, and Michael Seamands. LTG John J. Tolson, Ret., (below l) reviews latest Museum Foundation developments. Below, President Stevens (r) and Senior VP Hesson (l) present "Top Gun" Award to Top AAAA member recruiter 1SG Frank Q. Oxendine of Redcatcher.



## 1988 AAAA CONVENTION HIGHLIGHTS



Top left: Redcatcher wins the Top Chapter Award; 1SG Frank Oxendine receives AAAA Banner from President Stevens. Top right: BG Jim Hesson, Ret., Senior Vice President of AAAA, hands over a plaque to "Senior Chapter" contest winner MAJ Bruce Simpson of the Mainz Chapter. Leroy L. Worm (r), North Texas Chapter President, accepts an award from BG Hesson as winner in the "Master Chapter" category.



Left: In a ceremony during the Membership Luncheon, 27 of the current 295 AAAA members joining in 1958 were recognized by Executive VP Art Kesten and awarded with their 30-year membership pins by their family or fellow members. Here, AAAA Past President MG George W. Putnam, Jr., Ret. "pins" COL Leslie H. Gilbert, Ret.

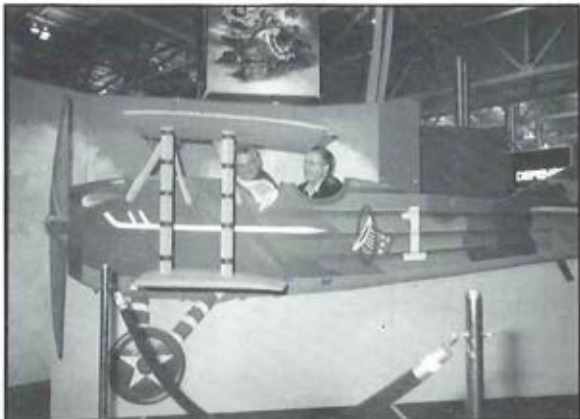
# 1988 AAAA CONVENTION HIGHLIGHTS

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aerospace organiza-  
tions. Aircraft on display  
included the AHIP,  
APACHE, DEFENDER,  
BLACK HAWK, CHI-  
NOOK, COBRA, IRO-  
QUOIS, MH-60 STAR,  
EH-60 QUICKFIX and  
U-27A Caravan.**





# 1988 AAAA CONVENTION HIGHLIGHTS





Counterclockwise, r to l: 1) LTG M. Collier Ross, Ret. gives the go-ahead to MG Teddy G. Allen as head table is introduced at Awards Luncheon 2) GEN Louis C. Wagner, CG, U.S. Army Materiel Command and Awards Luncheon guest speaker shares a light moment with CW4 James D. Call, AAAA Aviator of the Year. 3) LTG Burton D. Patrick, CG, Combined Field Army, ROK, presents Soldier of the Year Award to SSG Beau A.H. Tatsumura 4) GEN Wagner presents Aviator Award to CW4 Call. 5) GEN Wagner, CW4 Call, Mr. McCall's sister-in-law, his brother and MG Ellis D. Parker.





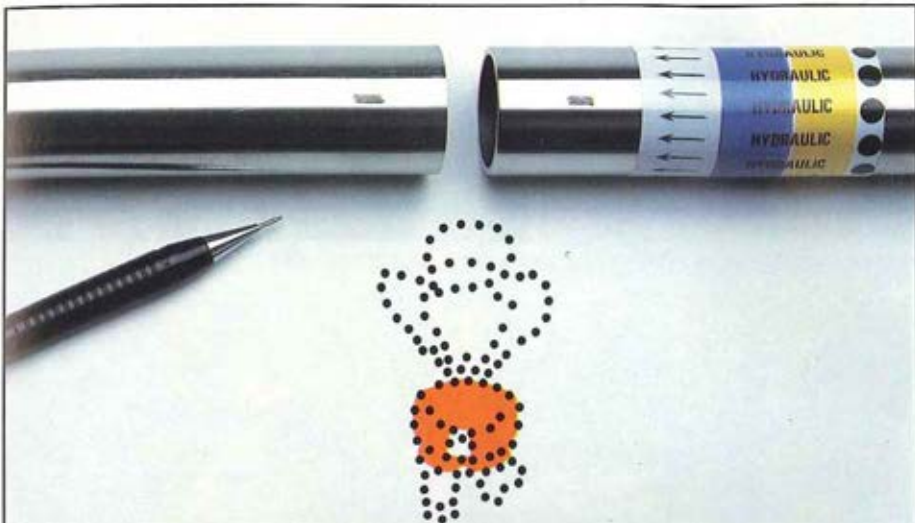
Top left: CW2 Gary D. Braman shares the McClellan Award with family members and MG Stephenson, CG, AVSCOM. Below left: Accepting the Leich Award from MG Charles F. Drenz, then CG, USATECOM for CSM Fountain, who could not attend, is COL William F. O'Neal, Commander, Davison Aviation Command. Below: DAC of the Year Daniel M. McEneaney, his family and Joseph P. Cribbins, Chief, Aviation Logistics Office, ODCSLOG display the trophy.



The AAAA President's Reception on Friday evening is one of the best-attended events — mixing, mingling and consuming fantastic hors d'oeuvres are a hard combination to beat.







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Right: MG Stevens opens the Saturday morning "First Light Breakfast" and introduces MG Ronald K. Anderson, PEO, LHX, the guest speaker. Below, GEN Carl E. Vuono, Chief of Staff of the Army and Awards Banquet speaker makes the rounds of the Exhibit Hall during the Awards Banquet Reception.



Above left: The colors are presented at the Saturday evening Awards Banquet. Above right: Aviation Branch song composer Mrs. Jo-Jo Johnston stands and is recognized after the playing of "Above the Best". Right: Mrs. Acker (l) and Mrs. Whittaker (r), spouses of the Commander and Senior NCO of the Aviation Unit of the Year, join in the festivities.





Counterclockwise: 1) COL John N. Dailey, Commander, 160th Special Opns Avn Group, Ft. Campbell, accepts the "Official Recognition" Award on behalf of the unit from President Stevens, as Mrs. Dailey looks on. 2) MG Parker (r) presents the Outstanding Aviation Unit Award (ARNG) to 1st Bn, 111th Avn, FLARNG. Accepting are LTC Donald L. Adkison (l), commander, and SGM Billy R. Cowart (c). 3) Unit members pose with Adkison and Cowart. 4) LTG Edward Honor, Director, J-4, Organization of OJCS, cites Outstanding Aviation Unit Award (USAR) winner, C Co., 2d Bn, 158th Avn Reg, Olathe, KS. Accepting for C Company are its commander, MAJ Thomas W. Meisenzahl, Jr. (l) and 1SG Jerry W. Clemmer (r). 5) Meisenzahl and Clemmer are joined by their wives and LTG Honor and MG Parker.







Top left: CPT Christopher A. Acker (l) and SFC Michael G. Whittaker (c), 17th Assault Helicopter Company, Aviation Brigade, 25th Infantry Division, Schofield Barracks, HI, accept the Aviation Unit of the Year Award from GEN Vuono. Top right: They are joined by their wives and Branch Chief MG Parker. Right: GEN Vuono delivers the Banquet address before an audience of more than 1400.



Above: Chapter receptions followed the Awards Banquet Saturday night. Above right: Chow line forms for Sunday Brunch. Right: The "Get-Away Champagne" finishing touch on another great convention.



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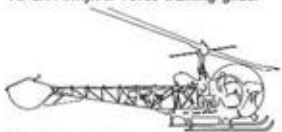
Schweizer, a quiet partner, committed to the future of Army Aviation.

## 1940's



TG-3A Army/Air Force training glider

## 1950's



OH-13 Production source for cabin and frame assemblies

## 1960's



YO 3 A Quiet observation aircraft—operational in Southeast Asia

## 1970's



UH-60A Production source for gunner windows and other assemblies

## 1980's



TH-55/TH-300C Product support of Ft. Rucker fleet/Manufacturer of Model 300C product line



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Logistics:

## New Aircraft for a New Century

by Lt. Colonel John M. Riggs



**FT. RUCKER, AL** — Most soldiers probably think of near term planning as getting out the company's weekly training schedule, mid term planning as publishing the battalion's quarterly training calendar and far term planning as preparation of a brigade's 12 month planning calendar. For those in the Army Aviation Combat/Materiel Developments arena, however, planning for the 21st Century is already well underway.

During the past several months, the Army Aviation

LTC Riggs is Chief, Materiel and Logistics Systems Division, Directorate of Combat Developments USAAVNC, Ft. Rucker, Al.

Center, in concert with the Aviation Systems Command, Headquarters Training and Doctrine Command and the Aviation Division of the Deputy Chief of Staff for Operations and Plans at Headquarters Department of the Army, has accomplished an intensive and comprehensive update of the Army Aviation Modernization Plan (AAMP).

This effort has resulted in a planning document that details how Army Aviation will replace its current aging fleet with a fully modernized force capable of fighting and winning on the 21st Century battlefield.

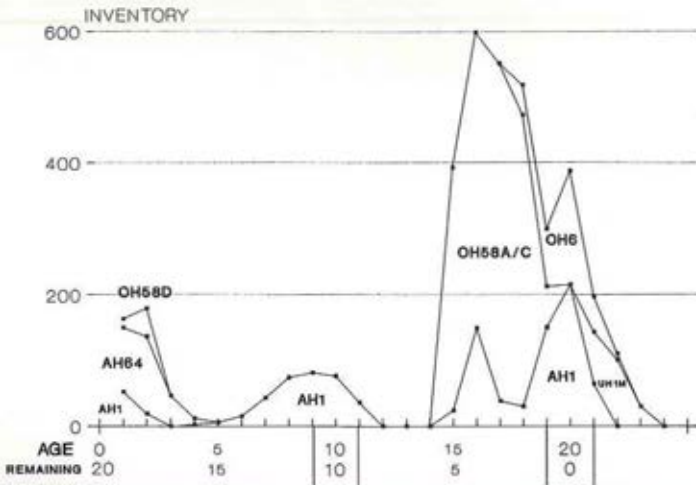
The threat to the US Army in

general, and to Army Aviation in particular, continues to increase in both numbers and sophistication. New or improved threat capabilities include air-to-air combat, improved day-night operations, longer range and more accurate air defense systems, and improved weapons and weapons sensors. In order to meet these challenges and contribute as a member of the combined arms team on the airland battlefield, Army Aviation must rapidly improve its current force through fleet modernization.

### Snapshot Look

A snapshot look at our current fleet shows that the tremendous bulk of attack, reconnaissance, lift, and cargo aircraft are between 15 and 25 years old. This is a result of the large numbers of aircraft procured during the Vietnam era. The necessity to quickly and efficiently modernize this fleet generated the Army

### ATTACK / RECON AGE (1987)





#### Aviation Modernization Plan.

The 1988 Update of the Army Aviation Modernization Plan serves as a summary document outlining the objective plan for equipping Army Aviation with a modern cost-effective war fighting fleet. The plan provides for fielding of an armed reconnaissance/light attack LHX by 1995, replacement and retirement of our oldest aircraft at the rate of 200-250 per year, and modifications to our relatively new aircraft to meet changes in the threat.

Aircraft systems will be developed and fielded to provide an objective mean average fleet age of 10 years for attack and reconnaissance aircraft and 15 years for lift and cargo aircraft, with a maximum age of 20 and 30 years respectively for individual aircraft in these categories.

#### Attack Assets

Now that I've given you an overview of the AAMP principles, I will walk you through it in a bit more detail starting with our plans for attack helicopters. Our current fleet consists of the AH-64, AH-1s of various configurations, and a few UH-1Ms. Our plan is to retire the UH-1Ms immediately, followed over time by the AH-1s. We will continue procurement of the AH-64 to an objective total of 863 aircraft while commencing the fielding of LHX in 1995 to complete the attack modernization process.

#### Recon Assets

Current reconnaissance aircraft include the OH-6, OH-58A/C and OH-58D. In the long term, the entire reconnaissance fleet will be replaced by the LHX. We'll start by retiring our older aircraft beginning

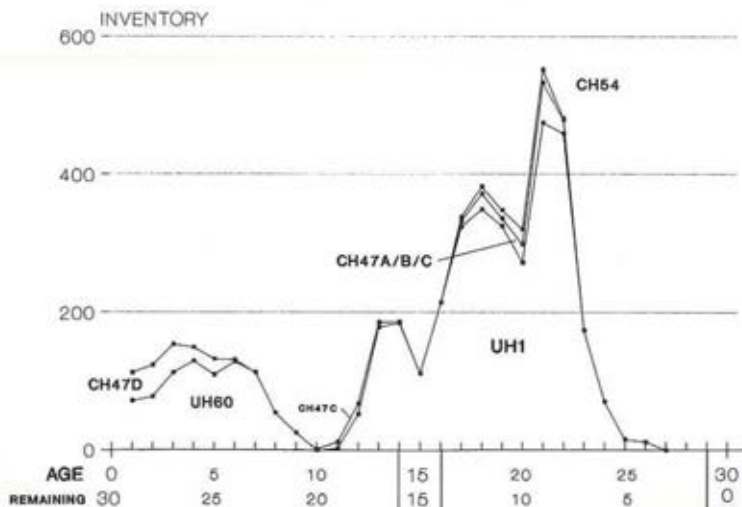
immediately with the OH-6. Replacement plans include the procurement of 477 OH-58Ds prior to transitioning to LHX. An analysis is currently underway to review the feasibility of producing an armed version of the OH-58D to perform the armed reconnaissance mission.

#### Lift Assets

Current lift aircraft include the UH-60 and the UH-1H/V, although the bulk of lift modernization will be accomplished by procurement of 2,253 UH-60s, the need for a command and control and general support replacement for the remaining UH-1s still exists. Efforts are underway to determine the most cost and operationally effective command and control and general support solution.

Cargo aircraft currently consist of the CH-54A/B, CH-47A/B/C

### LIFT / CARGO AGE (1987)



and CH-47D. The acquisition of a total of 472 CH-47Ds and the retirement of the remainder of the cargo aircraft will complete modernization in this category.

### SEMA

Current Special Electronic Mission Aircraft (SEMA) include the OV-1D, RV-1D, RU-21B/C/H, RC-12D/G/H/K and EH-60A aircraft. Modernization of the SEMA fleet consists of a total buy of 65 RC-12Ks and the block improvement of 44 OV-1Ds. Conceptual planning is underway for an advanced SEMA aircraft with planned procurement beginning in 2001.

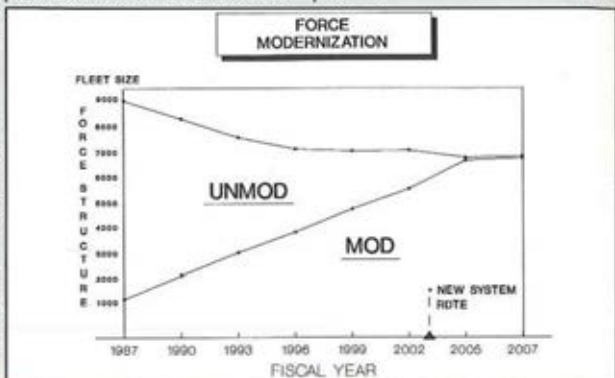
### LHX

LHX is the centerpiece of our modernization plan. Fielding of 2,096 armed reconnaissance/light attack LHX's commencing in the mid 1990's will provide a significantly increased capability over current aircraft. The LHX will shoot, move, communicate and survive better than probably any other weapons system in the U.S. Army.

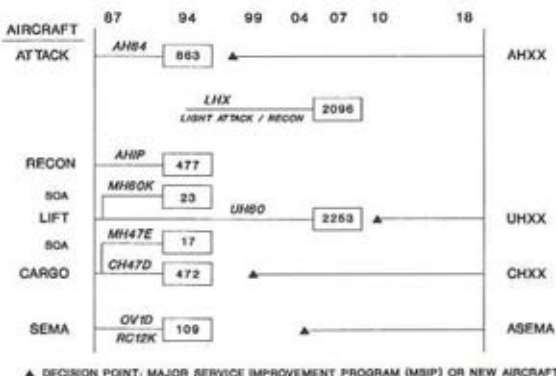
### 21st Century

Together, these increased capability aircraft will allow us to downsize our aviation force while actually increasing combat power and fully realizing the benefits inherent in the Army of Excellence Force Structure Initiatives, those being an increase in leader to led and tooth to tail ratios. By 2007, we expect to have reduced our current combat fleet of about 8,700 aircraft to a fully modernized, much more combat effective force of approximately 6,700 aircraft.

So that's where we're headed. The Army Aviation Modernization Plan provides technology to meet the threat of the 21st Century, reduces our fleet age and size, and provides a significantly superior fighting force. Obviously, we in the Aviation community are dedicated to making this effort a success, but what is more important is that Army leadership has clearly demonstrated its commitment to keeping Army Aviation "Above the Best" in the century to come. ||||



### AVIATION MODERNIZATION STRATEGY



Hardware:

## The 6th Cav Field Tests the TADS

by John Stanfield, Jr.

**ST. LOUIS, MO** — The AN/ASQ-170 Target Acquisition and Designation Sight (TADS) gives the AH-64A APACHE the capability to search for, detect, and engage targets from significant standoff ranges.

One of the most important components of the TADS system is the Laser Rangefinder/Designator. The laser is used to designate targets for laser-guided weapons, such as the HELLFIRE missile, and to measure the range to targets for use in APACHE fire control computations.

Laser pointing accuracy is a measure of how accurately the TADS system can place a laser spot on a target. Extensive testing was conducted prior to fielding the TADS system to verify that the TADS design met its laser pointing accuracy requirement. In addition, this parameter is measured on every production system before it leaves Martin Marietta's factory in Orlando, FL.

### Sustained Laser Accuracy

A question of significant importance to the TADS/PNVs Project Manager's Office has always been how well the TADS systems maintain their laser pointing accuracy after they have been operated and maintained in the field. In order to answer this question, the TADS/PNVs Project Manager recently asked the

Mr. Stanfield is a General Engineer in the Technical Management Div. of the TADS/PNVs PMO, AVSCOM.

aircraft and crews for a special test of TADS laser pointing accuracy at Yuma Proving Ground, AZ.

The test was divided into two parts: (1) laser designations against a special instrumented target board, and (2) live firing of three HELLFIRE missiles against a stationary tank target.

Four different AH-64A aircraft from Ft. Hood were used during the test. Their cumulative flight hours at the time of the test ranged between 118 hours and 336 hours. The TADS systems

installed on these aircraft ranged in total operating hours from 234 hours to 980 hours.

Laser pointing accuracy was measured with the instrumented target board while tracking the board with all three TADS sensors: Day TV (DTV), Direct View Optics (DVO), and FLIR. Initial data showed that designations made with the DTV and DVO were within spec; however, the FLIR measurements were out-of-spec. Investigation into the FLIR problem centered on the outfront boresight procedure used to align the FLIR line of sight to the DTV line of sight (and thus, indirectly, to the laser line of sight).

**(TADS — cont. on page 79)**

**ANATOMY OF A HIT:** The AH-64A launches the TADS guided HELLFIRE missile. It heads to the target tank, destroying it.







# C17

*"C" as in  
close*

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Research & Development:

## Directed Energy Warfare: The Modern Battlefield

by Dr. Elizabeth G. Plumb

**FT. RUCKER, AL** — When you're asked about Directed Energy Warfare (DEW), your first thoughts are probably Star Wars or lasers that vaporize personnel. DEW, however, is a current threat to Army Aviation. Emerging DEW technologies provide a wide variety of applications, some of which have revolutionary tactical impacts and implications. Army Aviation is not currently prepared to cope with directed energy warfare.

### DEW on the Battlefield

Directed energy refers to all aspects of employing directed energy technology and defending against the directed energy threat in combat. This technology uses electromagnetic waves or a stream of sub-atomic particles to accomplish a variety of military tasks in combat. These tasks typically include target detection, illumination, ranging, and identification and electro-optical jamming, disruption, damage, and destruction.

Directed energy technologies include lasers, radio frequencies (microwave, millimeter wave, and non-nuclear electromagnetic pulse), and particle beams. Particle beam and radio frequency are in their infancy in development for combat applications, but potential applications would degrade electronics and may be

**Dr. Plumb is Directed Energy Warfare Coordinator, Dir. of Training & Doctrine, USAA/NC, Ft. Rucker, AL.**

used in an antipersonnel role. Lasers, however, are currently fielded worldwide. While not necessarily designed to perform weapons functions, lasers can be used accidentally or deliberately to produce weapons type effects against personnel in combat.

### The Laser

Lasers are different from other more conventional weapons. When light leaves a laser its beam can spread from about three or four inches to only 12 inches at 5,000 meters, resulting in less energy loss than conventional ballistics. Laser energy travels at the speed of light and human evasion is impossible, causing various degrees of damage to the eyes and reduced vision acuity. Damage may be slight and temporary in one instance or may cause permanent blinding by destroying the optic nerve in another instance.

The distance at which lasers cause damage is significantly increased when laser light is viewed through magnifying optics such as binoculars. Some of the effects of laser light on the eye dramatically affects the ability of the aviators to perform tasks.

Among these effects are: flash blindness (Temporary loss of vision that lasts from a few seconds to several minutes), hemorrhagic lesions (severe retinal burns with bleeding and immediate vision loss) and minimal

lesions (minor retinal burns and dark spots in the field of vision). Along with physiological damage, the aviator may also experience psychological effects.

Laser radiation is also reflected off highly polished surfaces, such as glass lenses, windows and unpainted aluminum. The reflected laser light not only poses a threat to the aviator's eyes, but reflected light can reveal enemy or friendly locations; which can be ranged for conventional weapons.

Optical devices are also affected by laser radiation. Damage can range from spots or lines on displays to crazed, cracked and shattered lenses or windows. Lasers can cause the night vision goggles to shut down and burn out the display on the Forward Looking Infrared system.

When an optical device becomes useless during combat, the aviator automatically uses direct viewing, placing his eyes in danger from laser light. High power lasers, currently being developed, can glaze canopies, disrupt missile guidance systems and ignite clothing. Thus, countermeasures need to be developed to protect personnel and equipment on the battlefield.

### Countermeasures

The best countermeasure is to avoid DEW environments. However, avoidance cannot be accomplished in a combat situation and encountering directed energy threats, especially lasers, are a certainty. Equipment and personnel need to be hardened against these threats, doctrine and tactics developed, training programs implemented and countermeasures for the battlefield developed.



Detection of a laser environment is difficult. Even with visible light, it is not easy to tell if you are being lased. By the time one feels the symptoms of being lased, damage has already occurred. Detection must be made in order to employ countermeasures. Detectors are currently being developed that will tell the aviator if the aircraft is being lased and from what direction. The aviator will be able to avoid direct laser light viewing and still complete the mission with the use of detectors and tactics.

Protective devices for aviators and optical systems are available. These devices make use of laser light's monochromaticity and allow access to the visible light spectrum other than the laser wavelengths. Current goggles and filters are able to protect against several laser wavelengths. However, a possible battlefield problem may arise if threat laser wavelengths are not known and tunable lasers are employed. Despite this, aviator goggles and optical filters offer the best protection for both friendly and threat lasers without interfering with the combat mission.

#### Other Countermeasures

There are many battlefield expedient countermeasures that protect the aviator in a laser environment. Countermeasures such as using smoke to disrupt the laser beam, taping visors and optical viewers so only a narrow field of view is exposed, and flying with a patch over one eye will reduce laser damage



Artist's conception of Soviet High Powered Laser

enough so that the mission can be completed. Night vision goggles that are fitted with "daytime" filters or pinhole lenses caps can protect the aviator's eyes from severe laser damage.

#### Tactics & Doctrine

Along with protective devices and countermeasures, tactics and doctrine need to be developed for combat missions in directed energy environments. Safe target engagement distances must be identified and tactical countermeasures and counter-countermeasures need to be determined. Tactical countermeasure grids and models also need to be developed. Currently, tactical countermeasures are designed for conventional "hard kill" devices.

As more nations are fielding lasers, the employment of tactical countermeasures for "soft kill" devices is needed for combat survivability and mission completion.

#### Training

The final countermeasure for directed energy warfare is train-

ing. Current unit and institutional training is limited to DEW awareness training, and specific aviation topics are not addressed. Programs of instruction should be modified to include directed energy subjects such as bio-effects, hazards, threats, employment, countermeasures/counter-countermeasures, safety, first aid, surface reflection effects, and smoke effects. Countermeasures/counter-countermeasures using protective devices need to be practiced in flight training during tactics and in simulators during mission scenarios. Force-on-force exercises, also, need to include directed energy warfare scenarios in order to increase combat readiness.

The future use of directed energy will require the use of new procedures and devices, some of which remain to be developed. The introduction of these weapons will require the development of mission-oriented equipment and personnel protection. The directed energy warfare challenge is here, and Army Aviation must act now to meet this challenge. ■■■

Training:

# Attack Helicopter Gunnery — AH-64A

by Captain Michael Courts

**FT. HOOD, TX** — The development of attack helicopter gunnery in the U.S. Army over the past 25 years has been haphazard and disorganized. The Armor School had propensity for helicopter gunnery prior to the advent of the Aviation Branch. As a result, helicopter gunnery tables represented nothing more than pen and ink changes to the current tank gunnery tables. The current helicopter gunnery manual (FM 1-140) is the first product of the Aviation Branch. FM 1-140 is flexible to the point of providing no

CPT Courts was most recently assistant S3 6th Cavalry Brigade (Air Combat) Ft. Hood, TX and is now undergoing AH-64 qualification training at Ft. Rucker, AL

hard criteria for ammunition, scoring or range setup. In an effort to retain the commanders flexibility, the current doctrine has failed to justify ammunition requirements or training standards for conduct of attack helicopter gunnery.

The fielding of the AH-64A has highlighted the obvious failure of current gunnery procedures to adequately train and evaluate crews and units. The sophistication of the AH-64A, its associated weapons systems, advanced simulation devices, broad spectrum of employability, and high cost, demand a more thorough inspection of all aspects of crew training and helicopter gunnery procedures.

For an attack helicopter organization (Air Cavalry or Attack), gunnery training and qualification is the most important training activity. Gunnery equates to marksmanship training for the rifleman. Without the ability to effectively put fire on target, an attack helicopter crew or unit is worthless.

Gunnery training involves more than the actual firing of the weapon systems; it encompasses the individual and crew skills, the effectiveness of the unit maintenance program, and the abilities of the logistical personnel and equipment. Gunnery training should be systematic, progressive and thorough by design. Viewing the high cost of all aspects associated with operating aircraft, it is critical that the gunnery training and evaluation program be scrutinized at every level to insure that every round and hour spent is done with a purpose and has a direct benefit.

The introduction of the

## AH-64 HELLFIRE ENGAGEMENT VARIATIONS / CRITICAL TASKS



- THERE ARE 1,380 HELLFIRE ENGAGEMENT VARIATIONS
- CRITICAL INDIVIDUAL TASKS SHOULD BE ACCOMPLISHED IN THE CMS AND WITH MILES OR TRAINING MISSILE INITIAL QUALIFICATION ONLY
- CRITICAL COMMANDER'S TASKS SHOULD BE ACCOMPLISHED IN THE CMS
- CRITICAL CREW TASKS SHOULD BE ACCOMPLISHED IN THE CMS, WITH A TRAINING MISSILE OR MILES, AND WITH ONE LIVE MISSILE (GOAL-A, DAY, FROM A HOVER, AGAINST A STATIONARY TARGET)
- CRITICAL SECTION/TEAM TASKS SHOULD BE ACCOMPLISHED WITH MILES AND ONE LIVE MISSILE (GOAL-B)
- THERE ARE 80 CRITICAL UNIT LEVEL (CREW, SECTION, TEAM) ENGAGEMENTS  
18 SHOULD BE ACCOMPLISHED USING TRAINING MISSILES AND MILES
- 60 SHOULD BE CONDUCTED USING LIVE MISSILES



AH-64A has caused the complexity of aerial gunnery training to increase dramatically. Without exploring the various emergency and downgraded modes of firing, and by utilizing all available training devices, the AH-64A can be employed in many thousands of single weapon engagements:

- 1,280 separate HELLFIRE engagements
- 3,456 separate 2.75" rocket engagements
- 2,160 separate 30mm engagements

The AH-64A is designed to employ weapons both simultaneously and sequentially. When the separate engagements are grouped, the AH-64A has an almost infinite variety of engagement combinations. To train and evaluate all of the possible combinations would be impossible. The following paragraphs define what a helicopter gunnery program should consist of, and how it should be utilized.

### Helicopter Gunnery Program

A gunnery program should involve several phases:

**Individual Evaluation (Tables I and II):** Initial airframe and system qualification one time. Conducted during aircraft qualification course (AQC) and only as required thereafter.

**Commander's Evaluation (Tables III and IV):** Upon arrival at a new duty station, a pilot is given a gunnery evaluation by an Instructor Pilot. This evaluation is used to determine the proficiency of an aviator prior to being assigned as part of a crew. Upon successful completion of the Commander's Evaluation, the pilot is given his seat designation and battle rostered

**"Without the ability to effectively put fire on target, an attack helicopter crew or unit is worthless."**

as part of a crew. The Commander's Evaluation should be conducted in the CMS (Combat Mission Simulator) when available, but can be performed in an aircraft on a live fire range when necessary.

**AGST (Table V):** (Aerial Gunnery Skills Test) The AGST is a written and oral test that evaluates the individual and crew academic knowledge prior to participating in actual live fire gunnery training. The AGST should be expanded to include more hands on evaluation on the CMS and CWEPT (Combat Weapons and Emergency Procedures Trainer) with specific tables that evaluate all critical individual and crew skills.

The hands-on portion of AGST will increase crew proficiency and surface problems prior to expending time and ammunition on the gunnery range.

**Weapons calibration/verification (Table VI):** A step similar to weapons calibration for tanks and Bradleys or zeroing an M-16, the crew fires 180 rounds of 30mm, six pairs of 2.75" rockets, and two simulated HELLFIRE launches prior to beginning the crew tables, to verify the correct function of all weapons systems components.

This procedure would be accomplished by a crew prior to entering combat, and allows the focus of the evaluation to rest on

the crew rather than the weapon systems. The eventual goal for calibration is to reduce required ammunition to 100 rounds of 30mm and three pair of 2.75" rockets. The ammunition goal could be realized by improved calibration techniques.

**Intermediate (Crew) Gunnery (Tables VII and VIII):** Live fire exercises both training and qualification, day and night, involving normal weapons configurations, flight modes, and ranges, to evaluate the crew's cockpit coordination, aircraft and weapon systems operation and the crew's ability to place accurate, effective fires on target using normal modes of operation. The sustainment requirement for live HELLFIRE firing would require more crew stabilization. Currency for crews would require the crew to have fired a HELLFIRE once in a 12 month period. A reduction in 30mm and 2.75" rockets is possible, if some of the crews qualified on the practice table and did not fire the record table. The ammunition savings could be as high as 25%, assuming 50% of the crews qualified on their first firing.

**Advanced (Section) Gunnery (Tables IX and X):** Live fire exercises both training and qualification, day and night that evaluate the ability of the light (Gunnery — cont. on p. 72)



Operations:

## Centralized Army Aviation Support Office

by Colonel William F. O'Neal



**FT. BELVOIR, VA** — Operational Support Airlift (OSA), involves utilization of utility aircraft for administrative flights to move people and cargo. Aircraft assigned to "VIP" flight detachments are typically referred to as OSA assets, but any aircraft used for an administrative purpose is performing an OSA mission.

Congress and the Department of Defense have stipulated conditions for possession and use of OSA assets, and recently, the service components have come under scrutiny by the General Accounting Office (GAO) and other audit agencies for inadequate control of these aircraft. As a result, Department of the Army (DA) directed establishment of an OSA centralized scheduling office within the Army.

### Oversight

DA Deputy Chief of Staff for Operations and Plans (DCSOPS) has oversight responsibility for the project. Commander, Military District of Washington, is tasked to establish the centralized scheduling office, collect OSA utilization data and develop procedures for centralized scheduling. Commander, Training and Doctrine Command, will develop wartime requirements and an optimum stationing plan for OSA aircraft; and Commander, Information Systems Command, is respon-

COL O'Neal is Commander, USA Davison Aviation Command, Ft. Belvoir, VA.

sible for developing an automation system to support centralized scheduling.

### CAASO

The Centralized Army Aviation Support Office (CAASO) was established at Davison Aviation Command, Ft. Belvoir, VA. Beginning in July 1987, implementation briefings were conducted for field units and, shortly after, data collection commenced. Actual scheduling of aircraft by CAASO is to commence October 1, 1988. Routing of travel requests which require utilization of Army fixed-wing aircraft will not change; unit members who are currently validating these travel requests will continue to process them. Validators will communicate with CAASO using IBM compatible desk top computers, a dial-up modem and an off-the-shelf software package.

Using the input from unit validators, CAASO collects demand data (a request submitted by the traveler) and utilization data (a mission flown in support of the travel request) as directed by HQ DA. This data is then provided to TRADOC for use in evaluating OSA wartime requirements, and development of a stationing plan for the fixed-wing fleet.

### Data Collection

Collection of all demand data is essential. As TRADOC evaluates where aircraft should be stationed, consideration will

be given to unsatisfied demands for air travel, and mobilization missions. Therefore, unit personnel with air travel requests, must ensure that all requests are received by CAASO, even if a similar travel request was not supported in the past.

The U.S. Navy, using the same program for scheduling OSA aircraft, has realized significant gains in efficiency and has used data collected to enhance the quality and quantity of their OSA assets. The CAASO will maximize operational efficiency of the Army's OSA aircraft and will document the Army's need for more and better aircraft.

CAASO will enable the Army to conserve resources and improve the efficiency of our aircraft operations. In addition, an objective of CAASO is to provide better service. Looking to the future, the introduction of jet aircraft will improve service provided to fixed wing users.

This summer, the Army takes delivery of two C-20E (Gulfstream III) aircraft. The aircraft will be based at Andrews AFB, Maryland, where they will be part of the Military District of Washington, Davison Aviation Command. These aircraft will be scheduled through CAASO.

### Reserve Component Role

In the future, after the determination of wartime requirements, the Army will develop plans for utilization of Reserve Component (RC) aviators to share crew responsibilities in Active Component aircraft in support of administrative requirements. This will enhance the Army's warfighting capability of enabling RC personnel, who are already qualified in the aircraft, to train in support of their wartime mission. IIIII



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Operations:

## REFORGER 87: OH-58D Integration into AH-64 AHB

by Captain Dallas L. Jones and 1LT John P. Poisson



FT. HOOD, TX — During REFORGER 87, the corps-level Attack Helicopter Battalion (ATKHB) was given a new dimension with the addition of the OH-58D Advanced Scout Helicopter. For the first time actual field units integrated the capabilities of the AH-64, OH-58C and OH-58D helicopters. The single most notable result of REFORGER 87 was the exhibition of this highly potent and mobile combination and its impact on the commander's scheme of maneuver.

### Expanded Capability

The introduction of the AH-64 into the aviation force uniquely expanded the capability of the maneuver commander to influence the modern battlefield. To all who paid attention to what occurred during REFORGER 1987, this point was poignantly made clear. The operations conducted by the 6th Cavalry Brigade's attack helicopter squadrons during the Certain Strike Exercise promise to advance the development of one of the most mobile and most effective lethal maneuver forces in our history.

The ATKHB's primary mission is to destroy massed forces through mobility, firepower and

Captain Jones (above, left) is assistant S3/liaison officer, 1st Squadron, 6th Cavalry, 6th Cavalry Brigade (AC), Ft. Hood, TX. 1LT Poisson (above right) is OH-58D platoon leader of Target Acquisition and Reconnaissance Platoon, D Company, 3rd Aviation Regiment, 2nd Armored Div, Ft. Hood, TX

shock effect. AH-64 ATKHBs can gain, maintain, and exploit battlefield initiative and can do so faster and with more lethality than ever before experienced. They can strike any time of the day or night and where the enemy is most vulnerable.

### Eyes, Ears and Voice

The importance of the scout in an ATKHB cannot be over emphasized. Ever since the first use of scouts in military operations, the scout has been the eyes, ears and often the voice of the commander in the air or on the ground. In AH-64 ATKHBs the

concert, enable the AH-64 to perform at the level for which it was designed. The individual capabilities of each of the different helicopters are well documented. The purpose of this article is to illustrate the most effective exploitation of each helicopter's advantages and their resultant roles that best satisfy the corps commander's objectives. REFORGER 87 provided the opportunity to explore and exercise such an integration.

The 1st Squadron, 6th Cavalry Regiment, 6th Cavalry Brigade (Air Combat) at Ft. Hood, TX was tasked with integrating the

**"...a superb advanced attack helicopter without a comparable scout helicopter to support it fails to exploit the AH-64's full capability."**

role of the scout is more comprehensive than ever. Attack helicopters are weapon platforms and are most productive when they are engaged in destroying the enemy's weapon platforms. Thus the scout must continually locate and identify targets and keep "the guns" firing. The inclusion of the OH-58D into the attack team produced some remarkable results.

The OH-58C and OH-58D model helicopters, performing the scout role and operating in

OH-58D into its operations for REFORGER 87. The OH-58Ds, from the Division Artillery Support Platoon of the 245th Command Aviation Company, 2nd Armored Division, were attached to the Squadron in June 1987 — just three months prior to deployment to Germany. The training that the OH-58D crews and the Attack Squadron subsequently embarked upon was challenging to say the least. The "D" scouts, in becoming a member of the attack helicopter team, required



training in new areas of emphasis. Initial training included classes on the Squadron's standard combat procedures, capabilities of the AH-64, and the Brigade's role as a corps asset.

The AH-64 and OH-58C crews, on the other hand, learned the capabilities of the OH-58D and jointly they developed a practical laser target handover procedure adapted to suit our specific mission. Following the classroom instruction the OH-58D platoon was divided into sections of two aircraft each, with crews, and began performing in battle drills with individual attack helicopter troops. The platoon also participated in two squadron gunneries performing laser operations integrating AH-64s and F-18s simultaneously.

#### Field Training

In July, the preparation consisted of two field training exercises in which the OH-58D crews participated and learned AH-64 squadron combat operations. The advanced scout's on-board systems greatly enhanced the Squadron's capabilities. Utilizing its improved optics, its thermal imagery sensor and its laser designator to spot targets for the AH-64, the OH-58D found its niche in attack operations. For the first time the squadron had a scout that not only could deploy forward with the APACHES but also could acquire targets, day or night, at comparable ranges and designate those targets.

The Squadron's OH-58C crews played an essential part in the OH-58D's integration. Their experience flying with the AH-64, plus knowledge of unit tactics

and procedures, enabled the "D" model crews to concentrate on navigation system operation and target acquisition while the "C" model crews continued to perform coordination and control of teams, FARP operations, reports, and mission planning at troop level.

#### UHF Secure Capability

Concurrent with the attack helicopter train-up, the OH-58D crews tested their UHF secure capability with RC-12s, using guardrail, from the 15th Aerial Exploitation Battalion at Ft. Hood. LTG Crosbie E. Saint, III Corps Commander, felt it essential to be able to communicate with his AH-64 attack squadrons during their deep battle operations across the Forward Line of Own Troops (FLOT). Such a capability would keep him informed and additionally provide real time intelligence to the attack force.

The OH-58D's UHF secure capability performed well in the tests even at Nap-of-the-Earth (NOE) altitudes and at ranges of 150 plus kilometers. As will be shown later, this capability greatly enhanced the Corps Commander's ability to control his

assets in the deep battle.

In August, as the deadline to deploy to Germany approached, the Squadron continued to refine and adjust its tactical procedures to exploit the tremendous potential of the OH-58D. The D model crews began leading formations on the cross-FLOT missions and once in the battle positions performed as remote designators with excellent success. They exercised their artillery direction systems often and dramatically shortened the time interval between actual target identification and precise fires for effect. In a very short period of time the integration of the OH-58D had progressed extremely well. The Squadron's utilization of the OH-58D and its own organic helicopters began to take shape into an effective fighting force. This force began its deployment to Europe and anticipated the missions it would perform in the Certain Strike exercise.

The deployment phase of REFORGER 87 was a success and was marked by several "firsts." The first deployment of AH-64s and OH-58Ds as a unit

This OH-58D is using terrain masking while acquiring targets and designating for AH-64 APACHES.



to Europe. The first large scale use of a special "shrink-wrap" process for transportation of helicopters aboard ship. The REFORGER 87 deployment was the Army's single largest deployment of personnel and equipment to Germany since World War II.

Certain Strike began as all the players completed their movement into the maneuver training area — a 100km by 100km box north of Hannover. III Corps and attached assets operated as the blue forces. The British, Belgians and Dutch performed in the role of the orange forces.

At the start of the exercise the orange forces had attacked to the west approximately 50 to 70 km into the northern portion of the maneuver box. III Corps, in an attempt to stop the attack, planned to counterattack at the southern line of the developing salient. The southern flank of the orange forces was positioned

along the east-west flowing portion of the Aller River. Thus, in order to perform the counterattack, a major element of the Corps (1st Cavalry Division) had to execute a river crossing operation. (See diagram below).

### Three Missions

In support of the crossing operation the Corps commander tasked 6th Cavalry Brigade with three separate missions. First, reconnoiter four possible landing areas to the north of the river for a planned brigade-sized air assault insertion.

The air assault forces were to cover a divisional river crossing operation. The 6th Cavalry Brigade was to provide information concerning each of the proposed landing zones and recommend which LZ would be most suitable for the operation, no later than six hours prior to the insertion. The Corps Commander's second mission was to

establish a guard around the LZ's throughout the progression of the air assault mission. The final mission included a movement-to-contact further to the north to make contact with and destroy the second echelon's artillery and air defense assets, the most immediate threat to the river crossing operation, assembling for attack.

COL Walter H. Yates, the 6th Cavalry Brigade (Air Combat) Commander, tasked 1st Squadron, 6th Cavalry with the first and final missions, i.e., to reconnoiter and clear the landing zones and then to locate and destroy the orange artillery. 2nd Squadron, 6th Cavalry would relieve 1-6 CAV on station and guard the LZ's, allowing 1-6 CAV to continue its mission further north. The success of the Corps river crossing and subsequent counterattack hinged entirely on 1-6 CAV's successful reconnais-





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sance-in-force of a 30km by 30km area, conducted entirely at night with almost zero illumination. To make matters worse, fog had begun to develop in the area.

LTC Joe B. Jenkinson, 1st Squadron, 6th Cavalry Commander, divided the proposed landing zone area into three sectors; one for each troop. In order to provide maximum firepower on any one point within the three sectors, the AH-64s in each troop were placed in holding areas as close to the line of departure as possible. This provided the flexibility to bring one troop or the entire Squadron's AH-64s to the attack within minutes.

#### **Zone Reconnaissance**

For the zone reconnaissance portion of the mission, the OH-58Cs and Ds teamed to clear each sector. The OH-58Ds utilized their Thermal Imagery Sensors (TIS) to primarily look in the distance for heat sources while all the crews used ANVIS to detect light sources in closer. This procedure enabled the scouts to find the enemy targets with greater security despite deteriorating weather conditions.

As targets were found, the scouts would notify the Squadron Commander or S-3 in alternating jump TOCs who in turn would designate the attack section(s) and preplanned coordination points to meet the scouts in contact. Though this technique required radio transmissions, the use of FM secure, UHF "Have-quick" and short transmissions provided sufficient security and greatly increased the Squadron Commander's flexibility to mass his assets. The "C" model scout brought the guns into position



while the "D" model maintained contact, coordinated artillery and then handed the targets over to the AH-64s. The zones were cleared rapidly and the Squadron Commander reported the most suitable LZs to the air assault commander on time.

#### **OH-58D Advantage**

One incident during the reconnaissance really brought home the advantage of the OH-58D over the C model. In one sector enemy tanks turned on their searchlights in an attempt to acquire the helicopters. When turned toward the scouts, the searchlights severely hampered the use of ANVIS. The OH-58D's TIS, however, was unaffected by the searchlights and enabled the scouts to acquire and consequently destroy the tanks.

With the zone clear, the 2nd squadron, 6th Cavalry relieved 1-6 CAV on station and guarded the zone's northern limit. The second portion of 1-6 CAV's mission began as one troop returned to the FARP to begin a rearm/refuel rotation within the Squadron. The other two troops began a movement-to-contact

The OH-58C and OH-58D, operating in concert, enable the AH-64 to perform at the level for which it was designed.

further north in each of two sectors. The OH-58Ds were in the lead and began the task of searching for a suspected artillery site supporting an orange forces armored brigade. The artillery tubes were found and later destroyed. During this time, a brigade had been air lifted into the area north of the Aller River and the Corps river crossing and subsequent counteroffensive had begun. In all, over ninety NATO aircraft, all on Night Vision Systems, participated in the night-long mission that enabled the blue forces to begin the offensive that eventually halted the orange forces attack and closed the bulge in the blue forces lines.

#### **Important Insight**

Some important insight can be gained from the results of this operation. The OH-58D was an invaluable asset to the success of the Squadron's mission. Its ability to acquire targets in degraded weather and light conditions was instrumental in the landing zone clearance. Using

the "D" model laser designator and automatic target handoff system (ATHS) in conjunction with a compatible system in the AH-64, artillery and attack helicopter fire response times have been decreased dramatically. The ability of the OH-58D to perform accurate and rapid reconnaissance and to report it by secure means with eight digit grid accuracy further enhanced mission accomplishment. Additionally, on one operation, the Squadron Commander used the advanced scout for command and control and discovered that due to displays available in the cockpit and enhanced communications capabilities, the OH-58D made an outstanding command and control aircraft.

#### Some New Twists

The majority of missions given to the 1-6 CAV that followed were basically cross-FLOT operations, but with a few "new twists." The "new twists" were essentially the fine tuning of already effective cross-FLOT procedures incorporating the addition of the OH-58D.

Because of the rapidly changing enemy situation and the amount of time needed to plan the rear battle mission a need for better real-time enemy target location information was determined. To accomplish this, cross-FLOT routes and planned battle positions were oriented on large suspected kill zones.

#### Continuous Updating

As take-off time approached, the enemy situation was updated as much as possible. In addition, during takeoff and

throughout the ingress to the planned battle positions, the UHF secure link between the OH-58D and the Corps TOC enabled continuous updating of enemy locations. After working out the bugs, this procedure worked well and enhanced the effectiveness of the cross-FLOT missions.

When intelligence was just not available or not accurate, the cross-FLOT formations, as they reached their initial battle positions, would transition into movement-to-contact formation, and with the OH-58D's in

use of the movement-to-contact technique on cross-FLOT missions. On REFORGER this technique, however, proved successful on two occasions.

During the deep attack operations, the OH-58D's were instrumental to the mission's success. They led formations, confirmed battle positions and performed remote designations. The use of the OH-58D for wire avoidance also proved effective. In short, the OH-58D added a new dimension to ATKHB operations and allows

"...the OH-58C possesses the ability to pick up a downed AH-64 crew behind enemy lines within minutes, while other types of recovery would be much less rapid and at higher risk."

the lead, seek out the enemy. This tactic clearly is only effective in the case where the enemy target is relatively close (less than 10km) to the anticipated locations.

An attack squadron cannot safely afford to spend even fifteen minutes in the enemy rear searching for targets. The loss of surprise and the enemy's ability eventually to locate the helicopters point to very limited

the AH-64 to operate at its most effective level.

#### Use of Scouts Debated

The proper use of scouts flying OH-58's in cross-FLOT operations has been debated from the beginning. The 1st Squadron, 6th Cavalry has incorporated the OH-58C into its formations with surprising effectiveness. Since cross-FLOT missions are most effective





in the hours of darkness and periods of low illumination/visibility, the OH-58C crew with the aid of ANVIS, has been able to maintain the airspeeds that the AH-64s with Pilot Night Vision Sstems (PNVS), can safely fly.

#### **Important Security**

The OH-58 also provides the same very important security in deep attack battle positions as those near the FLOT. The addition of the Stinger missile to both Cs and Ds further necessitates the need for these aircraft to be integrated into cross-FLOT formations; in an air to air defense role.

The OH-58 has for years relied on its attack helicopter partners for self-defense and would more than likely be safer traveling with them across the FLOT than in a formation of unarmed OH-58s flying a ruse

It was discovered on one operation that the D-model made an outstanding command and control aircraft.

mission near the FLOT. Additionally, the OH-58C possesses the ability to pick up a downed AH-64 crew behind enemy lines within minutes, while other types of recovery would be much less rapid and at higher risk. As those who have flown on cross-FLOT missions will attest, wire and antenna hazards are of great concern and the combination of both the AH-64's PNVS and the OH-58's ANVIS in the formation enhances the formation's ability to avoid these hazards.

Finally, with the addition of the OH-58D into the cross-FLOT formation and due to the fact that the "C" model can perform an essential role in such missions as: downed pilot pickup, personnel and equipment transportation, liaison coordination, air-to-

air defense (with Stinger), FAPP operations, etc., and is less expensive than the OH-58D; a mix of C and D models may make sense.

The 1st Squadron, 6th Cavalry's operations during REFORGER 87 highlight the need for the OH-58D in ATKHBs Army-wide. Possessing a superb advanced attack helicopter without a comparable scout helicopter to support it fails to exploit the AH-64's full capabilities and inhibits the development of the full potential of the ATKHB. The possibilities of satellite links, AWACS utilization, and developments in Joint Air Attack Teams, represent a view toward the future in attack helicopter operations. The integration of a dedicated scout with the capabilities of the OH-58D into the picture only serves to brighten that future. ■■■■





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Training:

## APACHE: The View from TRADOC

by Colonel John P. Kennedy



**FT. RUCKER, AL** - As the TRADOC System Manager for the APACHE, I have had a "front row" view of the most successful fielding effort in the history of modern Army Aviation. To date, the Army has fielded seven combat-ready battalions, including one very successful fielding to U.S. Army forces in the Federal Republic of Germany.

From my perspective, the remarkable success in fielding the APACHE has been due in large part to the hard work done by the trainers, particularly the unsung efforts of the APACHE Training Brigade at Ft. Hood and the ironmen instructor pilots from D Company, 1-14th Regiment at Ft. Rucker.

The single-station fielding concept and the production of an adequate number of APACHE-rated repairmen and pilots have placed unprecedented demands on both field units and the training bases that support them. Collectively, they have done well. The net result of this tremendous effort has been the full acceptance of the AH-64 by the other members of the combined arms team.

### Qualification Course

In an earlier report I mentioned how tough and demanding the AH-64 Pilot Qualification Course was on the would-be

Colonel Kennedy is TRADOC System Manager for APACHE, Fort Rucker, AL.

APACHE pilot. Since then, it has not become any easier. Based on extensive experience, feedback from the field and a great deal of innovative analysis at Ft. Rucker, the qualification course is now four weeks shorter than it was when it began over two years ago.

### CMS

The key element in allowing the Aviation School to shorten this complex training program has been the unprecedented success of the AH-64 Combat Mission Simulator. Known in APACHE circles as simply "the CMS," this device has provided a level of realism heretofore unseen in a simulation device. As

## "Shortly after the aircraft passes the 100,000 hours mark, the TSM APACHE Office will be terminated."

a result of the most recent AH-64 Course changes and the significant cost savings generated by the use of the CMS, Ft. Rucker has, in the face of diminishing fiscal resources, been able to continue to meet the pilot demand generated by the APACHE Fielding Plan. To date, over 475 pilots have completed the AH-64 Qualification Course.

### ATB and the 6th Cav

Meanwhile down in Central Texas, the APACHE story continues to be written by the

APACHE Training Brigade and the 6th Cavalry Brigade. On the training side, it was no accident that Major J.D. Thurman was selected as one of the co-winners of the Army Aviation Association's "Trainers of the Year Award". COL Lynne Handy, J.D., and a small band of stalwarts from the austere manned APACHE Training Brigade have done a truly magnificent job in ensuring that the Army receives the best-trained attack helicopter units possible. Right now the brigade is gearing up for another "first" with the upcoming summer training and testing of the first APACHE-equipped National Guard unit, the 1/130 from North Carolina.

Less than a mile away via Battalion Avenue, COL Walt Yates' 6th Cavalry Brigade is still basking in the success that it achieved during REFORGER-87. All the after action reports underline the fact that the APACHE owns the battlefield at night in North-

ern Germany. The capability to conduct cross-FLOT operations to a depth of over 60 miles at night was successfully demonstrated by the 6th Cavalry Brigade during the most recent REFORGER exercise.

### USAREUR Fielding

Simultaneous with REFORGER was the fielding of the first AH-64 unit to be assigned in Germany. The 2/6 Attack Helicopter Battalion officially joined the USAREUR ranks in January (TSM — cont. on page 78)

Operations:

## The "Wings of the Dragon" Brigade

by Colonel Kenneth P. Chien



**FT. BRAGG, NC** — Being part of the "Wings of the Dragon" Brigade in the Chinese Year of the Dragon is doubly good fortune! While fulfilling the multiple mission requirements of a contingency corps, the 18th Aviation Brigade (Corps) (Airborne) at Ft. Bragg, is steadily developing into the largest aviation brigade in the Army.

The XVIII Airborne Corps responds to three major unified commands, with responsibilities for deployment on 18-hour notice to anywhere in the world. Training around-the-clock for around-the-world missions requires an exacting and exciting pace. The Corps Aviation Brigade participates in virtually all Corps deployments and expects to enhance its contribution as the 18th Aviation Bde continues to grow.

By the end of FY91, the Brigade will expand to over 3,700 soldiers and 450 aircraft with both active and National Guard units, spread over eight states. Active Army units will be wearing the newly authorized shoulder patch at Ft. Bragg, Ft. Campbell, Ft. Irwin, Ft. Rucker, and Ft. Stewart.

### The Mission

At the Brigade's activation ceremony on September 1, 1987, guardsmen and corps soldiers officially began the mission of

**COL Chien is the Commander of the 18th Aviation Brigade (Corps) (Airborne), Ft. Bragg, NC.**

providing general aviation support to XVIII Airborne Corps; including the 10th Mountain Div., the 24th Infantry Div., the 82d Airborne Div., the 101st Airborne Div. (AASLT), the 194th Armor Bde., and the 197th Infantry Bde.

Two regular Army battalions were activated under the regimental system as the 1st and 2d Battalions of the 159th Aviation Regiment. The honored colors of the 269th Aviation Battalion and the 18th Aviation Company were retired. ATC Battalion representatives from Ft. Hood, Korea and West Germany participated, as the 58th Aviation Regiment (ATC) was activated, and the 1st Battalion, located at Ft. Bragg, was ceremonially honored with the regimental colors. A Brigade formal completed these historic activation ceremonies.

### Change of Command

In August the 1-58th will change command from LTC Mike Geoghagan to LTC Paul Carmichael. During the past year, the Battalion has kept A<sup>2</sup>C<sup>2</sup> alive in deployments to Bright Star 87, Ecuador, Panama, Honduras, the NTC and the JRTC. In addition to an Airborne Platoon that deploys with the 82d Airborne Div., the 1-58th supports the Corps in all exercises. Charged with supporting all Reserve ATC assets east of the Mississippi, the Battalion is a vital part of training and evaluation programs, to include augmentation

of personnel and equipment for all Reserve Component units.

With recent cuts in fixed base ATC personnel, the 1-58th is integrating ATC functions with Table of Distribution & Allowance and Modified Table of Organization & Equipment personnel, to staff and operate Simmons and Mackall AAFs at Ft. Bragg and Hunter AAF at Savannah, Wright AAF at Ft. Stewart and Saber AHP at Ft. Campbell.

### 1-159th

The 1-159th is the hardworking Command Aviation Battalion, commanded by LTC Trey McCarter. The Battalion has multiplied the combat effectiveness of the Corps in Emergency Deployment Readiness (EDRE) throughout CONUS, and in deployments to Bright Star 87, Honduras and the NTC. Support to help get the 10th MTN's Aviation Brigade established was provided by members of the Bn, during 1987.

"D" Co., 1-159th is currently fielding the OH-58D, a stellar addition to the Corps fighting force. At this writing, "C" Co., is scheduled for inactivation at the end of the fiscal year, and its OH-58As will be turned in as part of the worldwide aviation reduction.

### 2-159th

The Brigade's weightier needs are handled with professionalism and pride by the 2-159th, Medium Helicopter, led by LTC Gary Steimle, who assumed command in October 1987 from LTC Mitchell Johnson. The 2d Battalion has two 16 ship CH-47D companies; B Company (formerly the 132d Aviation Co.) at Ft. Stewart, and A Company (formerly the 196th Aviation Co.) at Ft. Bragg with the Battalion HQs. **(Dragon — cont. on page 78)**



Safety:

## New Strategy for Future Army Safety

by Colonel (P) Marvin E. Mitchiner, Jr.



**FT. RUCKER, AL** — Secretary of the Army John O. Marsh, Jr. and Chief of Staff of the Army General Carl E. Vuono recently approved a new strategy for Army safety. This new strategy builds on the strengths of our current program and is tied directly to the FY88 Army theme of training — the top priority for the total Army.

The strategy includes the total Army family — active, reserve, civilians, and their family members — and calls for the permanent integration of safety into mainstream Army training and operational processes. In many respects, safety has been largely an add-on consideration. On one hand, commanders must conduct tough, hard realistic training — to train as they will fight. On the other hand, they are critically aware that safety is paramount.

### Human Error

Our new strategy will correct the perception that these are separate missions. The new strategy will move safety from "consideration" to "integration" and build the program on the basis of performance standards, training and leadership skills, and values — the same factors that produce excellence in all Army activities.

The strategy targets the cen-

**COL (P) Mitchiner is Director of Army Safety and Commander U.S. Army Safety Center.**

tral safety issue in the Army — the reduction of human-error accidents. Human error is a definite cause in more than 80 percent of all Army accidents — ground and air, in military and civilian operations.

Human error is also the single largest cause of accidents for our sister services, our allies, and commercial aviation. Further reductions in Army accident losses will be directly related to reducing human errors with accident-causing potential.

Accident experience shows that human-error accidents are frequently clear indicators of training weaknesses — the same training weaknesses that would quickly deplete a unit's capability to fight in combat.

In a large portion of human-error-related accidents, the error causing the accident can usually be tied in some way to a failure to train to standard or to enforce standards.

The new strategy is built on the basic premise that safety performance is a predictable result of performing to standard, and performing to standard is a result of training to standard.

### Training to Standard

Effective training is the key not only to sustaining a combat-ready Army but also to reducing human-error accidents. Training to standard and using risk management principles produces skilled, disciplined soldiers. And

skilled, disciplined soldiers are professional soldiers who accept responsibility for the safety of themselves, the safety of others, and the protection of Army equipment.

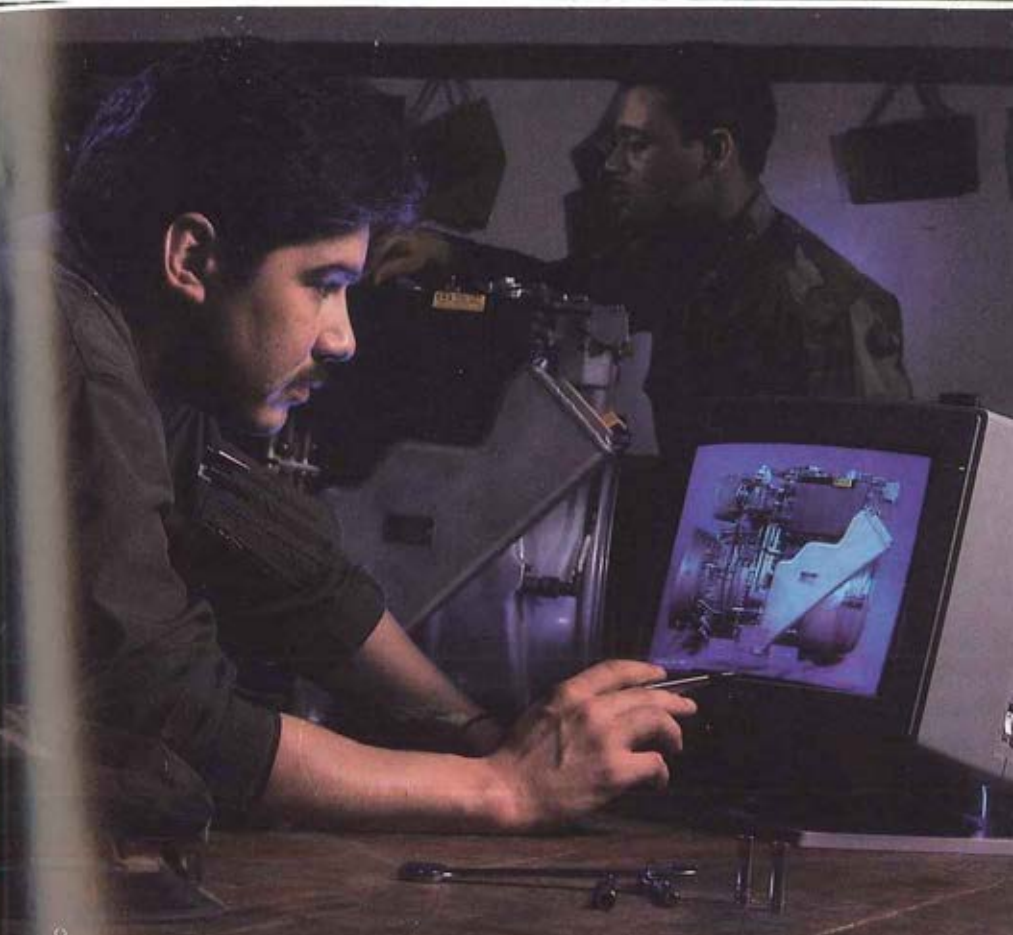
The new strategy calls for a top-down approach, working through Major Army Command (MACOM) commanders, their command sergeants major, and senior civilians, with the program being supervised and supported by brigade commanders and their command sergeants major. The strategy would be implemented at lower levels by battalion commanders down to squad leaders and civilian supervisors, who are in the best position to integrate safety into training and to influence soldier and civilian worker performance.

### Safety Center Sergeant Major

General Vuono has directed that I serve as his representative on safety matters to give Army commanders a single focal point for guidance, technical information, and Safety Center support.

I have established the Safety Center Sergeant Major as the senior safety NCO for the Army. In this position, he will represent Sergeant Major of the Army Gates on safety matters and serve as the NCO Corps' focal point in implementing the new strategy.

In summary, the new strategy capitalizes on current safety program strengths and strong commitment from Army leadership. When safety is fully integrated into Army mainstream training and operational processes, then we will have the tough, realistic training demanded by our mission and, at the same time, a high degree of protection for our war-fighting assets. IIII



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Operations:

## Helicopter Gunnery in the Warrior Brigade

by COL Malvin Handy & CW4 Jim Carpenter

**FT. HOOD, TX** — Five AH-64 Attack Helicopter Battalions (AHB) have now completed weapons qualification under the Unit Training Plan (UTP) and gunnery program. In compliance with VCSA guidance to qualify 100% of the unit on organic weapon systems, the Apache Training Brigade (ATB) has developed a comprehensive program using the guidances from FM 1-140, DA Pam 350-38, and LTG Saint, III Corps Commander. Basic goals of the UTP gunnery program are to:

- Qualify all assigned AH-64 aviators as crews in day and night gunnery. Crew qualification is objectively evaluated with emphasis on speed and accuracy in multiple weapon engagements at a hover and while moving.
- Qualify all AHB elements in TEAM and JAAT exercises with emphasis on tactical command and control evaluated to ARTEP standards.
- Qualify the AHB in range operations and all support functions with emphasis on training the AHB's staff and HSC elements. Extensive progressive training of the AVUM and III/V Platoon occurs throughout the UTP.

### Training Strategy Validation

In designing the UTP weapons training program, several

**COL Handy is APACHE Training Brigade Commander; CW4 Carpenter is a Weapon's Training Technician with the APACHE Training Brigade, Ft. Hood TX.**

factors influenced the final strategy; experience in AH-1 gunnery operations, experience in AH-64 gunnery in IKPT and AQC, and the leadership of LTG Saint.

While the UTP is essentially a rigid program, the training strategy has been in continuous validation as units train. Lessons learned through this process indicated numerous shortcomings in conducting gunnery in a "business as usual" fashion. Some of the specific deficiencies were:

- The lack of a progressive training program to build crew coordination skills.
- A serious need for both dry fire and live fire "practice" tables prior to qualification.
- A lack of definitive guidance in qualification standards for crew, team, and JAAT.
- A need for a modern range facility with reactive moving and stationary target arrays.
- A need for an objective scoring capability to evaluate night gunnery and area weapons engagements.

### Training Strategy Adjustments

To maximize the available resources at Ft. Hood, the training strategy was adjusted to provide the additional training needed prior to crew qualification and the range facilities compatible with the targetry requirements. Additional hours were created within the CMS schedule to provide four periods of crew battle drills prior to live fire tables and

to still meet the sustainment training needs of the resident Ft. Hood AH-64 units.

Two newly constructed Multi-Use Ranges designed for M2 Bradley gunnery were reprioritized by the III Corps Commander to support AH-64 Crew gunnery. This is the first modernized range facility to be dedicated to attack helicopter gunnery, while retaining the capability to support the M2/M3 Bradley gunnery.

### Qualification Table

Working from the basic guidelines of FM 1-140, a standard qualification table was derived with 12 target engagements for a 30mm cannon and 2.75 inch rockets as well as eight target engagements for simulated HELLFIRE. The engagements were combined into five multiple weapon tasks and two moving engagements with a 30mm cannon. The task table is repeated at night with different targets for each task.

The numerous target capability of the new multi-use range provides for selection of different targets for each gunnery training period which reinforces training in target acquisition. Each target on the range is a full size, two dimensional plywood silhouette with an accurate outline and thermal signature. Electric powered thermal blankets which have been in use by the armor units for gunnery, provide the appropriate infractor cues for threat identification and acquisition.

Each target is equipped with a hostile fire simulator using M21 pyrotechnic "Hoffman" charges to provide a visual signature both day and night. The hostile fire simulator is a critical device for target acquisition as normal cues (**Gunnery — cont. on page 80**)



Personnel:

## The Promotion Board Preflight Checklist

by Captain Anne W. Fields



**ALEXANDRIA, VA** - It's another sizzling hot day on the ramp. As you complete your preflight, the admin officer passes by with another irritant. He says he got the third notice for your overdue picture and annual ORB review. What a pain!! Here you're out doing your job, why can't those admin folks do theirs!?

Sound familiar? After the results of the last O-4 board, it's obvious that we had best not leave all that "admin stuff" to others. So I'm going to provide you with some information that was considered at the last board, why it's considered important, and give you a tool that all of us can relate to: a promotion board "preflight" checklist.

As you've all heard, the board has approximately three minutes to look at each file. Therefore, it is imperative that you are represented by a clear, concise, organized file. The organized part we can do; the clear and concise part you have to do. So let's start getting your file in order.

### Photos

Remember the old saying that "a first impression is a lasting impression?" Well, same thing goes with your photo. The hard copy photo is extremely important. In fact, it is often referred to as your "handshake" to the board. Lack of a photo or one

CPT Fields is an Aviation Assignments Officer, Total Army Personnel Agency in Alexandria, Va.

older than three years (AR 640-30), causes the board to think you have something to hide. Do you? Overweight? Or the board may think that you aren't interested enough to take time to get a picture! Nice message, huh? If you look fat in your photo, you are fat, regardless of your body-fat composition or screening table weight. Get someone impartial to check out your photo and get that second opinion before you send it.

You'd be surprised at the number of photos received where brass was worn improperly. Make sure you are wearing the aviation branch insignia and that it is worn correctly. Ensure that your uniform is wrinkle-free and fits properly. Concentrate on sleeve and trouser lengths. A tip for women: it is considered more professional to wear a skirt. Ensure that your skirt length complies with Army regulation.

A favorite subject: mustaches. For whatever reason, boards consistently read this as being rebellious or lacking self-discipline. And if it is ever so slightly out of trim you'll have a big red circle of magic marker on your face. So shave those "staches," gents, your sweetie might prefer it that way for awhile, and it may even make you look younger.

### Office Record Brief

Be sure that your ORB has been certified before it goes to the board. The ORB that you au-

dit, correct, and sign just before the promotion board is your sworn testimony that what is on it is correct. If an award or decoration is wrong or you "grow taller as you gain weight" and you sign the ORB, it becomes an integrity problem and your file will be very suspect!

Job descriptions in your assignment history should be complete and specific. Not platoon leader, but attack platoon leader or support platoon leader. Remember that not all other branches understand what we aviators do. Tell 'em!!! Ensure that your photo and the date of last photo on your ORB match.

### Fiche

As you know, all your OERs are on your fiche or at least they should be. Ensure that you do not have someone else's OER or extra information on your fiche.

Be sure that the job description block on your OER is accurate and says exactly what you do. Use absolutely no acronyms. Too many letters, certificates and other documentation are considered clutter. Sort through and select only the best ones. Letters of commendation should be for very commendable events.

By the way, a fiche is only updated with awards or letters when you receive an OER. Ensure that you review your fiche early enough so you can get it fixed if you have errors or omissions. It takes at least three-four months to make a change.

Letters to the president of the promotion board are considered dangerous. They normally cause either ambivalent or negative reactions from board members. If you should need to add some new, pertinent information, keep (Promotion — cont. on p. 80)

Reserve Components:

## USAR to go AOE ASAP

by MAJ (P) George S. Dodge



**ST. LOUIS, MO** — With the pending reduction of aviation positions in the Active Army, U.S. Army Reserve (USAR) aviation increases in importance to the Total Force. Currently undergoing Army of Excellence (AOE) reorganization, USAR aviation is projected to increase in size over the next four years. This period will also see the introduction of increased numbers of UH-60 BLACK HAWK and AH-1S COBRA units into the USAR. (For further detail on unit increases, see Army Reserve Aviation Update in the September 30, 1987 issue of ARMY AVIATION MAGAZINE.

### Retaining Younger Aviators

The high cost required to initially train each Army Aviator obligates us to intensively manage these high dollar assets and to retain these valuable skills and experience for the Army. It is particularly important that we retain the younger aviators recently separating from active duty because of the large numbers of experienced Vietnam veteran pilots who are now passing 20 years of service and entering the Retired Reserve.

This is best accomplished by providing a challenging high quality training environment in USAR Troop Program Units (TPU) and National Guard units.

Major (P) Dodge is Chief, Aviation Team OPMD, U.S. Army Reserve Personnel Center, St. Louis, MO.

Unfortunately, however, there are not enough USAR and National Guard units to provide positions for all the aviators who separate annually from the Active Army.

Due to demographical, geographical, employment, or other considerations, hundreds of Army Aviators each year continue to practice and maintain their skills as non-unit members of the Reserve components.

### IRR

Individual Ready Reserve (IRR) aviator training has increased significantly over the past few years in both quantity and quality of flight training opportunities. FORSCOM Active Army and USAR units provide opportunities for frequently trained IRR aviators to become refreshed in unit operations while Training and Doctrine Command (TRADOC) provides refresher training opportunities for those who return to the cockpit on a less regular basis.

Many of these retained aviators will help fill out the new USAR units of "Aviation Force 2000." Many others are needed to fill Individual Mobilization Augmentee (IMA) positions which provide first line augmentation to the Active Army in the event our nation's forces are mobilized because of war, national emergency, or disaster. The remainder may be called on, in the event of mobilization, to serve as fillers and

90-day replacements.

### The Real World

In the precarious world of the latter part this century, increasing missions to the armed forces coupled with reductions in real levels of military spending, require new and innovative ways to meet this nation's security requirements. Future wars are expected to be brutal and short, taxing both man and equipment to their limits. Yet, barring direct combat damage and assuming adequate logistics, the machines of modern warfare are capable of far surpassing the endurance of the modern soldier.

This problem is currently being addressed as we continue to seek the best method of meeting the Army Aviation personnel requirements for sustained operations. FY88 should see the beginning of several small scale test of various options which would augment current Active Army TO&E with Reserve aviation personnel to provide the necessary manpower depth for the intense 24 hour a day war.

Army Aviators who are not members of a TPU but desire to continue their active participation in the U.S. Army Reserve should contact ARPERCEN Aviation Branch either by writing to:

Commander,  
U.S. Army  
Reserve Personnel Center,  
ATTN: DARP-OPC-AV,  
9700 Page Boulevard,  
St. Louis, MO 63132-5200

or by calling:

AV 693-7564,  
toll free 1-800-325-4382  
or in Missouri call collect  
Commercial (314) 263-7564. IIIII



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Hardware:

## USAREUR CH-47D Modernization Plan

by LTC Kenneth Stein



**APO NY** — On October 11, 1987 four CH-47C CHINOOK helicopters were loaded onto a barge on the Rhine River and transported to Rotterdam, Holland for shipment to the U.S.

Concurrently, back in Philadelphia, PA, Boeing Helicopter was readying eight CH-47Ds to be flown to Bayonne, NJ to be packaged and made secure for the trip to Germany. The aircraft would be transported by ship to Rotterdam to become part of U. S. Army Europe's (USAREUR) Modernization Plan under which CH-47Cs will be replaced with CH-47D models during fiscal years 1988 and 1989.

### The Joint Team

The USAREUR Modernization Plan began in 1985 when USAREUR, U.S. Army Aviation Systems Command (AVSCOM), Army Materiel Command-Europe (AMC-Europe), U.S. Army Reserve, Army Plant Representatives Office-Boeing (ARPRO), Military Transportation Movement Command (MTMC), and Boeing Helicopter Company (BHC) formed a joint team to work out the procedures and details for a successful transition to the D-model Chinook. The CH-47D model will improve the Army's efficiency, reliability, and productivity through its 24% increase in payload, a reduction of 25 minutes in refueling time, and LTC Stein is the Materiel Fielding Team Chief, Europe.

its night vision capability which will provide 24 hour support.

### The Exchange

In planning this exchange, the two primary areas of consideration were the actual method of movement and the ways to prepare the aircraft for shipment.

After evaluating cost, man-hours, risk to the airframe, and applicability to future modernization efforts, it was determined to move the CHINOOKs by roll-on/roll-off (RO/RO) ship and RO/RO barge.

USAREUR C model CHINOOKs were flown to Coleman Army Airfield (CAA), prepared for shipment, and transferred to the CH-47 Materiel Fielding Team. After preparation, a vehicle towed the aircraft to a ramp located five kilometers from the airfield on the Rhine River.

There, the airframes were loaded onto a barge for the three

day trip to Rotterdam, where they were off loaded and stored in a warehouse to wait for the D models to arrive. Upon arrival, the C models were exchanged for the D models. The D models were then barged down the Rhine river, off-loaded and towed by truck to CAA. At CAA the aircraft were deprocessed and turned over to the receiving unit.

The C models were loaded on the ocean going vessel and returned to Norfolk, VA. There members of the 89th Aviation Support Facility (U.S. Army Reserves), Olathe, KS, deprocessed, test flew, and turned over the aircraft to the receiving U.S. Army Reserve or National Guard units for continued service until they are inducted in the Boeing Helicopter modernization line.

The method of preparation for both models utilized a plastic wrapping material called "heat shrink". This was the first time Army airframes had been prepared for shipment using this method. After the aircraft reached the embarkation point, the blades (CH47D — cont. on page 77)

**BELOW:** A deserted field near Coleman AAF looks like a scene from a sci fi movie as white-robed CH-47Ds trundle along a road.



Research & Development:

## USAAVNDTA Update

by Colonel Lawrence J. Karjala



**FT. RUCKER, AL** — The Test Activity has been involved in a number of significant tests since the last update. These include air-to-air tests with the AH-1 COBRA; MILES/AGES on the UH-60, CH-47, and AH-64; hook weight advisory system for the CH-47; and EMI/EMV testing of the AH-64. However, in this issue I want to bring you up to date on three tests currently in progress.

### OV-1D Improvement Program

The Army initiated a multi-stage improvement program to extend the operational life of the OV-1D into the year 2000. A portion of this program includes the OV-1D(BI) consisting of a 1553

COL Karjala is Commander of the U.S. Army Aviation Development & Test Activity at Ft. Rucker, AL.

data bus integration of a Control Display System (CDS) and a major upgrade of the avionics (communication, navigation, and aircraft survivability equipment). The hardware is shown in the photograph below.

The OV-1D (BI) test effort is an example of the government and contractor sharing testing requirements in a complementary manner. The program evaluation will draw upon data generated by both the contractor and the government. Current plans call for all testing to be conducted at the contractor's facility to include the flight test phase. Approximately 200 flight-hours are planned with approximately two-thirds flown by the contractor. Government testing will be accomplished by the Test Activity,

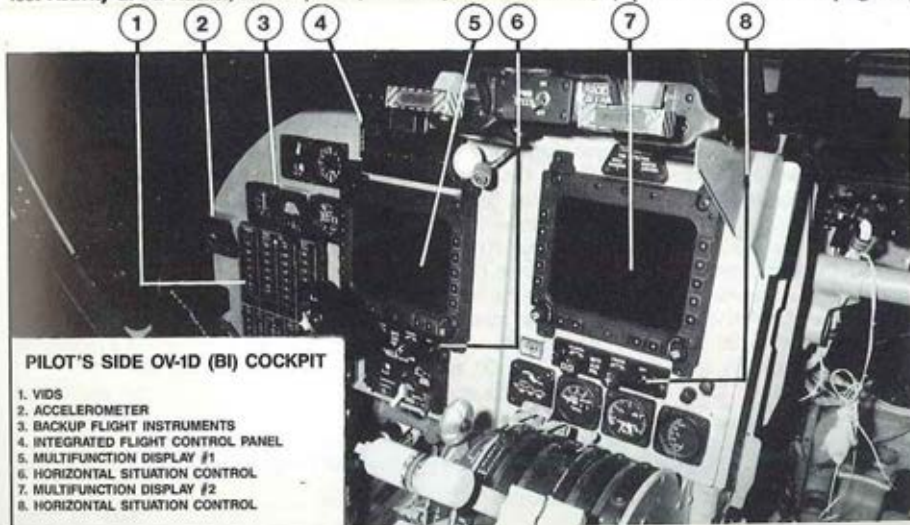
AEFA, EPG, and the AVNBD.

To date, the Test Activity has completed human factors testing of the displays and paging, system installation/removal, and buildup of two video packages for monitoring the CDS while testing the Side Looking Airborne Radar (SLAR) and camera systems. Test pilot aircraft qualification training is scheduled to begin in mid-May with flight testing against threat simulators to follow in mid-September leading to a production decision in December 1988.

### UH-60 Self-Deployment Test

The self-deployment system for the UH-60 utilizes the External Stores Support System to carry two 230-gallon and two 450-gallon fuel tanks, bringing the takeoff gross weight to 24,000 pounds. The principal test objective is to demonstrate the ability to fly 1,150 nautical miles against a 10-knot head wind and retain a 10-percent fuel reserve.

The Test Activity will fly approximately 200 hours in the self- (AVNDDTA — cont. on page 77)



PILOT'S SIDE OV-1D (BI) COCKPIT

1. VIDS
2. ACCELEROMETER
3. BACKUP FLIGHT INSTRUMENTS
4. INTEGRATED FLIGHT CONTROL PANEL
5. MULTIFUNCTION DISPLAY #1
6. HORIZONTAL SITUATION CONTROL
7. MULTIFUNCTION DISPLAY #2
8. HORIZONTAL SITUATION CONTROL



Operations:

## Training for Combat: Air Attack!

by Colonel Joseph D. Carothers



**FT. LEWIS, WA** — During the next six months, the sun will not set upon the soldiers of the 9th Cavalry Brigade (Air Attack). The Brigade is heavily involved in three major deployments and training exercises. Each one will provide our leaders and soldiers with the essential planning elements for real world missions.

Included in this planning is the multitude of details involved with each unit's preparation, deployment and training. The objective of each exercise is to bring professional excellence to every soldier through the execution of aviation operations in realistic combat environments.

### The Mission

The mission of the 9th Cavalry Brigade (Air Attack) is to find, fix and destroy enemy armor and mechanized forces using fire and maneuver as an integrated member of the combined arms team. We are capable of conducting both airmobile and air assault operations, cross FLOT and deep attack operations, as well as reconnaissance and logistical resupply operations. Additionally, with the fielding of the OH-58D, the 9th will enhance its aerial artillery observation capability for Division Artillery.

The 1st Battalion, 9th Aviation Regiment (Attack), is currently preparing to deploy "Task Force

COL Carothers is Brigade Commander, 9th Cavalry Brigade (Air Attack), Ft. Lewis, WA

Eagle" to the National Training Center and conduct combat aviation operations in support of the 3rd Brigade, 9th ID (MOTORIZED). This is an historic training exercise because it is the first NTC rotation for the 9th ID (MTZ) with Cav Bde assets as members of the combat team. This will provide an excellent opportunity to fight the motorized concept.

### Task Force Eagle

TF Eagle includes each type of aircraft from within the Brigade and will provide the 3rd Bde with a versatile, agile and lethal force to defeat the OPFOR on his own turf. The task force's total personnel commitment for this exercise involves over 350 highly motivated troopers from the Cav Bde.

The 1st Squadron, 9th Cavalry Regiment is deploying as "Task Force Delta" under the operational control of the 1st Brigade, 9th ID (MTZ), to the Republic of Korea to conduct tactical combat aviation operations. As an integral member of the RECONDO TF, 1-9 Cav will participate in Team Spirit, the largest joint military exercise in the free world involving over 200,000 soldiers from all branches of the armed services and the Republic of Korea.

TF Delta consists of aircraft and personnel from 1-9 Cav and includes over 90 troopers, 14 aircraft, and required ground support equipment. Our troopers will definitely return from this exercise better trained and well versed

in the planning, preparation and execution stages of an exercise of this magnitude. Additionally, Team Spirit 88 provides us with the opportunity to conduct combat training operations on unfamiliar terrain. This will train our troopers in the geography, terrain, and climate of North-Eastern Asia and familiarize them with the people, customs, and strategy of an allied military power.

### Task Force Reliable Eagle

The 2nd Battalion, 9th Aviation Regiment is task organized as "Task Force Reliable Eagle" and deployed as part of Joint Task Force - BRAVO (JTF-B). TF Reliable Eagle is serving as the FORSCOM aviation force to USSOUTHCOM which supports U.S. Forces in Honduras and the U.S. Defense Attache Office/Military Group in El Salvador and Guatemala.

TF Reliable Eagle consists of ten UH-60A and 4 CH-47D aircraft along with the necessary personnel and support equipment. Also included are the aircrews and support personnel/equipment required to operate and maintain nine UH-1H's. Additionally, three UH-1V (MEDEVAC) aircraft from Ft. Benning are in the task force.

When every soldier has returned safely to Ft. Lewis and every piece of equipment is accounted for, the 9th Cavalry Brigade (Air Attack) will not only be as well trained for combat as any unit can become in peacetime but, just as important, it will have completed 1,091 days of safe flying without a recordable Class A accident.

We welcome the challenges and opportunities these three deployments offer.

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Training:

## AVCATT: Training for Combined Arms Tactics

by Captain Scott A. McManus



**FT. RUCKER, AL** — An aviation brigade commander arrives in Europe one week after the Warsaw Pact forces have crossed the Inter-German border. He reports to the corps commander for his assignment and finds that he will be replacing a brigade commander killed in action in an almost depleted aviation brigade organic to one of the forward divisions. He is appalled at the number of aviation losses this soon in the battle. In consulting with the remaining aviators, he finds that the greatest losses occurred in the first three days of the general war and that since then the losses have been minimal. He wonders why these losses occurred in those first few days and how his unit can avoid repeating the fate of his predecessor.

### Training

It is probably too late for this commander to avoid devastating losses in his first few days of battle; however, other commanders can avoid it in the future by training now in peacetime. In World War II and the Korean War, unseasoned pilots flying their first eight missions had an extremely high probability of being killed

CPT McManus was assigned to the Aviation Simulation Materiel Development Branch, New Systems Training and Simulator Acquisition Division, TRADOC and is currently assigned to C Company, 1-212 Aviation Training Brigade, Ft. Rucker, AL.

killed. After the eighth mission, that probability diminished substantially. In the Vietnam conflict, the breaking point came after the fifth mission.

The reasons associated with these devastating statistics are the initial shock of combat and the learning curve required for warfighting skills. These aviators had never shot at real people or had anyone shoot at them.

Although aviators train in their specific aircraft and participate in combined arms exercises, such as REFORGER, these exercises are infrequent and the combat realism is diminished by fiscal, environmental, and safety constraints. To avoid this in the future, the U.S. Army needs to reduce the gap between realistic training and actual combat.

### Simulation

Simulation may be the solution to this training need. The Operation Red Flag Test, conducted by the U. S. Air Force (USAF), concluded that USAF pilots who were more closely trained to realistic combat conditions in simulators fared better in real combat than those who trained only in the aircraft.

Without simulator training, the losses of equipment and personnel in a fast-paced battle would severely deplete the commander's most mobile maneuver force — U.S. Army Aviation. Therefore, the commander must protect his force by training his

pilots in manned collective training simulators that are operated in real time and portray an actual interactive threat.

### Training Capability

Currently, the U.S. Army Aviation Center (USAAVNC) is capable of training how to fly and operate single attack aircraft in combat missions on simulated dirty battlefields in the combat mission simulator. Additionally, the scout cockpit procedure trainer, in conjunction with training on the actual aircraft, teaches scout mission equipment switchology.

Other than classroom instruction, however, USAAVNC has no training system for realistic aviation team training or aviation combined arms training in a task-loaded, unconstrained combat environment.

Further, neither joint operations nor NATO interoperability has this training capability for aviation. An article in the February 1987 issue of ARMY AVIATION MAGAZINE entitled "Operation USAREUR JAAT Eagle '87" concluded that these higher levels of training need continuous emphasis.

### Deficiencies

The Army's Concept Based Requirement System identified deficiencies in the aviation functional area of the battlefield development plan. These deficiencies encompassed the need to conduct realistic aviation team, combined arms, and joint services training.

Many peacetime constraints restrict the Army's ability to properly task load scout/attack teams in a realistic, unconstrained combat situations.

To meet these deficiencies, the Army needed to develop a cost-

effective means of training aviation team, combined arms, and joint services operations. In 1982 USAAVNC initiated the Training Device Need Statement (TDNS) for the Aviation Combined Arms Team Trainer (ACATT); in 1984, it was approved by TRADOC.

The TDNS required the networking of four medium fidelity simulators, two with a scout configuration and two with an attack configuration. This system would ideally meet the aviation team training needs with a pre-planned product improvement (P<sup>2</sup>I) of networking with combined arms networked trainers. However, the cost estimates to procure this system were high.

#### AIRNET

Meanwhile, the Defense Advanced Research Projects Agency (DARPA), was developing a high-technology, low-cost networking of tank and infantry fighting vehicles simulator system for the U.S. Army Armor School. DARPA then approached USAAVNC, proposing that they develop the application of this technology to Army Aviation under AIRNET. The Aviation Combined Arms Tactical Trainer (AVCATT) will be the Army's application of AIRNET technology to meet aviation's and the Army's collective training needs.

#### AIRNET/ACATT

At the time AVCATT was developed, the program was considered high risk, yet the potential payoffs and training benefits made the program worthwhile. Naturally, every plan requires a contingency plan. Therefore, USAAVNC supported a parallel development approach. This approach included the development of the ACATT documentation up to Training Device Re-

quirement (TDR) approval. It also put the ACATT TDR on the shelf until the AIRNET program proved a feasible solution to aviation's needs.

Recent developmental breakthroughs have considerably reduced the risk of the AIRNET program. In FY 1990 DARPA will turn the AIRNET prototype and technology over to the Army for test and evaluation. If this technology proves a viable means of meeting the AVCATT requirements, PM-TRADE will competitively bid this technology with the AVCATT TDR to industry for production and fielding.

If this technology does not closely meet AVCATT requirements, then the ACATT program will be activated without losing the momentum of fielding a device to meet aviation's combined arms training needs.

The AVCATT will provide Army Aviation a cost-effective training medium for collectively training aviation teams as well as combined arms teams on a more frequent basis.

AVCATT is the advanced networking of low-cost, high-technology scout and attack simulators. Each module contains a pilot's and copilot's station with visuals replicating a particular station of the aircraft.

Generally, each company set will contain eight modules portraying a three-scout/five-attack mix. Selected company sets will contain ten modules to support training both the basic three-five attack company mix and the five-scout/three-attack mix for the air cavalry troops.

The entire system provides a free-play simulated combat environment for commanders to train. The system has no instructor/operator stations to control or

influence the battle scenarios. The only control or influence on the battlefield is through the decisions and action of the actual unit operator (man-in-the-loop).

#### MCC

The company set (s) will interact realistically with the master control center (MCC). The MCC replicates the battalion tactical operations center and interjects the command, control, and intelligence exercise into the training scenario. Each of the primary staff members will occupy a computer terminal to control and allocate administrative and logistics assets along with intelligence and operations play. The MCC will also contain the necessary terminal inputs for higher, adjacent, and combined arms interaction.

A future option for these sets is to augment the system with two additional company sets to round out the AVCATT battalion training configuration. These devices will be capable of interacting with each other, the MCC, and a semi-automated, interactive threat array, using a local area networking (LAN) system. Each LAN will be capable of interacting with another one worldwide using the long-haul networking (LHN) system which consists of either a satellite or land-line medium.

#### Unprecedented Training

Each active division, corps, Reserve Component, and National Guard aviation brigade is tentatively scheduled to receive a company set. Each set will be tailored to the unit's particular aircraft. The LHN capability will, for the first time, allow the CONUS-based Reserve aviation units at home station to train frequently with their appropriate round-out unit in another location worldwide.



The overall Army application of DARPA'S SIMNET/AIRNET technology is called the Combined Arms Tactical Trainer (CATT). The ground maneuver version of AVCATT is called the Close Combat Tactical Trainer (CCTT). The CCTT is the networking of ground force simulators portraying either an armor-heavy or infantry-heavy task force.

Both the AVCATT and the CCTT are mutually supportive combined arms training programs under the CATT concept. All CATT programs will use the same basic technology that is tailored to each functional area. Each AVCATT company set will also interact with other CATT systems such as CCTT.

#### **Joint Training**

The potential for expanding this program is unlimited. Other branches of the Army supporting the maneuver brigades have actively supported the CATT program. The USAF has shown an interest in future use of this technology known as JETNET. Joint networking between the Army and the Air Force would facilitate more frequent and realistic

joint exercises such as the joint air attack team (JAAT). Other NATO countries have also shown great interest in this program, further expanding the potential of this program to support multinational exercises.

AVCATT's modular design facilitates the reconfirming of both software and hardware serving as a developmental test-bed. The CATT program will incorporate each of the functional area test-beds via the long-haul network to form the Battlefield Development Simulator System concept.

#### **Combined Arms Analysis**

This developmental system would be used to resolve combined arms issues. The reconfiguration could possibly provide a low-cost means of conducting front-end analysis and validating operational tests, tactics, doctrine, and MANPRINT applications for future or evolving systems such as the LHX, ASE, and ATAC II. The Army could then develop a system by only changing the software at a fraction of the cost of having industry develop a prototype that may not be exactly what the Army requires.

The U.S. Army Air Defense Artillery School is already involved in using the AIRNET technology

to validate their front-end analysis on the emerging forward area air defense system vehicle.

To keep pace with AIRNET development, the Directorate of Training and Doctrine (DOTD) at Ft. Rucker completed the Preliminary Training Development Study (PTDS) and the TDNS.

These documents were staffed at USAAVNC, and forwarded to the TRADOC Army Training Support Center, Ft. Eustis, VA, for worldwide staffing and approval.

#### **The Look Ahead**

The AVCATT will provide Army Aviation a cost-effective medium to collectively train aviation teams and combined arms teams with the potential to conduct joint and multinational exercises. The AVCATT spinoff will provide the aviation combat, tactics, doctrine, and materiel developers a low-cost means to test, evaluate, analyze, and validate feasible solutions to anticipated battlefield deficiencies.

Concurrently, DARPA is developing the basic technology and DOTD, USAAVNC, is developing the requirements documentation, ensuring a rapid, yet efficient fielding of this much-needed training system. ■■■■

## **FUTURE AVCATT MILESTONES**

- 3QFY88 — Draft TDR to ATSC for worldwide staffing**
- 3QFY88 — Joint Work Group (JWG)**
- 2-3QFY90 — Evaluate DARPA AIRNET technology**
- 3QFY90 — JWG 2**
- 4QFY90 — Finalize TDR**
- 1QFY91 — Training Device Requirement Review Committee**
- 1QFY92 — Production contract**
- 3QFY93 — First company set ready for training**

# Night Fighters



For military personnel who must be ready to fight in the dark, Kollsman advanced infrared technology offers a vital tactical advantage.

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Hardware:

## News from the APACHE front

by Colonel Curtis J. Herrick



**ST. LOUIS, MO** — The APACHE program is having a productive spring. The Army accepted 337 APACHES by the end of March. Six trained APACHE Attack Helicopter Battalions (AHBs) have been fielded. The 1-130 AHB of the North Carolina Army National Guard is proceeding well in the range firing portion of their unit training in the Raleigh and Ft. Bragg area.

In February, Ft. Hood unit APACHES checked the reliability of their Target Acquisition Designation Sight (TADS) in successful operational firings of the HELLFIRE missile at Yuma Proving Ground. The missiles hit tank targets in day/night engagements that checked the range envelope of the system.

In March, the 1/82 AHB after completing single station training at Ft. Hood deployed from Ft. Hood to Ft. Bragg with 20 fully mission capable APACHES. Six APACHES were moved by C5A to accomplish air transportability training. The 4/6 AHB, destined for Ft. Hood, will begin their single station training in mid-April. The 5/6 AHB, activating for assignment in USAREUR, will begin training in early May.

### Improvement Plan

In response to the Aviation Center update of the Advanced Attack Helicopter Materiel Need Statement, the APACHE Pro-

**COL Herrick is the AH-64 Program Manager, AVSCOM, St. Louis, MO.**

gram Manager's Office has begun developing Stage 1 of the AH-64 Multi-Stage Improvement Program. Stage 1 will be accomplished by applying a group of low risk improvements from available technology to the APACHE.

This effort is to upgrade the late 1970's technologies in the APACHE to meet the threat of the 1995-2005 period. Emphasis is placed on increasing the aircraft's fighting ability and applying key safety upgrades. Pilot performance will be improved by reducing the workload and assisting the crew to assimilate the wide range of information available on the electronic battlefield into fighting decisions. Battle worthiness will be emphasized with improved survivability and lower operations and supportability costs.

### ATHS

Ongoing product improvements include the Airborne Tar-

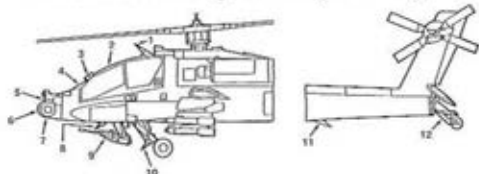
get Handover System (ATHS) recently contracted to Rockwell International, Collins Government Avionics Division. The ATHS will enhance the capabilities of the APACHE with secure burst transmission of target and battle situation information to fire control means and other aircraft as well as provide improved avionics management by both pilots.

Development is in progress for the APACHE Air-to-Air Stinger and the Flight Data Recorder. Application of Wire Strike Protection System kits to the first APACHE battalion was completed with the 2/6 AHB in Illnessheim FRG by the end of March.

The APACHE program, as an integral part to the Army Aviation Modernization Plan, is programmed to acquire APACHE for 47 AHBs: 28 active Army, 1 Army National Guard and five Army Reserve.

A Multiyear Procurement (MYP) contract is being planned to buy a maximum number of high quality APACHES for a reasonable price beginning 1990. The success of the overall program and APACHE flight operations on the REFORGE exercises have excited wide interest that may lead to international sales.

## The APACHE Wire Strike Protection System (WSPS)



1. Upper Collar
2. Door Hinge Deflectors
3. W/S Wiper Deflector
4. W/S Wiper Deflector
5. FWS Collar
6. TADS Deflectors
7. TADS Support Deflector
8. Lower Collar
9. Gun Deflector/Collar
10. NGU Collars
11. Jack Pin Deflector
12. Tail Wheel Deflector



Operations:

## The APACHE Training Brigade

by Colonel Malvin L. Handy



**FT. HOOD, TX** - Having successfully completed training of yet another AH-64 battalion, I would like to update the aviation community as to the status of the three APACHE units in training at Ft. Hood, TX.

First, congratulations to LTC Douglas Lovelace, Jr., and the men of the 1-82d Aviation on their completion of the strenuous and demanding Unit Training program (UTP). They did extremely well while in training and met or exceeded all standards while undergoing an externally evaluated Army Training and Evaluation Program (ARTEP). The unit deployed back to Ft. Bragg, NC, in March after proving themselves to be a combat ready AH-64 battalion.

The three units presently at Ft. Hood include:

### 4th Squadron, 6th Cav

The 4-6th Cavalry, commanded by LTC Mike Crews, was activated on March 16 and commenced their unit training in April. To date, 4-6th has completed Instructor Pilot, and Senior Instructor Pilot RL progression and is almost finished with Pilot In Command RL progression. Moreover, pilot and gunner seat selection are complete and all equipment has been drawn.

Upon completion of their UTP in July, the 4-6th will become a

**COL Handy is Commander of the APACHE Training Brigade, Ft. Hood, TX.**

6th Cavalry Brigade asset and remain at Ft. Hood.

### 5th Squadron, 6th Cav

The 5-6th Cavalry, commanded by LTC Mike Mehaffey, is continuing to receive arriving personnel. The unit will activate on April 26 and began unit training in May. Unit equipment and aircraft have arrived, allowing 5-6th to train their individual soldiers and pilots, preparing them for the UTP. Upon completion of the program, the 5-6th will deploy to Wiesbaden, Germany.

### 4th Battalion, 229 AV

The 4-229th Aviation is commanded by LTC Gerry Saltness. The unit is presently receiving personnel and equipment. They are in the early stages of individual and pilot training. Activation for the 4-229th will occur in June with unit training commencing in July. Ultimate deployment of the 4-229th will be to Illesheim, in Germany.

In addition to the three units presently at Ft. Hood, the

APACHE Training Brigade (ATB) will be training the 1-101st, a transitioning unit from Ft. Campbell, Kentucky.

The 1-101st, under the command of LTC Tom Garrett, will be TDY at Ft. Hood for six months. During their training, they will replace their AH-1 COBRA and corresponding equipment with the AH-64 APACHE. Their six months of training will prepare them to become a combat ready AH-64 battalion.

We will also be training the 1-130th North Carolina National Guard battalion. The battalion, commanded by LTC Duncan Stevens, will be at Ft. Hood for the month of July.

During this time they will conduct the battalion training phase of the UTP and complete training with an evaluation. The 1-130th has conducted their individual training, gunnery, and company training at their home station in North Carolina.

The APACHE Training Brigade is fulfilling its mission to receive, equip, train, evaluate, and deploy all APACHE battalions in the Army. As of this writing, seven battalions have already been trained and are on station as combat ready units. The Brigade will continue to field additional APACHE battalions through the year 1992. IIIII

**“The ATB is fulfilling its mission to receive, equip, train, evaluate, and deploy all APACHE battalions in the Army.”**

## Gunnery - cont. from p. 43

and heavy sections of the team (two or three aircraft) to coordinate fire distribution, exercise command and control, and place effective fire on target. Without a live missile or MILES/AGES (Multiple Integrated Laser Engagement System/Air Ground Engagement System), there is no effective method to evaluate fire distribution at the section or team level.

**Advanced (Team) Gunnery (Tables XI and XII):** Live fire exercises both training and qualification, day and night that evaluate Troop and Squadron level engagements, incorporating as much realism as possible. These tables should include ground and Air Force assets when available. Advanced tables eliminate the need for separate JAAT/CALFEX tables.

### Ammunition Requirements

To determine ammunition requirements for a crew during a complete gunnery cycle, it is necessary to follow a systematic approach and remove as much subjectivity as possible:

In our approach we defined the total possible number of engagements by weapon system. This was done by

graphically portraying the steps and variations of an engagement sequence. This process also yields a gross picture of the ammunition required to exercise all possible systems variations.

Once the total number of normal engagement types were known, we determined which of the engagements are critical. Critical engagements were determined by analyzing several factors; designed weapon system interoperability (producing optimum engagements), expected flight modes and mission profiles and, known and anticipated enemy counter measures.

The third step involved the grouping of critical engagements into simultaneous and sequential engagements, creating complex tasks that closely resemble actual wartime situations. This process also revealed large numbers of redundant or highly similar engagements that were unnecessary to repeat.

The collective groupings of engagements became the intermediate (crew) gunnery tables.

### Evaluation of Engagement

By their function, advanced (section and team) tables present a mission scenario requir-

ing multiple aircraft and engagements. The primary evaluation concern for section and team gunnery is the leader's ability to employ his assets.

It is inappropriate to prescribe the specific engagements that will occur during the exercise. The section or team is given a mission and provided sufficient ammunition to execute it. An evaluation is made of the total engagement. This evaluation should include:

- Mission planning and preparation
- Tactical movement
- Actions on contact
- Tactical communications
- Fire distribution and control
- Target effect

Because of the emphasis on the leader during section and team gunnery, the ammunition required is less per crew during advanced tables than during intermediate gunnery.

Gunnery skills are complex at all levels, and tend to be highly perishable. Every flight and CMS period is a refresher for live fire gunnery, but there is no substitute for actual live fire training. Crew tables should be conducted on an annual basis, or whenever a battle roster change occurs. It is important that a soldier fires his/her weapon

**“Requirements for HELLFIRE missiles are the most sensitive issue involving the AH-64A. It is important to understand that the HELLFIRE is the main gun of the AH-64A.”**



## Personal Affairs CHECKLIST

**INSTRUCTIONS:** Read the checklist below carefully and be sure you have taken care of these important matters.

- Store important papers and records in one centralized safe place with easy access. Don't risk moving them every time you PCS.
  - Set up an annual report listing all benefits payable from various sources to each family member. Use as a start point for estate planning.
  - Make sure your family has aid in claiming insurance proceeds and government benefits in the event of death or disability.
  - Find an authority on all government benefit programs—VA, Social Security, Survivor Benefit Plan and SGLI—an Association which stays current and can quickly answer the questions that you or your family have.
  - Look for an Association to monitor all claims and benefits, whether they be life insurance proceeds or government benefits such as VA Dependency and Indemnity Compensation, or Education Assistance.
  - Join the Army and Air Force Mutual Aid Association. We do all of the above and much more . . . We have been around since 1879 and serve both Army and Air Force Officers. We will help you and your family take care of your personal affairs, and will offer reliable unbiased counsel and information on all insurance and estate planning matters.
- There's no time like the present to become a member of the Association. For more information call toll free 800-336-4538/in Virginia (703) 522-3060, or fill out the coupon below.

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Rank \_\_\_\_\_ Soc. Sec. No. \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ ZIP \_\_\_\_\_

Phone (work) \_\_\_\_\_

Phone (home) \_\_\_\_\_

- Nonsmoker  Smoker





within the first (90) days of unit assignment. This same concept should apply to commanders and intermediate gunnery.

Section and team gunnery should be accomplished at least twice annually and varied to simulate all ARTEP missions, alternating defensive and offensive engagements.

### HELLFIRE Requirements

Requirements for HELLFIRE missiles are the most sensitive ammunition issue involving the AH-64A. It is important to understand that the HELLFIRE is the main gun of the AH-64A. Having a tank gunnery with no main gun ammunition would seem ridiculous. Armor units have the UCFT and MILES simulation devices (similar to the CMS, CWEPT and MILES/AGES) for tank crew proficiency, and still require live main gun rounds for training. Understanding the extreme difference in cost between tank main gun rounds and HELLFIRE missiles causes a somewhat different approach. Initial HELLFIRE qualification can be adequately accomplished in the CMS. Additionally commanders tables and AGST HELLFIRE requirements should be completed in the CMS. The majority of crew engagements should be accomplished using the training missile, and evaluating the tapes made during the engagement process. During the final crew engagement, the crew should utilize a live missile. Use of the live missile will validate the entire weapon system, and provide a confidence in the system unattainable with simulation devices.

A battle rostered crew should qualify with a live missile, once during a 12 month period. Sec-

tion and Team tables should be accomplished primarily with a MILES/AGES device or live missiles. Without a main gun round or adequate simulation device, a section or team gunnery would only provide a peripheral view of the commander's ability to suppress with rockets and cannon, completely ignoring the primary weapon system and mission of the unit.

### Team Leader Evaluation

The section or team leader is evaluated on his ability to exercise command and control, and fire distribution. This type of evaluation is highly fluid and requires immediate feedback for both the evaluator and the leader. Viewing training missile tapes after the exercise does not provide the information required by both the team and the evaluators.

As with crew, team gunnery should conclude with each crew firing a live HELLFIRE.

The CMS and CWEPT must be fully integrated into the unit gunnery program. All critical individual and crew tasks should be accomplished in the CWEPT and CMS respectively. Downgraded systems and emergency procedure training should be completed in the CWEPT and CMS also. The total number of critical CMS engagements/crew are:

- (20) HELLFIRE tasks
- (24) Rocket tasks
- (24) 30mm tasks

Two (2) 1.5 hr dedicated CMS periods are sufficient to perform all critical engagements. One period is sufficient to evaluate a newly assigned pilot (commander's evaluation). Mission scenarios should be utilized to cover all critical engagements at

least once over a semi-annual period. By using the CWEPT as the primary weapons system switchology trainer, the CMS can be left free for crew level training. The current (10) 1.5 hr CMS periods semi-annually are sufficient to conduct all necessary training.

### Breakdown of Periods

The breakdown of periods is:

- (1) Commander's Evaluation (one per tour, tables III and IV)
- (1) AGST (table V)
- (1) Instrument Training
- (1) Emergency procedure Training
- (7) Combat Skills sustainment

Range facilities and scoring techniques are as important as the gunnery tables themselves. Range and target arrays must be organized to provide realistic distances and situations for intermediate and advanced gunnery. Scoring the 30mm and 2.75" rockets should make maximum use of the Accoustic Area Weapons Scoring System.

HELLFIRE engagements with live missiles are easily scored by observation. Use of the training missiles during intermediate gunnery requires that a video playback machine be located on the range complex. Scoring of HELLFIRE engagements during advanced gunnery requires use of MILES/AGES and targets that are suitable equipped. The realization of targets is key, especially for night operations and can be accomplished either with heat blankets or charcoal filled barrels.

Current STRAC and gunnery tables (FM 1-140) do not reflect actual ammunition or engagement requirements.

During the period Jan 31-Feb

“Despite achieving excellent scores during AGST (conducted in the CMS), several crews failed to qualify on the actual range.”

10, 1988 the 6th Cavalry Brigade (Air Combat), stationed at Ft. Hood, TX completed an iteration of this gunnery program with (2) AH-64A equipped squadrons (1st and 3rd Squadrons, 6th Cavalry).

The gunnery validated all of the concepts in this paper and confirmed ammunition requirements. The 6th Cavalry Brigade (Air Combat) was able to integrate Advanced JAAT using A-10s, and an armor Brigade's Combined Arms Live Fire Exercise as part of the Ad-

vanced Gunnery, all with great success.

The Brigade learned an important lesson during intermediate gunnery that counters recent moves towards conducting all crew gunnery in the CMS. Despite achieving excellent scores during AGST (conducted in the CMS), several crews failed to qualify on the actual range. These failures were attributed to numerous causes, but forced a re-evaluation of what would otherwise have been qualified crews. This highlights

the fact that gunnery evaluates much more than just cockpit switchology. Without this complete evaluation, we are only kidding ourselves about combat readiness.

As Aviation assumes a larger and more important role in AirLand Battle doctrine, it is important that we objectively evaluate our ability to employ attack helicopters. This evaluation process must be continuous, thorough and take full advantage of all resources at our disposal.

IIII

## Army Aviation Museum Groundbreaking



The formal groundbreaking ceremony to start construction of the Army Aviation Museum was held at Fort Rucker, AL on Monday, March 28.

Dignitaries taking part in the groundbreaking were (from left to right) COL Larry S. Bonine, district engineer for the Mobile District of the Corps of Engineers; MG Ellis D. Parker, Rucker commanding general; U.S. Representative Bill Dickinson; retired MG George S. Beatty Jr., president of the Army Aviation Museum Foundation, Inc.; and Chaplain (COL) John M. Allen, Rucker Center Chaplain.

The Army Aviation Association of America donated more than \$117,000 during the course of the drive to fund the museum. This figure does not include substantial individual and corporate donations made directly to the museum foundation by AAAA members.

(U.S. Army Photo by Spec. 4 Frank T. Sullivan)



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## Plan (continued from page 16)

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repair. Such materials will enhance safety, reduce costs, be battle damage repair capable, and give more serviceable life through resistance to erosion and corrosion.

- Fiber optics technology will lighten overall weight, provide redundancy, increase safety, and reduce required maintenance.

- On-board prognostics/diagnostics will greatly improve predictability of potential failure and provide an accurate knowledge of source of failure when it occurs; greatly reducing unnecessary removals and maintenance actions.

- Flight Data Recorders (FDR) which will also be able to monitor aircraft operating environments while in flight, providing information and data relative to engine, component, airframe, and mission equipment package operational modes. This will be invaluable in governing maintenance actions needed and in case of accident provide the cause and effect relationship. The commercial airlines have been using black box crash recorders for many years. We are now installing a commercial airline comparable tape-type recorder adapted for the UH-60A (BLACK HAWK), a first for helicopters. As a follow-on, we have a state-of-the-art solid state flight data recorder which not only contains the black box crash recorder but also auxiliary memory unit (AMU) to provide the condition monitoring outlined above. Solid state recorders are now being procured for BLACK HAWK, APACHE, CHINOOK, AHIP and MOHAWK aircraft. When available, we plan to retrofit the solid state recorder into fixed wing operational support aircraft.

### Aviation Modernization Plan

The Army is now developing a major realignment of the aviation fleet with an Aviation Modernization Plan. In addition to providing a new state-of-the-art aviation fleet, this plan will also reduce the total number in the fleet of Army helicopters from about 8,500 to around 6,000, will continue production of first line BLACK HAWK, APACHE, AHIP, and CH-47D helicopters and phase out the UH-1H/M HUEY, OH-58A/C KIOWA, OH-6 CAYUSE light helicopter, and TH-55 OSAGE primary trainer. Phase out of these aircraft is

beginning in 1988. With the advent of the LH-60 in the mid 1990's, our light attack and scout helicopters including the COBRA and residual OH-58C's will be replaced.

Historically, the helicopter has not had a finite life as has been the case for fixed wing aircraft. We have now established that the average fleet age for attack and scout helicopters should not exceed ten years and for utility and lift 15 years. For logistics, these life limiting objectives have been very important. As our fleet has grown older we have found it increasingly difficult to support them. Operational and support costs have increased. We have found it necessary to modernize component parts to stay up with current technology and what is available from the marketplace, since the industrial base for the older aircraft has either shut down or become extremely costly to maintain. Further, with 14 mission/design/series of aircraft in the inventory now being reduced to six under the Aviation Modernization Plan, the difficulties and costs associated with training, maintaining, and sustaining the military and civilian skills required, as well as a multitude of spare/repair parts and associated equipment, has become extremely difficult and very costly. The Aviation Modernization Plan is a major step toward removing the horrendous logistics burden that has been developing; and will provide us with both a supportable and affordable aviation fleet.

### Impact of Budgeting

A key driver in aviation logistics is the budgeting process and the impact the budget has, not only on fleet modernization, but on support of the current fleet as well as the new one. When working budget and funding issues, we strive to achieve an optimum and balanced program. One is to support the newer aircraft as well as meeting the demands of the older aircraft during their phase out. For example, the new aircraft require large inventories of expensive spare/repair parts needed for initial fielding, need to fill depot stocks intransit and in-field pipelines, and to accommodate for always encountered infant mortality rates. Nearly all these parts must be procured based on past estimates and engineering estimates for design, production, and fielding until a demand base has been established. At the same time, funds are required to build a sustain

(Plan — continued on page 89)



## AVNDTA - cont. from p. 63

deployment configuration because the climatic conditions cannot be controlled, the test aircraft is heavily instrumented to capture accurate airspeed data and especially a full range of engine operating parameters. A computer program provided by the Naval Test Pilot School will be used to select the initial flight parameters, and if its accuracy is corroborated, it should prove to be a useful tool for mission commanders. When provided existing climatic conditions, the computer program should determine a highly reliable estimate of altitudes, airspeeds, and fuel required.

All the self-deployment equipment has been received and flight tested. The final instrumentation is being installed, and the first flight with a full fuel load should take place in April.

### Air-to-Air Stinger on AH-64

The Test Activity is in the early test planning stages for the integration of Air-to-Air Stinger in the AH-64. Although this system employs many of the same components used on the OH-58 ATAS, there are major differences in the system integration. ATAS on the OH-58 is a "bolt on" system while on the AH-64 ATAS will be fully integrated with the other aircraft systems.

System integration of this magnitude offers a considerable challenge to the tester. In addition to assessing the ability of the system itself to meet specification, the test must ensure that existing systems have not been degraded. To accomplish this the Test Activity is the overall test manager with support from Yuma Proving Ground. The test

will focus on missile performance, systems integration, logistics supportability, and MAN-PRINT and is scheduled for Fall 1988 at Yuma Proving Ground.

With the recent budget reductions in mind and considering the high cost of new materiel, it is more important than ever to conduct rigorous testing of both new development and off-the-shelf items. The Test Activity is feeling the resource constraints impacting everyone in the Army today, and we are focusing our efforts on more efficient ways to conduct meaningful testing.

### TECOM

Within TECOM a tremendous capability exists to conduct aviation testing. The Test Activity is TECOM's aviation tester, and we are supported in that mission by the extensive capabilities of White Sands Missile Range, Yuma Proving Ground, Electronic Proving Ground, Tropic Test Center, and the Cold Regions Test Center.

Collectively, we are dedicated to bringing those resources to bear efficiently by applying the most cost-effective resources available to the job at hand. We at the Test Activity with the strong support of TECOM have but one fundamental goal: Provide the Aviation Branch soldier with the best materiel possible. ■■■■

## CH47D - cont. from p. 62

were removed, engines preserved, and the heat shrink wrap was applied to the airframes.

A crew was able to wrap an airframe in about 30 man-hours and the result was a strange looking sight indeed. The shrouded aircraft looked like great Trojan horses as they were

towed on to their conveyances.

### Reassembly

Upon receipt of the D models, the wrap was removed, the blades were hung, the aircraft were ground run, and then test flown. After a little practice, it was possible to prepare two aircraft a day. The same system was utilized in the United States for the returning C models. The time for both preparation and deprocessing was significantly reduced from the time required for air movement or bagging for sea transport.

An additional benefit to this successful operation was to pave the way for the deployment of future AH-64 battalions to USAREUR. Using the same method as the CH-47's, the Army will continue to enjoy cost and time savings in the future.

### Thanks

Of course, no method — no matter how good — can succeed without the efforts of Army people. I would like to recognize the personnel of the Project Managers Office, AVSCOM, MTMC, 70th Transportation Battalion (AVIM), 21st Support Group, USAREUR, and the U.S. Army Reserve unit of the 89th Aviation Support Facility from Olathe, KS, who provided the expertise and manpower to make an idea a reality.

As USAREUR continues its aviation modernization programs and Army Aviation continues to extend around the world, the lessons learned from this operation will provide invaluable experience. The Boeing CH-47D Chinook not only provides the Army with a combat multiplier, but also with a new method of airframe transportation. ■■■■

## TSM - cont. from p. 54

of this year. Assisting in this fielding effort has been "Mr. Apache" himself, LTC Dave Sale, now the spearhead of the APACHE Program Manager's USAREUR fielding effort.

### MSIP

The latest-breaking news in the world of the APACHE is the Multiple Stage Improvement Program (MSIP). The MSIP is a planned life cycle modernization program designed to improve the APACHE in planned stages to expand its battle capabilities and extend its operational life.

The preplanned staging will make improvements and apply recently matured technology in an efficient, total system approach. In the long term this approach will, hopefully, preclude the piecemeal, random addition of improvements that has plagued some previous upgrade programs. The entire program is too complex to outline here. Suffice to say that the net effect of the MSIP for the APACHE will be improvements in safety, fighting capability, reliability and maintainability.

As of this report the AH-64 has flown just over 92,000 hours and a total of 334 aircraft have rolled off the assembly line since production began back in 1983. Shortly after the aircraft passes the 100,000 hours mark, the TRADOC System Manager - APACHE Office will be terminated. After 30 September 1988, all user issues concerning the AH-64 will be coordinated by the Directorate of Combat Developments at Ft. Rucker. This event will officially mark the transition of the APACHE to TRADOC's list of systems that have

successfully achieved a credible initial operational capability. IIII

## DRAGON - cont. from p. 55

Wherever the Corps needs medium lift capability, the 2d Battalion responds, as demonstrated through its recent self-deployments to Honduras, Ft. Drum and other Corps EDRE sites.

Other active units scheduled to activate as part of the Brigade include an Assault Battalion, 3-159th, in FY 89; a group HQs for C<sup>2</sup> of the three battalions of the 159th Aviation and the ALNG affiliated Assault Battalion, 10th Aviation Group, in FY 90; and a regimental HQs and three AH-64 Attack Battalions of the 229th Attack, and the 4-17th Armed Recon Squadron, all in FY 91.

### 1-131st

The existing assault asset of the Brigade is provided by the 1-131st, a UH-1 Assault Battalion of the Alabama National Guard. In the true spirit of training as we plan to fight, the 1-131st, commanded by LTC Billy Carter, came together as a battalion from units in AL, FL, and VA, to give superb support to the 82d Abn Div. In exercise "Market Square II" during May 1988 at Ft. Pickett, VA the 131st demonstrated thorough combat readiness, and proved that the National Guard is an integral part of the U.S. First Team.

### 449th Attack Group

The 449th Attack Group, NCNG, commanded by COL Paul W. Bailey, is the wartime HQs for two AH-64 battalions, one each from North and South Carolina. Located at Kinston, NC, it will participate in training at Ft. Hood and Ft. Rucker during July-

August 1988. The 449th has already joined the Brigade in corps level exercise, and will continue to interact with the Brigade staff in future training.

### 1-130th NCNG

The first National Guard Unit in the Army to receive APACHE is the 1-130th, NCNG, emphasizing the importance of RC force to overall U.S. Defense. Commanded by LTC Duncan M. Stephens, the 1-130th was issued its APACHES in Nov. 87, and has continued to execute its Unit Training Plan, to include individual and crew training, the Brigade automated simulation exercise-APACHE, crew gunnery and company validations. The Battalion, with all MTOE equipment and personnel, moves in July to Ft. Hood for its thirty day annual training and its August DA APACHE unit validation, a feat which will earn it, "The First Ever ARNG APACHE Bn certification."

### 1-151st

The South Carolina AH-64 Unit is the 1-151st, commanded by LTC Mark V. Rhett. The Battalion was reorganized on 1 December 1987 from "D" Troop, 1/101st Cavalry. Delivery of the first APACHES is slated for June 1988 prior to the beginning of the 90 day training cycle on July 4. The Battalion will travel to Ft. Hood in July 1989 for the unit validation phase during its 30 day annual training period.

Doubly busy in "Wings of the Dragon" country, the 18th Aviation Brigade continues the traditions of aviation in the Combined Arms Team, further exemplified through the integration of Active and Guard forces. The certification corps is ever on the go. **Airborne: Wings of the Dragon**



## TADS - cont. from p. 37

The target used for the outfront boresight at Yuma was very small, making it difficult to precisely judge the alignment of the DTV and FLIR crosshairs on the target. After redoing the outfront boresights, taking particular care in the alignment, the subsequent FLIR measurements were within spec. This showed the extreme importance of doing an accurate outfront boresight when using the FLIR for laser designations. The data collected from the instrumented target boards verified that the fielded TADS systems still meet their laser pointing accuracy requirements.

The highlight of the test, at least for members of 1/6 CAV commanded by LTC Patrick Bennett, was the live HELLFIRE

firings. As far as we know, this was the first time that HELLFIRE missiles had been fired by APACHE crews from an operational Army unit.

Three HELLFIRE's were fired during three different flights and all three missiles hit their target (a stationary M47 tank).

### Fire One!

The first missile was fired during darkness using the FLIR sensor to track the target. The second missile was fired during daylight using the Day TV as the tracking sensor. The third shot was a cooperative effort where one APACHE designated the target and another fired the missile.

The crew for the first HELLFIRE firing was CW2 Steve Paris (Pilot) and CPT Robert Taylor (copilot/gunner). The crew for the

second HELLFIRE firing was CW2 Thomas Malnichuck (pilot) and CW2 Mike Armstead (copilot/gunner). For the third firing, the crew for the firing aircraft was CW4 Parker Goodwin (pilot) and MAJ Bill Stevens (copilot/gunner) and the crew for the designating aircraft was CW4 Ed Mayers (pilot) and COL Walt Yates (copilot/gunner).

The data obtained from the instrumented target board and the successful HELLFIRE launches demonstrated that TADS systems are maintaining their required performance after being operated and maintained in the field. The test also provided the Ft. Hood crews a unique opportunity to augment their training by participating in live HELLFIRE firings. Overall, it was a big success. ■■■■

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**Spectrum Map**

**Spectrum alarm envelope**

**Overall trend plot**

**Frequency band trend plot**

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## Gunnery - cont. from p. 58

of dust and vehicle exhaust are not available. The M21 is a training ammunition item not normally authorized to aviation units.

Each target also has a hit sensing capability reported by the range control station computer.

### Scoring System

A key element to the total crew qualification exercise was the acquisition of an electronic, objective scoring system, or more precisely a scoring service. Scoring of area weapons target effect (30mm/rockets) was demonstrated as Phase II to a feasibility study for scoring on the new Ft. Rucker Helicopter Gunnery Range Complex currently under construction.

The system involves the use of doppler radar sensors for scoring 30mm engagements and an acoustical detection/scoring system for scoring both unitary and submission warheads of the new Hydra 60 series of 2.75 inch rockets.

Through modification to an existing service contract for Army Air Defense systems, scoring support has been provided to each AHB during UTP Crew Gunnery exercises.

### Scoring Support

This support is due entirely to the diligent work of Dave Dalton, George Mitchell, and the staff of Aerial Targets Management Office at the MICOM Logistics Center, Redstone Arsenal, AL. Without their dedication and desire to support training, objective scoring for attack helicopter area weapons would not exist.

Added to our objective scoring capability was the ability to review each target engagement through use of the AH-64 Ground

Video Playback system which allowed us to critique crew and weapons performance collectively or individually, as needed. Through use of the Video Playback system, our premonitions about the need for structured crew training to meet the tough gunnery standards were borne out and additional boresight errors were disclosed.

As each AHB trained, empirical data reinforced the need for weapons boresight verification and crew instructional tables prior to crew qualification tables. Based on the documented need, additional training ammunition was requested and authorized for each crew.

As training continued, new "lessons learned" illustrated the need to align our training objectives and strategies with the other Army systems such as Armor to provide for better understanding of resource requirements for helicopter gunnery by our Army leadership. The result of our program is a more disciplined approach to weapons qualification which has a direct effect on the readiness status of attack helicopter units.

### Near Term

The total training capability will be realized with enhancements currently programmed. MILES-AGES II scheduled for FY89 delivery will incorporate a live fire capability for a 30mm cannon and 2.75 inch rocket with MILES-HELLFIRE engagements versus MILES receiver-equipped targets.

Another benefit to the MILES-AGES II System will be a totally eye-safe laser range finder. New targets will have hit detection and location, caliber determination, integrated MILES detection and accurate thermal signature.

Upgrade of the AH-64 Fire

Control Computer with technology derived from the air to air combat tests will dramatically improve accuracy of the 30mm cannon, expand application of the HELLFIRE missile, and increase 2.75 inch rocket performance.

### Big Picture

There are many who disagree with the depth of the program presented here and believe that live fire weapons training should be sustained at levels above crew. Others spend inordinate resources trying to establish individual proficiency.

The crew is the basic fighting element and is the most critical in measuring a unit's killing capability. Crew level is the least complicated to evaluate objectively and easiest to reflect on unit combat readiness.

Advance gunnery levels of TEAM, JAAT, and CALFEX are essentially combat exercises and must be evaluated by ARTEF standards with emphasis on command and control.

We must know before combat or tactical exercises that our crews can effectively employ their weapons systems. IIII

## Promotion - c. from p. 59

the letter short, one page max

Command is command. Don't ever pass up a chance for command. The results have shown that the lack of command was a real discriminator.

You and your family have invested a lot of time and effort in the Army career. Don't let a poor photo or improper documentation be the only reason you don't get promoted. The next time you are out on the flight line and you get your notice to update your personnel file, take the extra 30 minutes and do it! It may make all the difference! IIII

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## Modernization (continued from page 8)

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trate on warfighting — to avoid diverting any of our attention from our primary basis for existence in the Army: to prepare for war. The Army Aviation community must deal realistically with the future environment and find ways to improve and maximize that warfighting capability through the span of years from today into the next century.

Second, we need to ensure that the aviation industry maintains a proper focus on our systems and works with us as we upgrade current systems with the various technological advances taken from developing future systems. In short, I expect industry to give us the best return for our dollar. I expect quality work, delivered on time and to our requirements. For industry to do any less is not holding up to its end of the partnership.

The Army and Army Aviation must lay out the requirements properly and hold to them. We must also provide feedback for further improvement of the future systems. This kind of loop requires constant dialogue, and that in itself is a challenge.

Three, Army Aviation must continue to refine the modernization plan. We must adjust it where necessary. Future iterations must look at projected special operations and general support requirements and establish timelines for the fielding of follow-on aircraft.

Fourth, we must look to improve our tactics, techniques, and procedures — how we fight. In doing so, we must recognize the reality of fighting in a joint and combined environment with our sister services and with our allies.

Fifth, Army Aviation must continue and expand efforts to train realistically. We expect you to hone your own internal aviation skills. We take that as a given. We expect you to meet the standards necessary to handle these magnificent systems. But we expect more from you. We expect you to be an integrated part of the combined arms team. That means we expect you to plan, execute, and assess the training of the combined arms team and train as part of that team. Don't look for the easy way out. Look for the tough challenges associated with combined arms training.

The final challenge facing our Army and Army Aviation is to ensure that we keep the quality force as strong as it is today. That quality force

is made up of splendid young men and women entering our ranks every day who understand what they're expected to do, want to be challenged, and strive to excel.

### Quality Force

This quality force includes the Outstanding Noncommissioned Officer Corps. The NCO Corps is better than it's ever been since I've been on active duty, because of those who had the vision to take action to rebuild our NCO Corps by implementing a professional Noncommissioned Officer Education System, and then by giving these NCOs the authority and responsibility that they're perfectly capable of handling.

It also includes the Officer Corps, a professional, can-do, competent Officer Corps, made up of leaders who understand their business and understand how to lead soldiers and command units.

The challenge, of course, is to keep that quality force. Because without that, we're not going to have a ready Army.

We've made tremendous progress over the past several years in Army Aviation. It's because of the efforts of all of those who comprise the Army Aviation team. I want you to know I am proud of each and every one of you.

We must rededicate ourselves to continue to train and field the most capable Army Aviation force that is humanly possible. As we maintain the momentum that we have in our Army today, and as we shape the Army of the future, Army Aviation stands very tall in helping us accomplish that mission.

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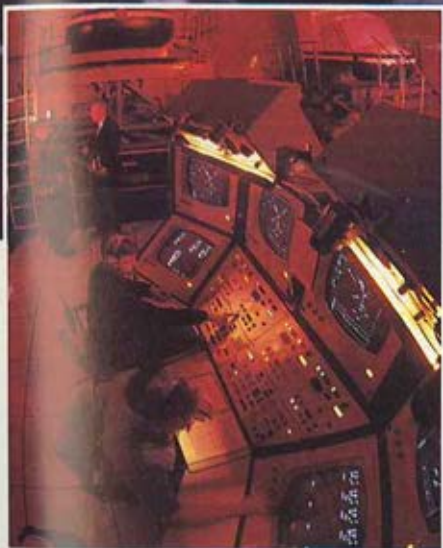
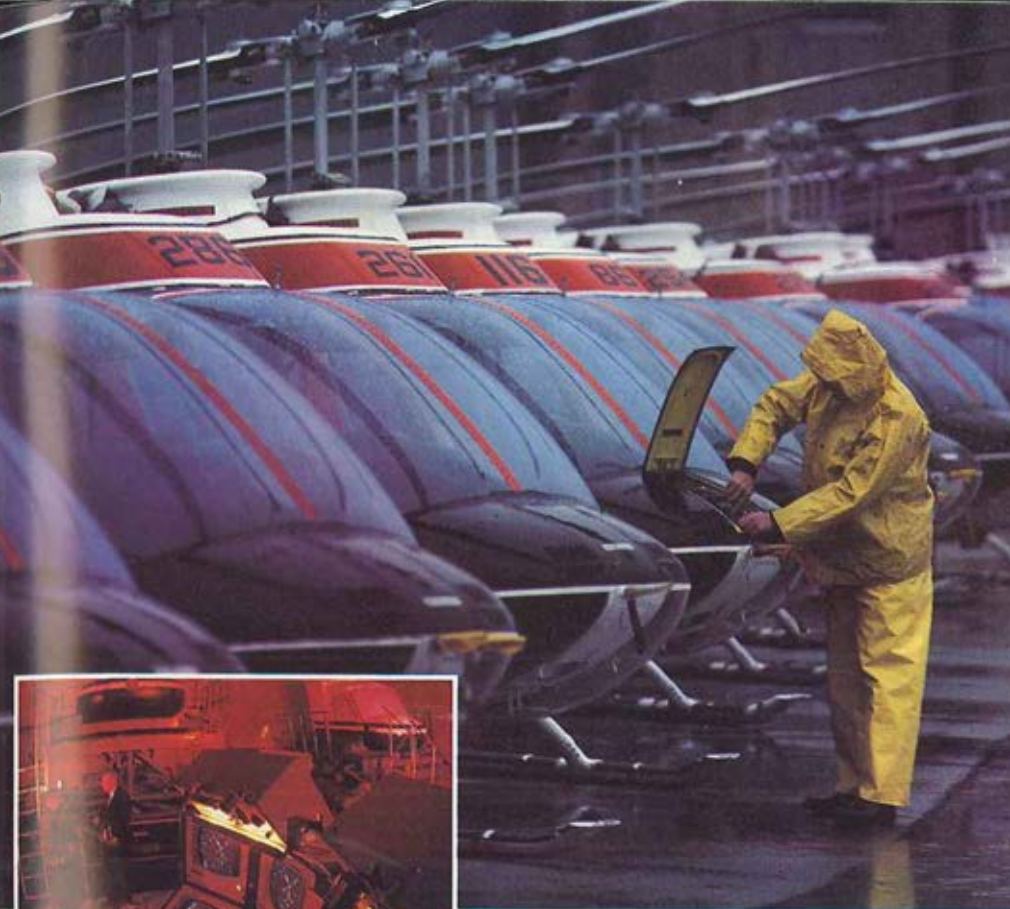
## Readiness (continued from page 10)

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AAMP are achievable and will provide Army Aviation with the capability to defeat the sophisticated threat of the 1990's and beyond.

The future challenges of the Aviation Branch are many. We must modernize our weapons and equipment with fewer soldiers and fiscal resources. In the case of the latter, I see our glass as half full rather than half empty. It is that optimism which fuels my conviction that our great aviation team, military and civilian, will demonstrate its true mettle and truly remain "Above the Best."





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## Introspection (continued from page 12)

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copter, which can lift more than the CH-47D, are vivid reminders that U.S. Army Aviation is being challenged across the board.

### Flexibility

Rather than start off listing aviation's constraints, I would like to begin by highlighting one aspect of aviation's flexibility which has not yet received adequate recognition. I am referring to the ability of aviators to help coordinate the multiple assets available to the ground commander.

In the Army Aviator, you have an "operationally wise" officer who is an integral part of the maneuver force and familiar with the ground maneuver force capabilities and actions. He has the advantage of seeing the battlefield from an aerial platform, and he possesses considerable communication capability to tie not only into the Army command nets but also into the Air Force and fire-support nets. He talks the language and uses the devices of both ground and air.

The Army Aviator can not only bring his own firepower to bear, which is formidable when you consider that the attack helicopter is a maneuver element with the range of an aircraft and the firepower of a tank, but he can also be the on-the-scene maneuver coordinator who brings air force and artillery ordnance to the ground commander when and where he needs it.

### Joint Battlefield

Army Aviation plays an increasingly important role on the total "joint" battlefield. Army Aviators should take the lead in involving their blue-suit colleagues in a total aviation community effort to think and fight jointly. We are getting better at this with efforts such as JAAT, but more needs to be done. For example, counts Warsaw Pact armed helicopters in the total number of enemy close-air-support (CAS) sorties, but we don't count our own helos in friendly CAS sorties. Why? Is there a "not in the Air Force so it doesn't exist" mentality when it comes to air support? Perhaps we need a new way of thinking and possibly a new term such as "Helo Air Support" rather than "close air support" in order to overcome service-peculiar terms. Perhaps Army Aviators should lead this discussion for the Army?

Like all combat systems, aviation as part of the combined arms team operates within certain constraints. Maintenance is one aspect of aviation that is not flexible! The Army strives to have at least 70% of its aircraft operational and not more than 30% in maintenance. An armor battalion could never accept that as a goal. This is an unfair comparison, I grant you, since aircraft are much more maintenance-intensive.

Aviators need to educate their infantry and armor counterparts on the difficulties of aviation maintenance, such as part availability, and remind them that when an armored vehicle breaks down, it rolls to a stop; when an aircraft breaks down, the crew frequently dies. But aviators have to accept as valid the premise that maintenance remains an operational constraint for aviation much more than for the ground maneuver arms.

### Aviation Maintenance

A related constraint has developed as Army Aviation maintenance becomes increasingly tied to a relatively fixed base. Army aircraft can operate in the mud, but the maintenance tail is becoming tied to fixed or semifixed sites. This maintenance frequently involves the use of complex computer-driven diagnostics which supplement the on-board built-in test equipment. Aviators should ask themselves some hard questions, such as how long it takes for the maintenance tail of a combat aviation brigade to break down, displace, set up and become fully operational again, particularly in light of the austere AOE force structure.

For example, an aviation brigade such as the 6th CBAC has 134 aircraft, ten 40-foot vans, and a total of 304 ground vehicles involved in logistics and administrative support. Is the time required to displace this maintenance tail compatible with the fast-paced operational tempo expected in our AirLand battle doctrine? The problem is certainly not limited to aviation, but it affects aviation much more than the other combat arms.

Perhaps in the NATO environment of Europe, we should seriously consider the use of hardened semipermanent aviation maintenance bases which would move forward to fight from forward arming and refueling points. If Army Aviation goes to fixed support sites in Europe, we must follow the lead of our blue-suit Air Force brethren and harden the sites. The large number of ammuni-

(Introspection — continued on page 86)



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## Plan (continued from page 76)

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ing base needed to accomplish overhaul and repair programs as unserviceables begin to accumulate.

During this early fielding stage, as much as 90% or more of budget and funding requirements are needed for new procurement and production with Aircraft Procurement, Army funds. The remainder must come out of Operation and Maintenance, Army (OMA) funds needed to overhaul unserviceables as they are generated. For older aircraft systems, for example the Huey, the budget and funding requirements are essentially the reverse; e.g., as much as 90% or more being needed in OMA funds for overhaul of unserviceable and replenishment of repair parts in the field with 10% or less required in new procurement.

This is especially true for aircraft engines and major repairable components which essentially last the life of the helicopter. We overhaul these components to zero time at required intervals during that life. Our greatest problem in budget and funding is to keep a balance that assures support of required readiness of the fielded fleet while we are expending large sums on the new fleet. There is never any question about funding safety which always has number one priority over any other requirement.

### Quality is Essential

None of the foregoing will work without that absolutely essential element known as quality. That means quality from all sources, from industry, from our Army depots, from our soldiers and civilians in the field.

Quality has had a big influence and impact on the safety, reliability, and maintainability of Army Aviation. Let me give you my philosophy on quality. The major challenge is to "ensure" the fielding of quality equipment that our soldiers need and deserve. Poor quality in equipment erodes the confidence of the Congress, the public, our allies, and most important, our soldiers in the field.

For American industry, quality is our very best response to foreign competition, to any competition. Industry must set high standards and

enforce those standards through statistical control process and through inspection. No one sets out to build "shoddy materiel," but in the press of the acquisition process, priorities get misplaced. This too often happens.

### Congress Concerned

We are not the only ones concerned. The Congress is also concerned. In the midst of horror stories about poor quality, the 1984 DOD Appropriations Act established the Warranty Provision. Now the Warranty Provision requires guarantees in all production contracts for weapons systems.

When quality standards are not met, the Army should move out against, or just not deal with companies that don't have effective quality programs; companies who don't meet our quality standards. Then, we in turn in the Army, must hold our Army personnel accountable from depots down to users.

My major thrust in quality is that there is an overriding correlation between quality and how a system performs on the battlefield; where quality puts soldiers' lives on the line. Where quality can make the difference between success and failure. In wartime, where quality can make the difference between victory and defeat.

### Bottom Line

In this year 1988, we are rapidly approaching the 21st century. As shown in our Aviation Master Support Plan, we are concerned with supporting every year into and beyond the year 2000. I have just touched upon some of the most important initiatives underway in our immediate and long range planning. You will note that the Aviation Master Support Plan depicts other initiatives that we also are pursuing.

Army Aviation and aviation logistics have come a long way since the Army assumed responsibility for developing, producing, and supporting Army Aviation in the very early 1960's.

With advent of the Aviation Branch as a critical member of the combined arms team, aviation has become ever more important to the mission of the US Army. We, who are responsible for Aviation Logistics must ensure that we have an effective, efficient, and affordable Army Aviation program. We are dedicated to doing just that. ■■■■



## Introspection (continued from page 84)

tion bunkers scattered throughout Europe may have a post-hostility use as hardened maintenance sites for Army Aviation.

The term all-weather, day-night-capable aircraft is frequently used today to describe aviation's capabilities. It is incorrect. Yes, we have made tremendous progress — the AH-64 is a prime example — but we are still not there. The ground-maneuver members of the combined arms team must plan and train to fight in darkness and inclement weather to offset the enemy's numerical advantages with our current technological advantage in night-vision devices.

Army Aviation, more than its ground counterparts, is constrained by poor visibility and bad weather. This constraint may not be resolvable in the near term because of technological limitations and costs. It does, however, add a complicating factor to Army Aviation in its role as a full-fledged and equal member of the combined arms team.

### Vulnerability

Another constraint is vulnerability. Ground forces expect to be hit and still fight on as a matter of course. Aviators, on the other hand, expect to return to base after being hit so they can return

to fight another day. Comparing thin-skinned aircraft to heavily armored tanks is like comparing apples to oranges, I know, but it is a good example of what I mean when I talk about flexibility versus constraints. No one doubts the willingness of aviators to be there as long as there is fight in the battle. Unfortunately, aircraft are not yet up to the task.

Do not mistake my intent in pointing out these constraints; it is not to antagonize aviators with unfair comparisons. Helicopters are not tanks, and their capabilities more than offset the constraints I have mentioned here. The purpose of this article is to provoke aviator introspection on the yet unresolved constraints of aviation on the battlefield.

### Strong Advocate

I am still a strong advocate of Army Aviation. Aviation has come a long way in a short time. The progress has been dramatic, and the aviation community can take just pride in its accomplishments.

However, in this time of introspection within the Army, aviators must ask themselves some hard questions and then seek out the answers.

Armed with these answers, they need to educate the rest of us. The answers you find may very well mean the difference between victory or defeat for the US Army on tomorrow's battlefields.

IIIIII

## AWARDS and HONORS

The following information on graduations is provided by the U.S. Army Aviation Center at Ft. Rucker, AL:

**Initial Entry Rotary Wing Aviator Course UH-1 Class 87-14 (2/3/87):** 1LT John P. Poppo, Distinguished Grad; 1LT John G. Alvarez, Honor Grad and Class Leader; 2LT Edward A. Hennessy, Honor Grad.

**Initial Entry Rotary Wing Aviator Course OH-58 Class 87-14 (2/3/87):** WO James P. Flaherty, Disting. Grad; WO Walker R. Armstrong, WO John S. Guidry, WO John J. Kelchen, Jr, WO Jeffrey A. Ritchie, Honor Grads.

**Initial Entry Rotary Wing Aviator Course UH-1 Class 87-15 (2/18/87):** 1LT Scott R. Morcomb, Disting. Grad; 1LT William E. Crozier, 2LT Dean E. Szczepkowski, 1LT Eric W. Kaempfer, 1LT Paul D. Johnson, Honor Grads.

**Initial Entry Rotary Wing Aviator Course OH-58 Class 87-15 (2/18/87):** WO Robert W. Todd, Distinguished Grad;

WO Ross A. Childs, WO Eric L. Van De Walker, WO Russell E. Brown, WO Marc V. Elig, Honor Grads.

**Initial Entry Rotary Wing Aviator Course UH-1 Class 87-16 (3/3/87):** 2LT Mark E. Ryan, Distinguished Grad; 2LT Jeffrey L. Edwards, 2LT Randal W. Beene, 1LT Robert A. Handley, Jr, Honor Grads.

**Initial Entry Rotary Wing Aviator Course OH-58 Class 87-16 (3/3/87):** WO Gary A. Fewins, Distinguished Grad; WO Larry A. Adkins, WO Michael E. Turner, WO Kevin W. Eaton, WO Timothy P. Brandes, Honor Grads.

**Initial Entry Rotary Wing Aviator Course OH-58 Class 87-17 (3/17/87):** 2LT Scott A. Whittington, Distinguished Grad; 1LT Arnold Z. Higginbotham, 2LT Edward A. Williams, Honor Grads.



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## BRIEFINGS



**U.S. Army War College, Class of 1988 Army Aviators** met in front of Bliss Hall, Carlisle Barracks on March 5, 1988. They are from left to right, Front Row: **LTC Ray Ivey**, **COL Ken Rhoades**, **COL Ed Zysk**, **LTC Al Ferrea**; Middle Row: **COL Mac MacWillie**, **LTC Bob Lay**, **COL Mike Abbot**, **LTC Dan Petrosky**, **LTC Joe Eszes**; Back Row: **COL Blair Blacker**, **LTC Ken McGinty**, **LTC Mike Pulliam**, **LTC Gary Starr**, **LTC Tom Green**, **LTC Mike Burke**.

The new facility to house the **U.S. Army Aviation Museum** is finally under construction. With completion of the building, new exhibits will be constructed to tell the story of Army Aviation from its start in 1941 maneuvers up to the present time. The Museum needs photographs of Europe, Africa, the Mediterranean, Asia, SWPA, Japan, Korea, Vietnam, Grenada, Central America, and South America, from WW II to the present. Good prints are fine, but good negatives would be even better as they will be enlarged to make a large montage for each area. Please look through your collection and see if you have some photos that you can share with the rest of the world. Send the photos and or negatives to: U.S. Army Aviation Museum, P.O. Box 610, Fort Rucker AL 36362, ATTN: Curator.

Anyone from any unit, any year who served at **Phu Cat Air Base, RVN**, please contact **John F. Forgette**, 2400 Donovan Ave 73, Bellingham, WA 98225 for a possible reunion.

The **Army Otter-Caribou Association** will be holding their 3rd annual reunion in Enterprise, AL on 19-21 August 1988. Former members of

Otter-Caribou Aviation units who are not already affiliated with this Association, please contact **Bill Hooks**, at P.O. Box 6091, Columbus, GA. 31907-0073, 404-324-1596 for more information.

**McDonnell Douglas** is exploring a multiple air-to-air missile capability for the AH-64 attack helicopter as a result of an emerging air combat requirement to meet enemy threats. To date, tests have included flight test and evaluation of the Sidewinder, Stinger, and Mistral missiles, with plans to test and fire the Sidearm missile in the near future.



**LTG Jimmy Ross**, Deputy Chief of Staff for Logistics returns from a test flight during a recent visit to McDonnell Douglas Helicopter Co., Mesa, AZ. for an update on the AH-64 APACHE.



These Army Aviators are students in Class 83 now in progress at the **Armed Forces Staff College** in Norfolk, VA. They are, left to right, First Row: **MAJ David L. Shroud**, **MAJ Edward C. King, Jr.**, **LTC Christopher R. Hardy** (faculty), **LTC John M. Blough (MC)**, **MAJ Charles L. Gant, Jr.** Second Row: **MAJ William L. Webb, III**, **MAJ Keith R. Stafford**, **MAJ Charles F. Doroski**, **MAJ H. Scott Barrett**, **MAJ Gordon K. Rogers**, **MAJ Alan D. McKeag**. The Staff College is part of the National Defense University operated under the Joint Chiefs of Staff.

**The  
1988  
AAAA  
National  
Scholarship  
Award  
Winners**



**Cosmas C.  
Giallourakis**



**Jennifer L.  
Camia**



**Elizabeth J.  
Green**

**This  
Year's  
23  
Outstanding  
Men  
and  
Women**



**Sharon E.  
Darley**



**Katherine C.  
Ray**



**Christopher K.  
Brown**



**Anne L.  
Schoonover**



**Tamara L.  
Hawkins**



**Christy L.  
Boyd**



**Shannon S.  
Bean**



**Terri L.  
McClanahan**



**Amy E.  
Schaaf**



**Matthew M.  
Serletic**



**Allison E.  
Bailey**



**Alexander J.  
Aranyosi**



**Pamela M.  
Torres**



**Dana R.  
Jonas**



**Michael C.  
Seamands**



**Regina R.  
O'Connor**



**Michelle C.  
Galanti**



**Deborah L.  
Owen**



**Denise M.  
Haskins**



**Julie C.  
Conrad**





## AAAA Scholarship Foundation provides \$51,000 to 23 National Winners

**The AAAA National Scholarship — \$10,000 (\$2,500 a year for four years)** Cosmas C. Giallourakis, son of Bill Giallourakis, Shrewsbury, N.J. (AAAA Interviewer: COL Fred W. Eisele, Ret.).

**Robert M. Leich Memorial Scholarship — \$5,000 (\$1,250 a year for four years)** Jennifer L. Camia, daughter of COL Dante A. Camia, APO NY (AAAA Interviewer: LTC Osborne K. Walls).

**O. Glenn Goodhand Memorial Scholarship — \$5,000 (\$1,250 a year for four years)** Elizabeth J. Green, daughter of LTC Thomas Green, Carlisle, PA (AAAA Interviewer: COL Michael H. Abbott).

**William B. Bunker Memorial Scholarship — \$4,000 (\$1,000 a year for four years to an Engineering School applicant)** Sharon E. Darley, daughter of COL Roger G. Darley, St. Louis, MO (2nd teacher's report used in lieu of AAAA interview).

**The AAAA National Scholarship — \$3,000 (\$1,500 a year for two years)** Katherine C. Ray, daughter of James A. Ray, Bridgeton, MO (AAAA Interviewer: LTC James Christie).

**B. Howard Dean Memorial Scholarship — 2,000 (\$1,000 a year for two years)** Christopher K. Brown, son of Ms. Carmella Brown, Eatontown, N.J. (AAAA Interviewer: LTC Thomas Gorman).

**Rudolph Kahl-Winter Memorial Scholarship — \$2,000 (\$1,000 a year for two years)** Anne L. Schoonover, daughter of Ms. Jean A. Schoonover, Sea Girt, N.J. (AAAA Interviewer: J. Wellington Crane).

**Frank S. Besson, Jr. Memorial Memorial Scholarship — \$2,000 (\$1,000 a year for two years)** Tamara L. Hawkins, daughter of Edwin D. Hawkins, Florissant, MO (AAAA Interviewer: LTC Lance Morgan).

**John C. Geary Memorial Scholarship — \$2,000 (\$1,000 a year for two years)** Christy L. Boyd, daughter of COL Clinton B. Boyd, Stone Mountain, GA (AAAA Interviewer: COL Douglas Hutchens, Ret.).

**Richard L. Long Memorial Scholarship — \$2,000 (\$1,000 a year for two years)** Shannon S. Bean, daughter of BG Roger K. Bean, APO NY (2nd teacher's report used in lieu of AAAA interview).

**Checkpoint Charlie Chapter Scholarship — \$2,000 (\$1,000 a year for two years)** Terri L. McClanahan, daughter of LTC Carl E. McClanahan, APO NY (AAAA

Interviewer: COL Richard R. Mitchell).

**Delbert L. Bristol Memorial Scholarship — \$1,000** Amy E. Schaaf, daughter of COL Clifford C. Schaaf, APO NY (AAAA Interviewer: COL Bennett G. Owen).

**Ken K. Kelly Memorial Scholarship — \$1,000** Matthew M. Serletic, son of MAJ Mathew Serletic, Ret., Stone Mountain, GA (2nd teacher's report used in lieu of AAAA interview).

**Robert F. Molinelli Memorial Scholarship — 1,000** Allison E. Bailey, daughter of MAJ Alton P. Bailey, APO NY (AAAA Interviewer: LTC Edwin E. Kellam).

**Jane Phillips Memorial Scholarship — \$1,000** Alexander J. Aranyosi, son of MAJ A.J. Aranyosi, Ret., Foster City, CA (2nd teacher's report used in lieu of AAAA interview).

**Aviation Center Chapter Scholarship — \$1,000** Pamela M. Torres, daughter of CW4 Richard L. Torres, Ft. Rucker, AL (2nd teacher's report used in lieu of AAAA interview).

**Colonial Virginia Chapter Scholarship — \$1,000** Dana R. Jonas, daughter of MAJ Larry M. Jonas, APO NY (AAAA Interviewer: LTC Roberto O. Lugo).

**Lindbergh Chapter Scholarship — \$1,000** Michael C. Seamands, son of Robert E. Seamonds, Chesterfield, MO (AAAA Interviewer: COL William E. Turner).

**Monmouth Chapter Scholarship — \$1,000** Regina R. O'Connor, daughter of John O'Connor, Spring Lake, N.J. (2nd teacher report used in lieu of AAAA interview).

**Monmouth Chapter Perpetual Scholarship — \$1,000** Michelle C. Galanti, daughter of Carl J. Galanti, West Long Branch, N.J. (AAAA Interviewer: Seymour Greenspan).

**Phantom Corps Chapter Scholarship — \$1,000** Deborah L. Owen, daughter of LTC Joe K. Owen, Harker Heights, TX (AAAA Interviewer: LTC James C. Prestidge).

**So. California Chapter Scholarship — \$1,000** Denise M. Haskins, daughter of MAJ Lyle K. Haskins, Newport, PA (2nd teacher's report used in lieu of AAAA interview).

**AAAA National Scholarship — \$1,000** Julie C. Conrad, daughter of MAJ Eugene B. Conrad, Huntsville, AL (AAAA Interviewer: MAJ E. Dennis Moulder, Ret.).

Since the inception of the AAAA Scholarship Foundation in 1965 as a separate corporate entity, the sons and daughters of AAAA members and deceased members have received 376 national scholarship awards totaling \$214,275.





The new officers of the Tennessee Valley Chapter are: President Garnett Crask; Senior VP Donald F. Luce; Treasurer Jean Adams; VP Memb. Enrollment and VP Membership Renewals Dave Tarker; VP Programs Charles Lovejoy; VP Publicity Gloria Brown; VP at Large John W. Finarock. Pictured above are (front, l to r) Mr. Tarker, Ms. Slater, Mr. Lovejoy, and (back, l to r) Ms. Brown, Ms. Adams, Mr. Crask.



BG William H. (Bud) Forster receives a "Blue Box" from Fred S. Belyea, chapter president, following his presentation to the Edwin A. Link Memorial AAAA Chapter, Binghamton, NY.



LTC Chuck Martin, safety officer, ARNG Avn Support Facility, Ft. Indiantown Gap, PA, presents the PA ARNG Certificate of Merit for Safety to CW4 Richard C. Dreher. LTC Martin is VP, Membership for the Ft. Indiantown Gap Chapter.



## AAAA Overview

AAAA's National Executive Board (NEB) conducted its spring meeting in St. Louis, MO, during the AAAA National Convention.

The **Board of Governors** of the AAAA Scholarship Foundation also met to solidify plans for the **CY89 Scholarship Awards Program** (see item 2 below). The NEB approved the following actions:

(1) **COL J.J. Stanko's** Interim Fiscal Report for FY88 that AAAA's financial position is healthy.

(2) The **By-Laws Amendment** that inserts the phrase "Aviation Branch" into Section 1.2 — Purposes — in recognition of the signifi-

### National Executive Board Addresses Spring Agenda

cant change in Army Aviation brought about by the creation of the Aviation Branch.

(3) **T.M. Coakley's** Convention Report that by all standards — attendance, exhibits, revenues — the 1988 Convention was a record breaker with 5,800 attending and 160,000 square feet of display space. **MG R.E. Stephenson** noted that videotapes of the major addresses of the 1988 Convention would be available for Chapter distribution.

(4) **A.H. Kesten's** Hall of Fame Report that **GEN H.H. Howze** would serve as Chairman of the Army Aviation Hall of Fame Trustees and, along with seven other trustees, would meet in mid-August 1988 to select candidates for placement on the ballot. He added that information on how to place nominations is available from the AAAA National Office.

(5) **COL S.C. Berdix, Jr.'s** Commemorative Stamp Committee Report recommending that AAAA sponsor a Stamp Design Contest at the Chapter level (more to follow in later issues).

(6) **MG G.W. Putnam's** Long Range Planning Report that involved approving motions to (a) conduct one NEB meeting at Ft. Rucker each calendar year; (b) have an ad hoc committee chaired by **MG R.E. Kenyon** study the feasibility of having a representational office in the Greater Ft. Rucker area; and (c) have the AAAA National Office remain in Westport, CT.

(7) **MG J.L. Klingenhagen's** report that the AAAA Scholarship Foundation will provide 23 scholarships totalling \$51,000 in CY88; planned to provide \$60,000 in CY89; and is investigating expansion of the program to others than sons and daughters of members.

(8) Recognition of the February 1988 activation of the **"Black Knights Chapter"** at West Point, NY, and that the first presentation of the 1988 Outstanding USMA Cadet Award would take place on May 23.

(9) **Funding of travel expenses for National Awardees** and their spouses from any destination to the National Convention. (The policy previously limited funding to CONUS travel.)

(10) **MG S.C. Stevens** and **BG J.M. Hesson's** report of their meeting with the Chapter Presidents on April 15 that included plans to pursue developing (a) a promotional videotape of the AAAA story; (b) a Speaker's Bureau; (c) and an updated Membership Recruitment Kit.



# AAAA Calendar

## April, 1988

■ ■ April 6. Colonial Virginia Chapter. General Membership Luncheon Meeting. Installation of new Board members, Discussion of Convention Issues. Ft. Eustis Officers' Club.

■ ■ April 12. Black Knights Chapter. Professional Luncheon Meeting. COL Al Rushatz, Dept. of Physical Education, guest speaker. West Point Officers' Club, Green Room.

■ ■ April 12. Checkpoint Charlie Chapter. General Membership Meeting. Tempelhof Central Airport.

■ ■ April 14. Tu-Can Chapter. Professional Business Meeting. MG Bernard Loeffke, CG USARSO, guest speaker. USARSO HQ's Bldg. 95.

■ ■ April 17. Thunderhorse Chapter. General membership Meeting. Vilseck Officers' Club.

■ ■ April 20. Monmouth Chapter. Professional Luncheon Meeting. Mr. Jack Horner, President, Bell Helicopter Textron, guest speaker. Squires Pub.

■ ■ April 22. Wings of the Devil Chapter. Professional Social Meeting. COL Malvin L. Handy, APACHE Training Bde Cdr, U.S. Army, guest speaker. Static Display of the Aircraft. Bayou Enlisted Club.

■ ■ April 27. Mainz Chapter. General Membership Meeting. Village Inn Club, Martin Luther King Village.

■ ■ April 27. Suncoast Chapter. Professional Dinner Meeting. MG James C. Smith, Ret., and CWO John Vandenburg, guest speakers. Holiday Inn South.

■ ■ April 28. Arizona Chapter. Professional Social Meeting. Mr.

Ned Dobak, director, Mktg and Sales, Garrett Engine Div of Allied Signal Aerospace, guest speaker.

■ ■ April 30. Arizona Chapter. Family Picnic. Falcon Field Park.

## May, 1988

■ ■ May 3. Washington DC Chapter. Professional Dinner Meeting. COL Turner E. Grimsley, Chief Aviation Div., HQ DA, DCSOPS, guest speaker. Ft. McNair Officers' Club.

■ ■ May 5. Indianapolis Chapter. Election of Officers. Allison Gas Turbine, Operations Div., Executive Conference Room.

■ ■ May 6. Black Knights Chapter. Professional Social Meeting. Installation of Officers. LTC Rob Roberts, President, guest speaker. Washington Hall.

■ ■ May 6. Phantom Corps Chapter. Spring Formal. Featuring the band "Party Dolls" direct from Dallas. Soldiers' Dome.

■ ■ May 11. Corpus Christi Chapter. NAS Officers' Club.

■ ■ May 16. Tu-Can Chapter. Professional Social Meeting. MAJ Ron Wilson, President, guest speaker. Howard NCO Club.

■ ■ May 18. Washington D.C. Chapter/Colonial Virginia Chapter. Professional Social Meeting. Presentation of the Robert M. Leich Award. HQ, Davison Army Airfield.

■ ■ May 20. Old Ironsides Chapter. Professional Social Meeting. Election of Officers. Andy Shenk, Flight Engineer, German Air Force, guest speaker. Ansbach Army Heliport.

■ ■ May 20. Sun Bowl Chapter. Activation Meeting. Ft. Bliss Officers' Club.

(Calendar — cont. on p. 94)

## New AAAA Officers

The following members were elected to the Executive Boards of their respective Chapters:

**Mr. R. P. Marovich** (President), Cedar Rapids Chapter.  
**CW4 Darrell C. Pope** (Treasurer), Checkpoint Charlie Chapter.

**Robert S. Montgomery**, (VP, Memb. Renewals), Edwin A. Link Memorial Chapter.

**CW4 Joseph A. Hines** (Act'g Pres), Jack Dibrell-Alamo Chapter.

**LTC David A. Keith** (VP, Memb Enrollment), Leavenworth Chapter.

**CW3 Harold F. Lucas** (VP, Benefits), Old Ironsides Chap.

**MAJ Dale Maddox** (Senior VP), **MAJ Morris Paulsen** (Treasurer), **MAJ Martin C. Pinkham** (VP, Memb Enrollment), Rhine Valley Chapter.

**LTC David E. Cowley** (Pres), **CPT Michael Fant** (Sec), **CW3 Roy Rohman** (VP, Programs), **CSM John Chlapowski** (VP, Enlisted Affairs), Taunus Chapter.

**MAJ Fred E. Brown** (Actg Pres), Wings of the Devil.

## Aviation Center Chapter Award Winners

**Non Commissioned Officer of the Year**, SFC Donald G. Winn.

**Aviation Soldier of the Year**, SP4 Laura L. Perdices.

## Aviation Soldiers of the Month

**SGT Todd A. Thorpe**, Aloha Chapter (Feb).

**PFC Anthony E. Weigel**, Army Aviation Center (March).

**PFC Diane M. Gardella**, Army Aviation Center (April).



## New Sustaining Members

(Designated Representative indicated in parenthesis).

**Aerodyne Investment Castings, Inc.** of Tampa, FL. (Russell K. Baker, Jr.)

**The Wild Side GMBH** of Numburg, FRG. (Gary J. Walko)

**The Clarksville Dept. of Electricity** of Clarksville, TN. (Edward L. Oliver)

**Parks-Belk No. 539, Clarksville, TN.** (Ms. Cheryl Cook)

## New Industry Members

(Designated Representative indicated in parenthesis)

**Advanced Systems Technology Inc.** of Tinton Falls, NJ. (Mr. Thomas Gorman)

**AVIALL** of Dallas, TX. (Mr. Howard D. Choate)

**B&D Instruments & Avionics, Inc.** of Valley Center, KS. (Mr. Dennis Snyder)

**Burnside-Ott, a subsidiary of UNC, Inc.** of Pensacola, FL. (Mr. Bert Shrine, Jr.)

**Dynamic Instruments, Inc.** of San Diego, CA. (Mr. Keith L. Jones)

**Gruppo Agusta** of Treviso, PA. (Ms. Susan Godard)

**Instrumentation Marketing Corporation** of Palmdale, CA. (Mr. Don Stafford)

**Morrison Knudsen Co, Inc.** of Boise, ID. (Mr. Robert A. Dey)

**Photo-Sonics, Inc.** of Burbank, CA. (Mr. William Crowley)

**Reflectone, Inc.** of Tampa, FL. (Mr. David Shorrock)

**Speco Corp., Grabill Aerospace Industry** of Arlington, TX. (COL James E. Hyers, Ret.)

**Spectra Systems, Inc.** of Plantation, FL. (Mr. Nir Ben-Dov)



## AAAA Calendar

### June, 1988

■ ■ **May 21.** Delaware Valley Chapter. Chapter Picnic. Marine Corps League.

■ ■ **May 21.** Morning Calm Chapter. General Memb. Meeting and Picnic. Aircraft and Industry displays, entertainment, presentations. Aviation Company Hangar.

■ ■ **May 26.** Redcatcher Chapter. General Memb. Meeting. CPT Wayne R. Husemann, guest speaker. Redcatcher Gausthaus.

■ ■ **May 27.** Army Aviation Chapter. Golf Scramble. Ft. Rucker Golf Club.

■ ■ **May 27.** Bonn Area Chapter. Professional Social Meeting. Bodensee Helicopter Activities.

■ ■ **May 27.** Tu-Can Chapter. Triathlon (Golf, Bowling, Darts). Horoko Golf Course.

■ ■ **June 4.** Black Knights Chapter. Hudson River Cruise. Ferryboat, south dock.

■ ■ **June 7.** Connecticut Chapter. Professional Dinner Meeting. HON Jay R. Sculley, Asst. Secretary of the Army for Research, Development & Acquisition, guest speaker. 500 Blake Street, New Haven, CT.

■ ■ **June 8.** Jack H. Dibrell (Alamo) Chapter. General Membership Meeting. Academy of Health Sciences Officers' Club Annex.

■ ■ **June 15.** Washington D.C. Chapter. Scholarship Fund Benefit Golf Tournament. Andrews AFB East Course.



## AAAA Overview



MG Ellis D. Parker, Chief, Avn Branch & CG, U.S. Army Avn Center and Ft. Rucker, receives a "Texas Passport" from Leroy Worm, N. Texas Chapter President, and Dick Gillingham, VP Programs, at the February quarterly meeting. MG Parker spoke on "Army Aviation Modernization Plans."

Ernie Brace, America's longest held "civilian" POW in Vietnam was guest speaker at the March 1 Connecticut Chapter professional dinner meeting. Here, Mr. Brace (left) accepts AAAA medal from CT Chapter President Bill Stuck.







## AAAA Overview



Left to right, posing before the AAAA Banner presented to the Redcatcher as "1987 Outstanding Chapter", LTC Robert JH Anderson, Redcatcher Chapter President, 1SG Frank Q. Oxendine, Redcatcher Chapter VP, Membership and AAAA 1987 "Top Gun" winner, and MG Story C. Stevens, Ret., AAAA National President, shake hands signifying a job well done.

Left to right wearing Redcatcher ballcaps: MG Story C. Stevens, Ret., AAAA National President, LTC Robert JH Anderson, Redcatcher Chapter President and BG Rodney D. Wolfe, Assistant Commandant, U. S. Army Aviation Center, pose with troopers of 4th Squadron, 2d Armored Cavalry Regiment, who received an all-expense paid trip from the Redcatcher Chapter to the AAAA USAREUR Army Aviation Convention held at Garmisch, FRG, March 17-18, 1988.



The Black Knights Chapter of AAAA was activated on Feb. 26, 1988 at the U.S. Military Academy, West Point, NY. The officers are (l to r): MAJ Dave Prewitt, Senior VP; MAJ Chris Sautter, VP, Membership; LTC Rob Roberts, President; MAJ Gary Coleman, VP, Programs; MAJ Bill Pokorny, Treasurer; MAJ Bill Pardue, VP, Cadet Activities; MAJ Greg Kaufman, Secretary. The graduating USMA class of 1988 will be sending 93 cadets to Ft. Rucker, AL.

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