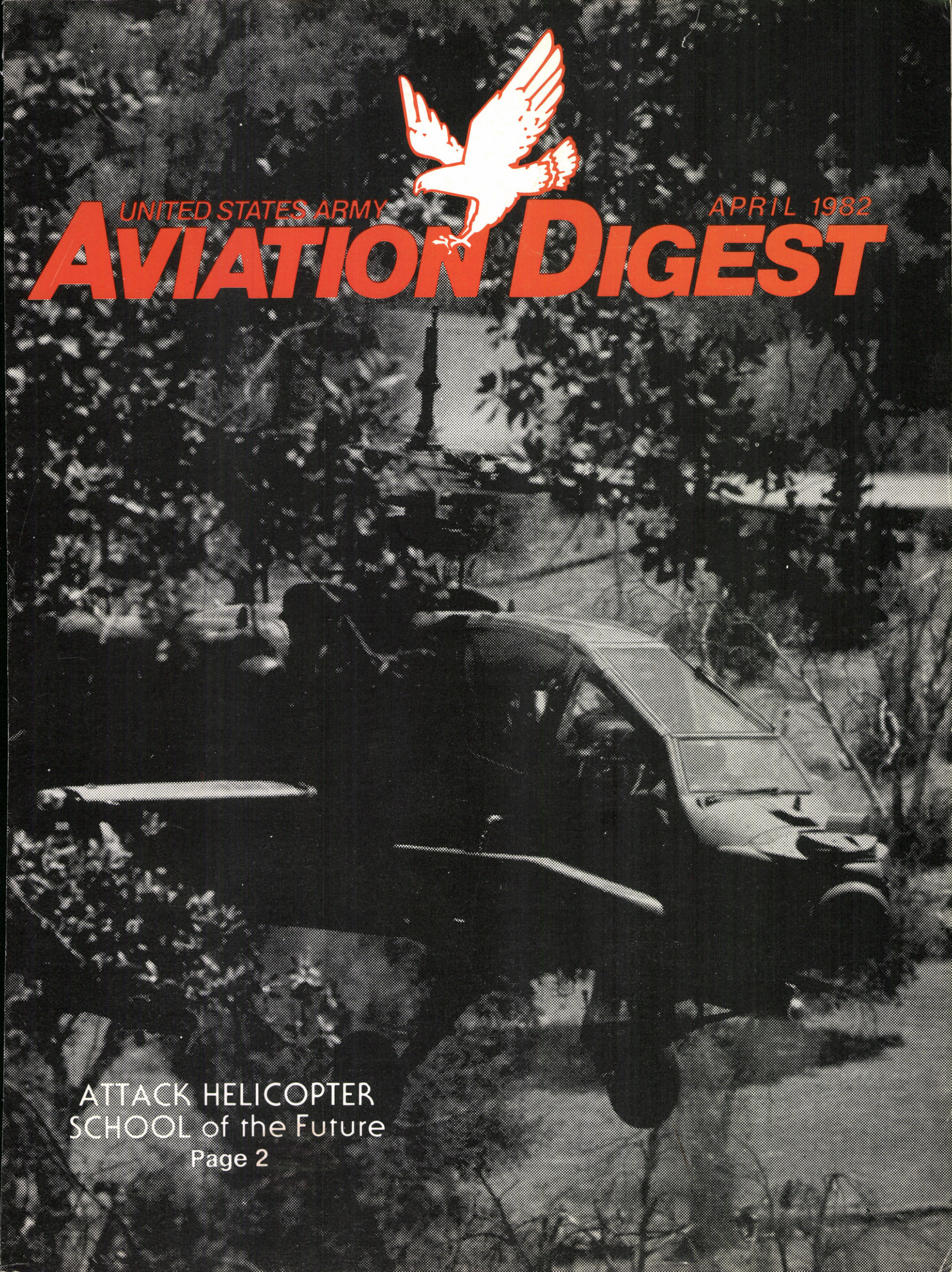
UNITED STATES ARMY
APRIL 1982

AVIATION DIGEST



ATTACK HELICOPTER SCHOOL of the Future

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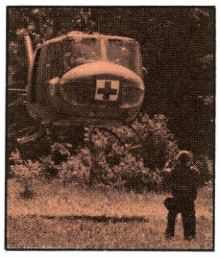

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Cover: **An AH-64 used to train aviators in terrain flight techniques and tactics at Ft. Tusi, "The Attack Helicopter School and Center of the Future." The story begins on page 2**

Honorable John O. Marsh Jr.
Secretary of the Army

Richard K. Tierney
Editor

The mission of the ***U.S. Army Aviation Digest (USPS 415-350)*** is to provide information of an operational, functional nature concerning safety and aircraft accident prevention, training, maintenance, operations, research and development, aviation medicine and other related data.

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Articles, photos and items of interest on Army Aviation are invited. Direct communication is authorized to: Editor, ***U.S. Army Aviation Digest,*** P.O. Drawer P, Fort Rucker, AL 36362. Manuscripts returned upon request.

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It has been my observation during more than 26 years of aviation service that Army Aviation continues to grow in its contribution to our Army on the battlefield—not only because of the dynamics of our mission but because of the initiative and innovation of our people. The word "inertia" simply doesn't apply, while "high energy" is quite descriptive of the Army Aviation team. The need for change in Army Aviation is constantly recognized and is most often met with the "forward looking" suggestions that come from all echelons of our community.

Indicative of such innovative thinking is our lead article by Colonel David L. Funk which describes "The Attack Helicopter School and Center of the Future." What a thinkpiece it is—from the location, facilities, units and curriculum for this futuristic training establishment, to the concluding plea that the resulting benefits would be significant enough to override our age-old obstacle and nemesis—COST!

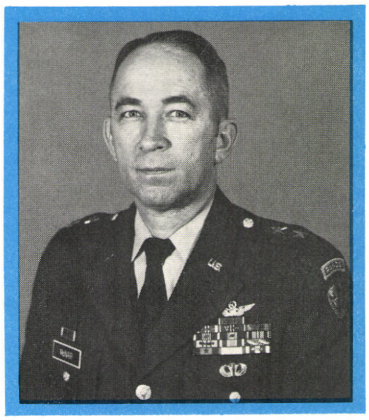
Colonel Funk's article is, however, evidence of a recurring question: We will fight as we have trained, thus should we not do our best to train as we plan to fight? The National Training Center is doing much for us in this area insofar as our sister combat arms are concerned, but it has yet to develop its full maturity with the integration of Army Aviation and other critical elements of the tactical formula for victory. Thus, Colonel Funk's proposal of a new orientation on aviation training lends even more visibility to this issue and can perhaps be viewed as an answer to the questions raised in the February *Digest* by General Hamilton H. Howze (Retired) and Lieutenant Colonel (P) James W. Lloyd about the need for Army aviators to be trained to fight.

Another concern expressed in this month's reading is "How Long Can We Fight?" by Major Charles R. Poulton II. He suggests that an attack helicopter company's TOE be augmented by an additional flight platoon for rearming/refueling purposes. This would "provide the responsiveness and flexibility needed to get maximum effectiveness from our attack helicopter assets," an effectiveness that cannot be realized on tomorrow's battlefields from the present resupply arrangements, Major Poulton states. While the final solution may not lie simply in adding more "people and things," it does surface the fact that a fix may be required for more sustained operations. This was also recognized in the recently completed Aviation Mission Area Analysis. As our level of commitment increases, so must our support slice increase, especially in Class III and Class V. What are your thoughts on solving this problem? Is Major Poulton's proposal the answer? Read on and think about it.

But still further changes for Army Aviation, particularly in the training area, are presented by Major Kirk M. Knight and Mr. Robert L. Ledbetter in their account of the work accomplished at the "1981 U.S. Army Aviation Training Symposium/ Policy Committee Meeting." They relate for you the principal issues which have already been acted upon or that will be resolved in the near future.

Field expedients are often necessary to optimize training within the resources available, and Mr. Richard P. Fulton writes about the "16th ATC Battalion in the Field." His description of the activities of the air traffic controllers and other personnel of the 16th as they participated in GOLDEN SABER V, a corps-level training exercise at Ft. Hood, TX, gives a splendid insight into the critical function performed by our ATC units, our tactical controllers—and how they get the job done.

Hopefully, you will take away from this issue the observation that Army Aviation continues to experience both change and challenge, a premise ably supported by several of our authors this month and certainly attested to by our 40 years of heritage. But your appreciation of this fact will be even more pronounced if you are able to attend the 40th birthday observance of both Army Aviation and Ft. Rucker to be held at the Aviation Center 4 to 6 June 1982. You are all invited to attend the many ceremonies, events and displays which will vividly portray the 40 years of progress of Army Aviation. A schedule of activities appears on the inside back cover of this issue. But if you cannot attend, I would hope that Army Aviation units and personnel worldwide would pause briefly in the hurried pace of their commitments and recognize this chronological milestone in our history. Forty years and still growing—because of the tremendous initiative, dedication and perseverance of those serving today and those who served before.



Major General Carl H. McNair Jr.
Commander, U.S. Army Aviation Center
Fort Rucker, AL

Colonel David L. Funk
TRADOC System Manager
Attack Helicopter
Fort Rucker, AL

FM COMUSARME
TO CSA HQDA WASH DC
INFO CICME
CDR USATHREE
CDR II CORPS
CDR 14TH CAV BDE (AH)

UNCLAS E F T O EYES ONLY//EYES ONLY//EYES ONLY//EYES ONLY//EYES ONLY
QQQQ
SUBJECT: ASSESSMENT OF ADEQUACY OF ATTACK HELICOPTER OPERATIONS IN THIS THEATER
1. AS YOU REQUESTED DURING YOUR RECENT VISIT, I HAVE CONDUCTED A SURVEY OF ATTACK HELICOPTER UNITS ASSIGNED TO THIRD ARMY TO DETERMINE THE REASON(S) ASSOCIATED WITH WHAT YOU FELT WAS A LESS THAN ADEQUATE BATTLEFIELD PERFORMANCE. THIS EFFORT WAS ACCOMPLISHED BY COL BOB STRIKER, CDR 14TH CAV BDE (AH). AS YOU MAY RECALL, HIS BRIGADE WAS THE SINGLE MOST EFFECTIVE ATTACK HELICOPTER FORCE EMPLOYED IN THIS THEATER. ALTHOUGH THE CESSATION OF HOSTILITIES AND RAPID REDEPLOYMENT OF HIGH POINT PERSONNEL MADE IT IMPOSSIBLE TO PERSONALLY INTERVIEW ALL THE COMMANDERS AND STAFF OFFICERS INVOLVED, I BELIEVE WE HAVE BEEN ABLE TO PULL TOGETHER SUFFICIENT DATA TO DRAW SOME VALUABLE CONCLUSIONS.
2. A. FIRST, IT BECAME CLEAR THAT TYPE OF AIRCRAFT AND MISSILE EMPLOYED WAS NOT A SIGNIFICANT FACTOR IN BATTLEFIELD SUCCESS, IF PROPER ADJUSTMENTS IN TACTICS AND TECHNIQUES WERE MADE.
B. MOST OF OUR AIRCRAFT, FIRE CONTROL, RADIOS, MISSILES AND ASSOCIATED MATERIEL WORKED AS WELL OR BETTER THAN EXPECTED AND COULD BE MAINTAINED BY THE TROOPS ALTHOUGH INNOVATIVE TECHNIQUES WERE SOMETIMES REQUIRED.
C. WHILE RESUPPLY OVER THE GREAT DISTANCES INVOLVED WAS DIFFICULT, THE PROBLEMS WERE OVERCOME AND LOGISTICS HAD LITTLE OR NO EFFECT ON COMBAT SUCCESS.
D. INTELLIGENCE WAS NOT A FACTOR. WE DEVELOPED AND FINE TUNED OUR ABILITY TO KEEP TRACK OF THE ENEMY AND READ HIS MAIL TO THE POINT THAT WE KNEW AS MUCH (OR MORE) ABOUT HIM THAN WE DID ABOUT OUR OWN FORCES AND THOSE OF OUR ALLIES.
3. HAVING ELIMINATED ALL OF THE ABOVE, IT CAN BE SAID THAT OUR PROBLEMS WERE CONCENTRATED IN ONE AREA—TRAINING.
A. WE DID NOT FIGHT THE WAY WE TRAINED.
B. DIVISION, BRIGADE AND BATTALION COMMANDERS DID NOT KNOW HOW TO OPTIMIZE ATTACK HELICOPTER ASSETS.
C. MANY ATTACK HELICOPTER UNITS WERE NOT EMPLOYED IN MASS, BUT WERE TASKED TO PROVIDE FIRE SUPPORT TO GROUND UNITS ON A DEDICATED BASIS BY COMPANIES AND PLATOONS.
D. MANY UNIT COMMANDERS HAD NEVER HAD THE OPPORTUNITY TO MANEUVER THEIR ENTIRE UNIT AGAINST A THREAT FORCE IN A REALISTIC ENVIRONMENT (NBC/EW/RF/ADA) PRIOR TO COMMITMENT.
E. MOST PILOTS FIRED THEIR FIRST MISSILE IN COMBAT.
F. ASE WAS NOT PROPERLY EMPLOYED DURING THE FIRST FEW WEEKS OF COMBAT.
G. NIGHT OPERATIONAL TECHNIQUES WERE DEVELOPED IN COMBAT; VERY FEW UNITS WERE PREPARED TO FIGHT AT NIGHT WHEN THEY ARRIVED IN THEATER.
H. FEW UNITS WERE PREPARED TO COUNTER THE HOSTILE ROTARY AND FIXED WING THREAT.
I. TACTICS AND TECHNIQUES FOR ACROSS THE FLOT OPERATIONS AND DEEP ATTACKS WERE NONEXISTENT PRIOR TO HOSTILITIES.
J. SUCCESS OF JOINT OPERATIONS WITH THE AIR FORCES WAS NOT CONSISTENT. MOST UNITS HAD ONLY LIMITED JAAT TRANING PRIOR TO CONDUCTING ACTUAL COMBAT OPERATIONS.
4. I HOPE THIS INFORMATION WILL BE USEFUL IN YOUR DECISIONMAKING PROCESSES. IT DOES APPEAR HOWEVER THAT THE ARMY MUST TAKE SOME IMMEDIATE ACTION TO IMPROVE ATTACK HELICOPTER TRAINING.

see page 4 for glossary

MONTHLY WRITING AWARD

John Black slides his Apache slightly to the right to unmask the TADS. His front seater, Bubba Claypool, acquires numerous targets, picks a T-80, goes to narrow field of view on the FLIR, lases, fires a HELLFIRE, tracks, destroys the target followed by an immediate remask by John Black. The entire engagement takes less than 28 seconds in total darkness in a forbidding, rugged high desert environment.

Black and Claypool receive a recall message on their DMD, recycle off the nearest FARP with the rest of their platoon, fly 150 nautical miles at high speed, using terrain flight techniques, to a holding area known only as a stored way-point in their Doppler/GPS. Upon arrival, they are ordered to attack another threat force which is in contact with a friendly ground force. Upon arrival at their attack position, with an assist by their section leader and his mast mounted sight equipped scout, they break mask to engage. Radar and laser warnings fill their CRT. An immediate remask followed by a lateral shift of 600 meters and going hot with their "Music" (radar jamming) cured the problem. As they are completing their last engagement, one of the overwatching scouts reports hostile attack helicopters closing at their 10 o'clock. Their section leader engages with an air-to-air Stinger to cover the disengagement.

Warrant Officer Candidates Black and Claypool are receiving their combat indoctrination in the world's most realistic attack helicopter team training environment—Ft. Tusi, NV. . .*

.. the ATTACK HELICOPTER SCHOOL and CENTER of the Future

THE U.S. ARMY Attack Helicopter School and Center was established in December 1986 as a TRADOC installation at Ft. Tusi, NV, on the former site of Wendover Air Force Base. This installation, the first named for a warrant officer attack helicopter pilot, is also the home of the 14th Cavalry Brigade (Attack Helicopter) which provides the school troops, aircraft and logistics support for the School and Center. The isolated location of Ft. Tusi may shock new arrivals; but this very isolation is one of its most desirable features. Live fire ranges and uninhabited day/night

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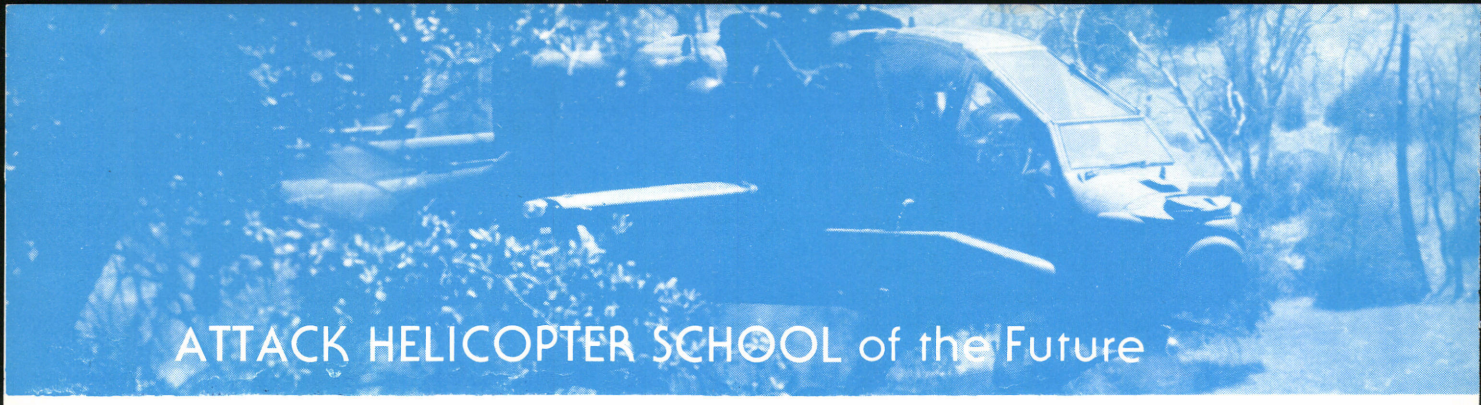
* *Fort Tusi was named for CW2 Ronald L. Tusi. CW2 Ronald L. Tusi was one of the most highly decorated aviators in the Vietnam conflict. His awards included the DSC (for a record 5 tank kills in 1 day at An Loc in April 1972), Silver Star with 2 OLCs, DFC with 7 OLCs, Bronze Star with 3 OLCs, 71 awards of the Air Medal and numerous Vietnamese awards. CW2 Tusi served two tours in Vietnam as a member of a U.S. Navy Seal Team and three tours as an Army Cobra pilot. He holds the U.S. Army record for tank kills by helicopters (all with 2.75 inch FFAR) and was one of the most proficient standardization instructor pilots in the force. CW2 Tusi died as a result of a Cobra wire strike accident at night during a CDEC Night Owl Experiment at Ft. Hunter Liggett, CA, in 1974.*



ATTACK HELICOPTER SCHOOL of the Future

NOE courses abound. To the east and southeast, Ft. Tusi adjoins Dugway Proving Ground and the Hill Air Force Base Range which provide hundreds of square miles of flat to rolling desert terrain. Farther to the east, Ft. Douglas, UT, provides hilly to mountainous forrested terrain with impact areas suitable for live fire in an environment not unlike central Europe. To the west the entire state of Nevada presents itself as one big NOE training area with numerous government owned ranges suitable for both live fire and maneuver of armored vehicles.

Another benefit of this isolated location is the almost total lack of distractions which would impact adversely on training. Aside from some occasional activity on the nearby Bonneville Salt Flats, the nearest possible distracting element is the rather staid Salt Lake City, 100 miles due east. However, recreational activities for the outdoorsman abound; some of the world's best hunting, fishing, skiing and mountaineering areas are within easy reach.

Brigadier General Bob Striker became the first commandant concurrent with the establishment of the Center. He gathered around him a group of bright attack helicopter leaders of proven ability. All had demonstrated leadership in the recent Southwest Asian war. All instructors and a very high proportion of the members of the 14th Cavalry are veterans of that same conflict. The selection of the cavalry brigade as the school support organization was based on its own outstanding combat record, particularly its fast moving, deep penetration night attacks in the Iranian highlands.

The organization of the cavalry brigade has been modified to fit its school support mission. The 1st Battalion of the Attack Helicopter Regiment is organized and equipped as a standard AH-64 Apache unit; but all personnel are super talented, combat veterans of demonstrated capability. In addition to providing demonstration support and test players for attack helicopter operational/force development tests, the 1st Battalion is a highly capable RDF unit.

The 2d Battalion of the Attack Helicopter Regiment contains all AH-64/AHIP instructor pilots and training aircraft. All students in courses using these aircraft are also assigned to this battalion.

The 3d Battalion of the Attack Helicopter Regiment is equipped with AH-1X Cobra and OH-58D Kiowa aircraft. "A" Company is an active Army organization which functions as the training unit for the low side of the high/low mix. "B" Company is a Utah National Guard unit which drills on site, while "C" Company is a USAR unit from Arizona which takes its summer training at Ft. Tusi.

The 14th Maintenance and Support Battalion provides aircraft maintenance and logistical support for the brigade. One company of the battalion is a Nevada National Guard unit oriented toward maintaining 3d Battalion Cobras and OH-58Ds.

The brigade organization also includes the normal pathfinder, aeroengineer and S&T companies which have both school support and combat readiness missions. One platoon of each of these companies is a

GLOSSARY

ADA	air defense artillery
AHIP	Army Helicopter Improvement Program
ANVIS	aviation night vision imaging system
ASE	aircraft survivability equipment
CAS	close air support
CDEC	U.S. Army Combat Developments Experimentation Command
CDR	commander
COHORT	cohesion operational readiness and training
COL	colonel
CONUS	continental United States
CRT	cathode ray tube
DFC	Distinguished Flying Cross
DMD	digital message device
DSC	Distinguished Service Cross
EW	electronic warfare
FAC	forward air controller
FACTS	FLIP augmented Cobra TOW Sight
FARP	forward arming and refueling point
FFAR	folding fin aerial rocket
FLIR	forward looking infrared
FLOT	forward line of own troops
FORSCOM	U.S. Army Forces Command
FTX	field training exercise
GPS	global position system
HELLFIRE	Helicopter Launched Fire and Forget
JAAT	joint air attack team
MMS	mast mounted sight
NBC	nuclear, biological and chemical
NOE	nap-of-the-earth
OCONUS	outside continental United States
OLC	oak leaf cluster
OPFOR	Opposing Force
PNVS	Pilot's Night Vision System
POI	program of instruction
PT	physical training
RDF	rapid deployment force
REFORGER	Return of Forces To Germany
RF	radio frequency
RRRP	REFORGER Reverse REFORGER Program
S&T	supply and transport
TADS	Target Acquisition Designation System
TOW	tube-launched, optically-tracked, wire-guided
TRADOC	U.S. Army Training and Doctrine Command
USAAHS	U.S. Army Attack Helicopter School
USAR	U.S. Army Reserve

local Army Reserve organization.

Attached to the brigade for school support only is a Combined Arms Battalion. This organization is composed of one tank/infantry company with one "blue" platoon and two OPFOR platoons, an ADA battery (OPFOR), a helicopter company (OPFOR) and a range instrumentation company.

FACILITIES

Ft. Tusi facilities include those normally associated with its previous role as an Air Force bomber training base. However, runways, ramps and hangars have been upgraded and modernized to facilitate attack team training and provide adequate support for C-5, C-141 and A-10 aircraft used in RDF and JAAT operations and training. The primary attack helicopter range, located just east of the post, has been fully instrumented and equipped with RF, EW and laser emitters. This range is the primary force on force training and evaluation facility.

Desert, mountain and temperate survival training camps have been established on suitable terrain in the local area. Prior to conducting any phase of flight training at Ft. Tusi, all aircrewmembers must successfully complete training in each of these camps.

Combat mission simulators for AH-1X, AH-64B and AHIP are provided. These simulators work through a central computer which facilitates section level training by permitting interaction between cockpits. This permits tactical play prior to going "for record" on the fully instrumented range. Savings on aircraft fuel, parts and munitions are significant while training time is reduced by cutting en route time to zero. The ability to "play back" each tactical mission is also a great assist in training the teams and sections since they can learn from their own mistakes.

The Attack Helicopter Center's athletic facilities are among the Army's finest. Physical fitness is stressed constantly in each POI. Night, NOE attack missions place heavy demands on each crewmember physically. Therefore, the highest standards of performance are required, not only during monthly PT tests but during other physically demanding activities such as survival training, orienteering, the cavalry stakes and various FTXs.

TRAINING

All training at Ft. Tusi is heavily influenced by lessons learned in Southwest Asia. Indeed this very establishment of the Attack Helicopter Center was based on the need, identified in combat, to both expand and standardize the tactical training of the attack force. Training areas used previously did not offer sufficient maneuver and live firing areas to provide for the expansion required to accomplish those tasks identified as critical to total force effectiveness.

The program of instruction for the Attack/Scout Helicopter Basic Course (the single most important course offered at the USAAHS) is tailored to receive input from both initial entry volunteer students who have completed primary, basic and instrument flight training at Ft. Rucker, AL, and a limited number of high quality aviator volunteers from both active and reserve component units. All are prescreened at either Ft. Rucker or home stations by the USAAHC screening team. Screening includes a series of both mental and physical tests which determine the volunteer's aptitude as an attack or scout aviator. Motivation and ability

AH-64B prepares to unmask for a direct fire HELLFIRE engagement on one of the live fire ranges at Fort Tusi

ATTACK HELICOPTER SCHOOL of the Future

to act in a high stress environment are two of the most significant discriminators used during the screening process.

All students attempting this course must successfully complete a 4 week preflight phase which serves as an additional screening gate while providing detailed knowledge of subjects required prior to entry into the flying phases. This preflight phase is structured to intentionally place all students under stress for significant periods. Training days are long (12 hours +) and a significant percentage of that time is accomplished during hours of darkness. Physical conditioning and basic soldier skills are continually stressed. Map reading, orienteering, individual weapons qualification, armor tactics and OPFOR training make up the bulk of the syllabus. Field training is emphasized with armor and OPFOR operations being nearly all of the "hands on" variety. Students participate in force-on-force armor operations as tank and ADA crewmembers primarily with the OPFOR. During this training they learn not only basic threat tactics but work against friendly attack/scout helicopters flown by students from the preceding class.

Survival training is also accomplished during phase one. [Note:] Everyone who flies at Ft. Tusi must complete survival training prior to leaving the traffic pattern. This training is accomplished at each of three survival training sites: the desert site is located on the Ft. Tusi reservation; the European (temperate zone) site is at Ft. Douglas, UT (125 miles east of Ft. Tusi); and the mountain site is in the Watasch Mountains (30 miles east of Ft. Douglas). Three days and nights are spent at each site learning appropriate survival, escape, evasion and rescue techniques. During survival training the students seldom sleep, while being placed under long periods of stress requiring real world decisionmaking. This physically demanding training takes place during the last 10 days of phase one and is designed to take advantage of the students' physical and mental preparation received during the early weeks of training.

Those who successfully complete phase one then move on to the 6 weeks of aircraft transition training in either the AH-64B, AH-1X or AHIP. Both ground and flight training are oriented toward producing a pilot capable of flying and fighting the aircraft in a terrain flight environment during daylight or darkness and during periods of adverse weather.

The first 6 weeks of flight training is basic aircraft transition. Aircraft time is minimized during this phase by heavy reliance on combat mission simulators and part task trainers for PNVS, TADS, FACTS and MMS. Aircraft systems and attack team tactics receive emphasis during ground school training.

The second phase of flight training consists of 4 weeks of day/night target acquisition, gunnery and PNVS or ANVIS single ship, on local ranges.

During the next 6 weeks, section and platoon tactics are stessed on the intrumented range. Day/night force on force and live fire scenarios are played in an NBC/RF/EW environment. Use of aircraft survivability equipment and coordination with ground forces is habitually stressed. Both air-to-ground and air-to-air tactics are played extensively. For the first time coordination with Air Force FACs and CAS aircraft is played during force on force missions. By using the instrumented ranges, crews can be debriefed in great detail after each mission, with the tape playback from the range instrumentation providing a framework for evaluation.

The final 2-week period consists of a FTX during which combined arms and JAAT tactics are emphasized again on the instrumented range. During this phase, crews, sections, platoons and companies are formed that live and fight in the field for the entire period. Leadership positions are occupied by students and are rotated daily. Students are responsible for mission planning/coordination, briefings, leadership and debriefs. Missions are flown day and night over varying terrain. Both force on force and live fire missions are executed. During this phase stress is high and sleep is limited; short reaction times will be common.

One of the most innovative courses offered is the Tactics and Weapons Instructor Pilot Training Course. Each active and reserve component attack battalion and cavalry squadron sends one attack and one scout pilot to Ft. Tusi to this course annually. The course is offered once each quarter to facilitate unit scheduling around major FTXs, range periods, etc.

The purpose is to provide each unit with a fully standardized individual who can provide local instruction in the latest tactics and techniques.

This 4-week course is structured as follows:

- One week of orientation with a complete update on individual aircraft tactics, target acquisition, and gunnery both day and night (air-to-ground and air-to-air) on the instrumented range in an RF/EW/NBC environment.
- Two weeks of section, platoon and company tactics in a force on force scenario.
- One week in the same environment on a combined arms FTX which incorporates JAAT and all available threats. During this exercise the students plan, lead and critique all missions.

One of the most vital courses of the curriculum is a 1 week precommand orientation for all ground combined arms battalion and brigade commanders. Based on recent combat experience, this course fills a deep knowledge void. Commanders at all levels must have an appreciation for attack helicopter capabilities and limitations. They must also develop a close working relationship with attack aviation to fully exploit the balanced combined arms team concept through mutual support during normal field training. All team members must continually train together if they expect to win together on the battlefield. Using a football analogy, it makes little sense to train groups of tackles, guards, halfbacks, etc., then expect them to work well as a team during the big game.

Other courses include AHIP, AH-1X, AH-64B Instructor Pilot, Aeromine Laying, Pathfinder Basic, Aeroscout Crewman (19D2F), SAR Paramedic (less medical training) and AHIP, AH-1X, AH-64B Airtransportability and Self-Deployment.

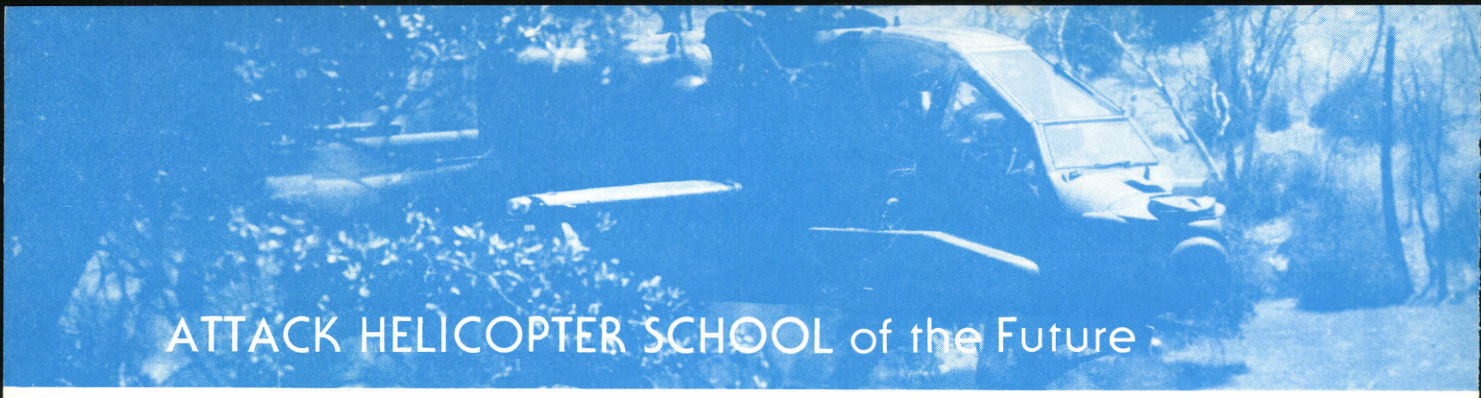
RRRP

In addition to the various formal courses of instruction, both the Center and the 14th Cavalry participate in the REFORGER Reverse REFORGER Program (RRRP). Under this program each active CONUS attack helicopter battalion rotates to Europe every 2 years (reserve component battalions rotate every 3 years). These battalions use the aircraft and support facilities of a European-based battalion and spend most of their time in Europe in the field learning the missions and tactical techniques appropriate to their wartime reinforcing missions. The displaced European-based battalions rotate to the Attack Helicopter Training Center for live fire and force on force training on the instrumented range. This program coupled with the Tactics and Weapons Instructor Pilot Course enhances force standardization while providing training in European weather and methods to the CONUS-based force. The high standards of training demanded at the Attack Helicopter Center thus become the standards of the total force. All CONUS-based active and reserve component battalions also rotate through the Center for similar training, but this is scheduled by FORSCOM based on requirements of specific units. Those organizations located at installations where the training environment is relatively adequate rotate less frequently than those located where live fire and force on force training cannot be accomplished. Roughly one-third of the Center's aircraft, facilities and range time are devoted to rotational training.

THE ATTACK HELICOPTER REGIMENT

Ft. Tusi is also the home station of the Attack Helicopter Regiment. During the development of the Army's COHORT plan in the early 1980s, an attack helicopter regiment was established. All attack helicopter battalions in the Army are numbered battalions of that regiment.

The "Colonel of the Regiment" (a highly decorated retired colonel with broad attack helicopter experience), the "Regimental Command Sergeant Major" and a small administrative staff are in residence at Ft. Tusi. They maintain the regimental records and history, maintain the regimental museum, establish and maintain regimental traditions and travel widely to visit the battalions of the regiment. Formal and informal regimental functions (dining-ins, tattoos, parades, happy hours, etc.) form the basis for much of the social life of its members. Officers, warrant officers and enlisted troopers, with rare exceptions, will spend their careers within the framework of the regiment. Rotation between battalions is accomplished only when requested by the member or as required to fill OCONUS requirements. Each battalion of the regiment has a "home" post, with the first, second and third battalions being stationed at Ft. Tusi as organic components of the 14th Cavalry. A member of the regiment can reasonably expect to spend most of his career at the CONUS post of his choice except for required schooling and tours with overseas battalions. Even during overseas tours, however, the member feels at home because regimental traditions, standards and operational techniques are common to all battalions. In addition, he knows that his dependents



ATTACK HELICOPTER SCHOOL of the Future

will be supported and assisted by the regiment at home station if he is on an unaccompanied tour. The regiment takes care of its own.

Another common bond is formed early in the career of most members of the regiment since all officers and warrant officers and most enlisted troopers are trained at Ft. Tusi. Upon graduation from their initial courses of instruction at Ft. Tusi, members are inducted into the regiment at a formal tattoo conducted by the colonel of the regiment. Regimental crests and distinctive insignia are presented to each member by the colonel and command sergeant major of the regiment as he stands in front of the regimental colors during the torchlight tattoo (very appropriate for an organization that conducts most of its business at night).

Since there is no distinction in the regiment between Active and Reserve Components, or National Guard and Reserve, attack helicopter personnel are considered as equal partners. Reserve Component personnel receive the same training and are inducted simultaneously with the Active Army members upon graduation. This offers a significant side benefit. Since the regimental ties are so strong, a very high percentage of those personnel leaving the service prior to retirement tend to affiliate with a Reserve Component battalion of the regiment and continue to provide an important service to their country.

Regimental ties, blazer patches, lapel pins, etc., available only to members of the regiment through the regimental museum fund, form very visible recognitions links between members of the regiment who share both common traditions and training.

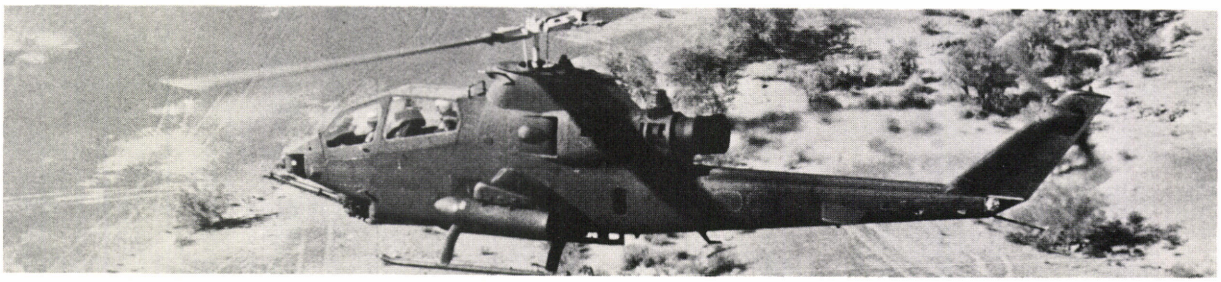
The esprit of the regiment is based on a common, very demanding training program, high standards and the feeling of belonging to an elite group of skilled professionals.

PAYOFF

The bottom line result of the establishment of the Attack Helicopter School and Center is that the quality of the attack helicopter force has increased dramatically. Initial entry crew selection and training has been upgraded, standardized and expanded to the point that each graduate is ready to fly and fight as a team member when he leaves Ft. Tusi. The combination of the Tactics and Weapons Instructor Pilot Training Course and the REFORGER Reverse REFORGER Program has upgraded force effectiveness and standardization. These training initiatives, combined with the esprit and sense of belonging developed by the establishment of the attack helicopter regiment, have served to exploit the true potential of the attack force.

While it may seem that establishment of a separate Attack Helicopter School and Center violates the traditional way of doing business within the Army (in the past, schools and centers have been branch specific and attack helicopters do not fit that description), it should be remembered that the potential force contribution of attack helicopters exceeds that of most branches. Couple this with the increased combat effectiveness realized by more realistic, comprehensive training and force standardization and the rationale for the rather extreme, costly course of action becomes clear. Benefits far exceed costs.

AH-1X crew maneuvers down one of the many day NOE courses at Fort Tusi



HOW LONG CAN WE FIGHT?

Major Charles R. Poulton II
Commander, D Company
229th Aviation Battalion (Attack Helicopter)
Fort Rucker, AL

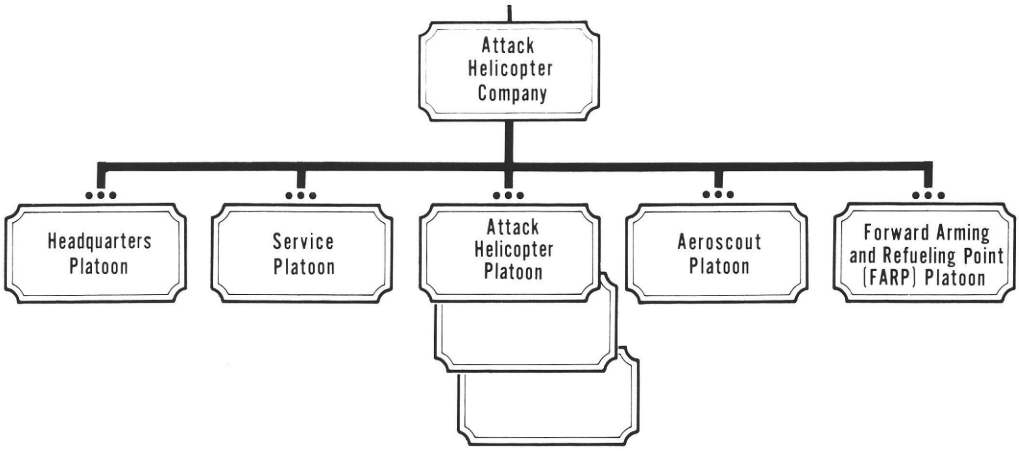
GLOSSARY

ASP	ammunition supply point
Class III	POL—petroleum and solid fuels
Class V	ammunition
DS	direct support
FARP	forward arming and refueling point
FFAR	folding fin aerial rocket
FLOT	forward line of own troops
FM	fully modernized
GTW	gross takeoff weight
mm	millimeter
MTOE	Modificaiton Table of Organization and Equipment
NOE	nap-of-the-earth
OPFOR	Opposing Force
POL	petroleum, oils and lubricants
TOE	table of organizaiton and equipment
TOW	tube-launched, optically-tracked, wire-guided

CURRENT ATTACK helicopter TOEs provide for a limited organic rearm or refuel capability. Once the basic load of fuel and ammunition is expended, the attack helicopter is totally dependent upon rapid and timely replenishment, if it is to continue as an effective weapons system. In the past, Army Aviation has relied on permanent, fixed bases to rearm and refuel aircraft. This system was used almost exclusively in Vietnam, the location of the last major use of attack aircraft on a scale likely to be used in future conflicts. The logistical support required to supply aircraft ammunition and fuel in Vietnam was monumental. Large-scale operations required stockpiling huge quantities of Class III and V in secure areas. These supplies were brought to the staging areas by elements that were not organic to the aviation unit. If these nonorganic elements, for whatever reason, failed to arrive with Class III and V, the mission could not be accomplished.

We are working under the same concept today in many cases, but with a world situation that demands attack helicopter units be able to fight day and night in sustained combat. In order to carry out this requirement, we must have a flexible and responsive rearm/refuel capability. Lack of an organic capability can neutralize attack helicopter companies more quickly and effectively than any current or projected OPFOR threat.

Sometimes the situation requires that attack helicopters engage armor vehicles well beyond U.S. ground forces. At other times, the attack helicopter company/battalion is put in reserve and committed at the point of the major penetration. Attack helicopters have a tremendous capability to put "steel" on armor vehicles. In the target rich environ-



Proposed Reorganization of Current Attack Helicopter Units

ment envisioned, being able to neutralize the targets properly requires a rapid rearm/refuel capability.

Secure, fixed bases to rearm and refuel will be so far behind the FLOT that quick turnaround will be impossible. The attack aircraft will have limited time onstation in this scenario due to large quantities of fuel used to and from the battle area. The FARP provides the rapid turnaround required to keep maximum pressure on the enemy and ensure efficient target servicing. These FARPs must be highly mobile and be able to move several times during a 24-hour period if they are to survive on the modern battlefield. In practice the FARP works extremely well because, in many instances, an attack unit has one or two CH-47 Chinooks in DS to provide the necessary fuel and ammunition. The CH-47s can usually keep up with the Class III requirements, if they remain with the unit and in a flyable status. Unfortunately, we don't usually play the very important resupply of Class V. The tonnages required are astronomical and the people necessary to handle this large quantity are not available.

If we fight, all attack, air cavalry and assault helicopters will be committed. It is reasonable to assume each unit will not have dedicated CH-47s. These aircraft are in short supply, and the corps commander has other high priority requirements for air resupply. If the attack helicopter companies fail to keep constant pressure on the enemy, he will be able to bring such overwhelming combat power on U.S. ground forces as to cause numerous penetrations. Depending on the terrain, this could allow the enemy to fan out in multiple directions making the containment difficult to impossible. An attack helicopter unit will fail to keep pressure up for two reasons: attrition, and lack of prompt rearm and/or refuel when needed. With the heavy demands made on the supply system during combat, it is reasonable to expect many breakdowns to occur; but none will have such devastating and far-reaching effects as the inability to rapidly rearm/refuel our attack helicopter assets.

A very important aspect of attack helicopter operations, in using the AH-1S (Fully Modernized) Cobra, is usually overlooked, The gross takeoff weight of an AH-1S (FM) is

10,000 pounds on a cool day. On a typical warm summer day it will be limited to around 9,600 to 9,700 pounds GTW. The average AH-1S (FM) in the attack configuration of M200A1 Pods, 4 TOW launchers (each launcher can carry 2 missiles), M197 20 mm gun, 2 pilots, full load of fuel (about 1,700 pounds) and *no* ammunition, weighs around 9,700 pounds! It's quite obvious that we must trade fuel for ammunition. The minimum ammunition needed to attack known armor targets might consist of 450 rounds of 20mm (302 pounds-absolutely necessary for self-defense), 8 TOW missiles (328 pounds) and no 2.75 inch FFARs (to save weight). I realize that different units will use other configurations, but the ammunition weight will remain close to what I show here.

In the warm day situation above, the aircraft can take off when fuel has burned down or reduced to 1,070 pounds. In a typical mission profile of hovering in/out of ground effect, en route cruise, NOE, holding at flight idle and attacking, our fuel consumption will average 650 pounds per hour. Based on this rate, we have about 1 hour and 35 minutes from takeoff to flameout. This will vary as conditions change, but my point is to show that there isn't much time available from takeoff to target engagement and return for rearm/refuel, particularly at NOE speeds. If the FARP, for whatever reason, is not where it is supposed to be, there's very little flying time left to find it.

The attack helicopter company must have a responsive rearm/refuel capability organic to the unit to achieve maximum success in combat. This capability must have the same mobility as the attack aircraft it will support which, by design, rules out ground transportation as approved in the Division 86 Air Cavalry Attack Brigade.

Current wheeled or tracked vehicles cannot move the great distances and provide the rapid response needed in FARP operations to meet the attack helicopter mission requirements of the division and corps commanders. If we rely on ground transportation to supply the FARP, then we limit the mobility of the attack helicopter unit to that of the ground vehicles. If an attack unit is sent from one brigade to another or one division to another and is required to fight upon arrival, can we reasonably expect a wheeled or tracked FARP to reposition and be functional prior to aircraft fuel exhaustion? Can we expect the supported brigade to respond in the time frame required to keep constant pressure on the enemy? I think not—at least not often enough to fully exploit the attack helicopter to the maximum extent possible.

I propose that an additional flight platoon be added to the attack helicopter company TOE that consists of eight UH-60 Black Hawk helicopters. The platoon would be commanded by a captain, have 2 lieutenant section leaders and 13 warrant officer aviators. The primary function of this unit would be to provide fuel and ammunition on a sustained basis to the attack unit. This UH-60 platoon could break down into two sections of four aircraft each and provide two highly mobile FARPs which will allow the attack aircraft to keep heavy pressure on enemy forces continuously. This platoon would have the POL section and the armament section (currently in the service support platoon) under its control to run the FARPs, *along with additional personnel necessary to load ammunition in the ASP, off load and break down the ammunition in the FARP for rapid reload of the aircraft.* (These people are extremely critical.) The flexibility/mobility of this platoon would allow it to displace hourly if necessary and be in operation within 10 minutes after arriving in a new location.

When the unit is not committed for an attack mission, this UH-60 platoon could be used by the battalion/squadron or brigade/group commanders as necessary for assaults, resupply, etc. However, it must be made available to return to the attack unit as it is committed to action. With the limited flight time available to our attack aircraft, having dedicated UH-60 crews that train with the unit on a daily basis and having them completely understand how they integrate in the overall scheme of maneuver, is imperative. The teamwork and coordination required to ensure success can be achieved only through daily unit training of dedicated personnel under the control of the unit commander. Using UH-60s from assault units would end up being a hit and miss proposition that would be almost as unacceptable as our current philosophy toward FARP operations.

The dollar cost of this additional platoon is high. We may have to reduce the total number of attack units to achieve the required tradeoffs. Aircraft and the required support are expensive. If we are to expect the attack helicopter units to provide the lion's share of enemy armor destruction, then we must tailor those units with the necessary assets to enable the mission to succeed.

The addition of a UH-60 platoon to the attack company for FARP operations would provide the responsiveness and flexibility needed to get maximum effectiveness from our attack helicopter assets. There is no other viable option that provides the rapid turnaround time required; concurrently it allows us to mass our attack aircraft to achieve maximum combat effectiveness. Would not 8 attack units capable of sustained combat for 12 to 15 hours (or until the crew is exhausted) be better than 10 attack units that may only be able to fight for 1 or 2 hours because they can't get rearmed and/or refueled? Many will say we can't afford to do this! I say, if we expect to win the next conflict, can we afford *not* to?

THREAT

Major Frank Babiasz
Threat Branch
U.S. Army Aviation Center
Fort Rucker, AL

WARNING: The THREAT BRANCH has determined that Soviet ATGM's could be hazardous to your health.

AT-4

ANTITANK GUIDED missiles (ATGMs) may be the most underrated threat to helicopters on the modern battlefield. Everyone is aware of the existence of these high technology missiles in an effort to make armor obsolete on the battlefield. However, many feel, as they are obviously antitank weapons, their employment against helicopters is highly improbable. Think again! The Soviets have long recognized the threat that the U.S. attack and scout helicopters present to their armor and mechanized forces, and have stated that *all* weapons would be employed to counter them; this includes antitank guided missiles.

Although not optimized as an antihelicopter weapon, ATGMs have many advantages in this role. First, unlike radar directed systems, no indication is given to the pilot that he is being tracked or fired upon. Even if the ATGM firing is observed, it will be difficult to determine if the aircraft is the target. Second, except for obscurants, evasive maneuvers are the only countermeasure available. Third, ATGMs are very accurate at extended ranges. And finally, the sheer number of ATGMs in the Soviet maneuver units make them a formidable helicopter threat.

Over the years, the Soviets have placed additional emphasis on ATGMs which has resulted in increased numbers within Soviet maneuver units. For example, almost all of the 96 BMPs (Russian infantry combat vehicles) in a motorized rifle regiment are armed with AT-3 SAGGER ATGMs. Additionally, there is an organic antitank battery consisting of nine BRDMs (Russian reconnaissance vehicles) with long-range AT-5 SPANDREL ATGMs. Coupled with numerous manpack and heliborne ATGMs, it is easy to see that these systems will proliferate the battlefield.

One major disadvantage of the ATGMs vs helicopters is its low velocity. For example, the AT-3 SAGGER has an average velocity of 120 meters per second over its 3,000 meter flight path. This equates to a 27 second time of flight, at maximum range. Thus, the slow velocity of the missile greatly enhances aircraft survivability. Again, this survivability is based purely on the aircrew's ability to visually acquire the missile. However, as Soviet ATGM technology improves, we can expect significant changes in velocity, accuracy and target tracking.

Aviators must keep in mind that tracking a fast moving target, laterally (i.e. a helicopter at 100 + knots) would be almost impossible using present day ATGMs. However, when at a hover, nap-of-the-earth, or flying directly towards a target, helicopters could become lucrative targets.

In conclusion, it is imperative that aviators be familiar with all threat systems, even those that are not considered to have a dedicated antiaircraft role. An ATGM fired at a hovering helicopter could definitely prove "hazardous to your health."

AT-1 SNAPPER

The AT-1 SNAPPER was introduced in the early 1960s. The SNAPPER is a manually controlled missile with guidance commands from a wire link. This missile is considered obsolete by the Soviets and has been replaced by the AT-2 SWATTER and AT-3 SAGGER.

AT-2 SWATTER

The AT-2 SWATTER is a radio guided missile with a heat warhead which exists in three versions (AT-2A, AT-2B, AT-2C). The AT-2A and AT-2B models have manual command-to-line-of-sight (MCLOS) guidance while the AT-2C SWATTER incorporates a semiautomatic command-to-line-of-sight (SACLOS) guidance and is purely a helicopter launched version. The SWATTER'S range (all models) is 3,500 meters and its estimated armor penetration is 500 mm of rolled homogeneous steel.

AT-3 SAGGER

The AT-3 SAGGER is a wire guided missile which has a shaped-charge HEAT (high explosive anti-tank) warhead and exists in two versions (AT-3 and AT-3C). The AT-3 and AT-3C SAGGER are almost identical except for missile guidance which the AT-3 versions have as MCLOS versus the AT-3C's semiautomatic. The SAGGER's range is 3,000 meters and can penetrate armor of up to 400 mm (estimate). The missile (both versions) can be launched from a variety of ground and airborne platforms.

AT-4 SPIGOT

The AT-4 SPIGOT is a wire guided, tube launched, semiautomatic command-to-line-of-sight missile with a HEAT warhead, and exists in only one version. Similar to our own TOW missile, the AT-4 has an estimated range of 2,000 meters and is estimated to penetrate 500 mm of rolled homogeneous steel. The SPIGOT is employed in a tripod mounted model and may be employed as auxiliary armament on the BMP and BMD.

AT-5 SPANDREL

The AT-5 SPANDREL is a wire guided semiautomatic command-to-line-of-sight missile with a HEAT warhead. Presently, the AT-5 is only found mounted on the Soviet BRDM-2 vehicle; however, it is expected to replace many of the SWATTER and SAGGER systems. The missile has a range of 4,000 meters and an armor penetration capability of 500 to 600 mm (estimated) of rolled homogeneous steel.

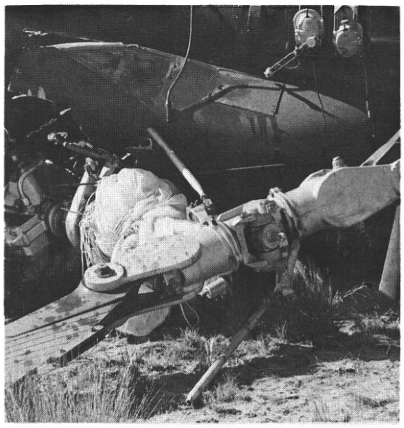
AT-6 SPIRAL

The AT-6 SPIRAL is a tube-launched, semiautomatic command-to-line-of-sight missile mounted only on the Mi-24 Hind-E helicopter. Little information is known about the SPIRAL; however, it is estimated to have a greater velocity and range than existing Soviet ATGMs.

	AT-2A SWATTER A	AT-2B SWATTER B	AT-2C SWATTER C	AT-3 SAGGER	AT-3C SAGGER C	AT-4 SPIGOT	AT-5 SPANDREL	AT-6 SPIRAL
Missile Length (mm) Diameter (mm) Weight (kg)	 1,160 150 26.5	 1,160 150 29	 1,160 150 Unknown	 864 120 11.3	 864 120 11.3	 <1,200 <134 7 (est)	 <1,200 <134 7 (est)	 Unknown Unknown Unknown
Average Velocity m/sec)	150	150	150	120	120	150-200 (est)	150-200 (est)	300 (est)
Range (m) Maximum Minimum	 2,500 500	 3,500 500	 3,500 Unk	 3,000 500	 3,000 500	 2,000 (est) 100 (est)	 4,000 (est) 100 (est)	 Unknown 100 (est)
Warhead	HEAT	HEAT	HEAT	HEAT	HEAT	HEAT	HEAT	HEAT
Guidance Tracking Target Tracking Missile Command Link	 MCLOS Optical Optical RF	 MCLOS Optical Optical RF	 SACLOS Optical IR RF	 MCLOS Optical Optical Wire	 SACLOS Optical IR Wire	 SACLOS Optical IR Wire	 SACLOS Optical IR Wire	 SACLOS Optical IR RF
First-Round Hit Probability (%)	67	67+	90+	61	90+	90+ (est)	90+ (est)	90+ (est)
Launch Platforms/ Unit of Fire (rounds)	BRDM 4+ HIP E 4 HIND A/D 4 HARE 2 HOUND 4	BRDM-2 4+ HIP E 4 HIND A/D 4 HARE 2 HOUND 4	HIP E 4 HIND A/D 4	MANPACK 2 BRDM-2 14 BMP/BMD 4 HOPLITE 4 HIP F 6 HIND A/D 4	BRDM-2 14 BMP/BMD 4 HOPLITE 4 HIP F 6 HIND A/D 4	MANPACK (2?) BMP/BMD (4?)	BRDM-2 15 (est)	HIND E 4

Regarding Rotors

U.S. ARMY SAFETY CENTER



WHEN YOU START pondering the reasons behind the incidence of rotor accidents among people who have a clear idea of what can happen when a blade hits a tree, another blade, or somebody's head, you almost always run into the same old sad song that provides the sound track for about every other area of aviation accidents. *Accidents take place when a person trained to do a thing the right way forgets his training.*

There are at least eight basic types of rotor accidents, and if you put your mind to it you probably wouldn't have too much trouble uncovering a few more. Eight will do for a start. They are—

- Rotors striking personnel
- Rotors meshing
- Rotors picking up ground items—debris, tarps, ponchos, and the like
- Rotorwash-caused mishaps
- Rotors hitting trees
- Vehicles with antennas driving under rotors
- Formation rotor strikes
- Attempted starts with tied-down rotors

Everybody in the helicopter end of Army aviation knows this. Yet the accidents keep happening just the same.

Head-on collision

It's a rare day when anyone in Army aviation is hit by a blade. Sometimes, yes. But not often. However, just about everybody in the Army sooner or later comes into close contact with helicopters—but not everybody in the Army is in aviation.

An infantryman being hauled into and out of combat training exercises or being ferried from point A to point B can't be expected to concentrate on the deadly possibilities of a rotor. He has his mind on other things.

Any helicopter passenger can appreciate the fact that a blade can remove his head if he gets in its way. But does he stop to think that when a helicopter lands on a slope, the uphill rotor can sweep the ground close enough to mow the grass? Hell-bent to get clear of the aircraft, can he forget that helicopters come equipped with blades fore and aft and that you don't approach one from the rear? There have been instances of uninstructed soldiers being knocked for a loop because they didn't realize that a lazily revolving power-off blade packs a lot more wallop than it looks like it does. These are the things you don't have to overlook more than once when you're dealing with rotors. Encounters with blades have a nasty way of being once-in-a-lifetime experiences.

Only a short while back a crew chief walked into the tail rotor as the aircraft was being run up for a voltage regulator check, and that's all she wrote. There have been more instances than anybody likes to think about of infantrymen who have been struck, sometimes fatally, in head-on collisions with the uphill sides of blades.

Sometimes a person who is excited, apprehensive, or concentrating on his own particular job can overlook a warning. But normally a warning does the trick and it is the Army aviator's responsibility to see that his passengers are fully warned. Concern for passengers should be as much a part of an aviator's standard procedures as concern for the aircraft.

In the other area of rotor accidents, when helicopters get tangled up with each other or groves of trees or foreign objects, or blow each other into the ground, you can almost always uncover violations of procedures. Somebody has forgotten what he knows, has ignored what he knows or has sailed cheerfully ahead in the face of what he doesn't know. The result is just about always the same.

Let's look, for instance, at the business of foreign objects. No aviator has yet reported hitting a flying saucer with his rotor, but just about everything else you can name has been encountered from time to time.

The real trouble comes when a hovering helicopter picks up assorted debris off the ground in its rotorwash and throws it into the blades. The cure, like most cures, is simple. You don't have to be a Sherlock Holmes to reach the conclusion that if there are no loose objects lying around for the rotorwash to pick up, no damage can be done.

Hurricane force

At cruise speed, a rotor at its center is traveling at about 360 rpm, give or take a few. The blade's tips are revolving at just about the speed of sound.

This means that air—a lot of it—is being hurled down at what amounts to hurricane force. The pocket-sized hurricane a helicopter kicks up below, in addition to picking up loose material and causing helicopter suicide, can raise sand with anything else which gets in its way. You might say in this respect that helicopters are their own worst enemies.

A typical example of what this can bring on was the UH-1D hovering for takeoff which got such a severe buffeting from a descending CH-47A that it was nearly thrown to the mat like an outweighted wrestler. A quick autorotation by an alert pilot saved the day in this case. A similar incident caused severe damage to another Huey's skids and underside.

Every sensible helicopter crew keeps in mind that everywhere they go they are taking along their own pocket-sized typhoon and that, unless they keep a sharp eye, they can bring on a mess of trouble for some poor soul who is trying to deal with the hurricane

his own machine is kicking up.

Mishap mixture

The kindest thing to be said about most of the other categories of rotor-induced mishaps is that the people involved as a rule weren't having one of their better days. Or, if you're a stickler for the bald truth, you would have to admit that somebody goofed. There are many kinds of rotor mishaps, and they all share one common factor, the human one.

When a person behind the wheel of a jeep sporting an antenna longer than a bamboo fishing pole blithely drives under a helicopter with its rotor turning, you can offer long odds that his mind was not on the job at hand. The same goes for the unknown hero who left a pair of needle nose pliers on a tail boom, right where they could fall into the rotor when it started fanning around. This incident wouldn't have happened, at that, if the pilot had made an adequate pre-flight. And there has been more than one occasion when engines have been started with the rotor blades still tied down.

Simple carelessness? You can say it again, and you can also make a note of the fact that where helicopters are concerned it doesn't take much of a blooper to bring on a major disaster.

Aside from the occasional goof-off which brings on the crash, too many helicopter mishaps involving rotors come from a lack of intelligent foresight—the failure to look ahead to the possible consequences of a minor error.

Take the case of loose objects in the aircraft itself. Even a paper cup can cause trouble if it blows out the door and into the rotor at the wrong moment. Also, more than once a door has come loose and hit the rotor when it became accidentally unlocked, or

somebody failed to install the safety lock pin. Anything unsecured in a helicopter is a rotor hazard.

An OH-58 pilot was flying with the doors removed. The back seat cushion blew out of the helicopter and sheared both tail rotor blades. The pilot could not control the aircraft and was killed in the crash.

Rotors are the most accident-prone part of any helicopter. If there's one thing for certain in this world, it is that when one loses a blade in flight you can't bring it home in a power-off glide the way you might a fixed wing. Blow a blade anywhere—in the air or on the ground—and you've had it. If you're lucky you can pick up the marbles and go home. Anyway things turn out, you're out of commission.

Proper care of rotors is therefore not only of prime importance, but is, sad to say, easy to overlook. A helicopter pilot, with rotors above and behind him and no wings as a measuring device, can drift into the danger zone if he lets his alertness fail him for a split second.

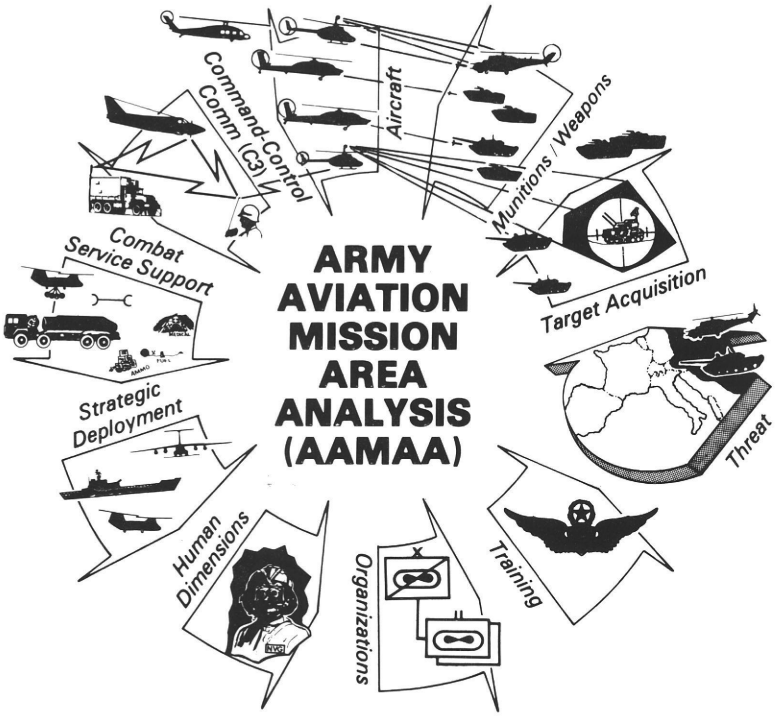
Rotor accidents can be eliminated only when aviators are constantly concerned with the possibilities and alert to the dangers. Constantly. It doesn't do much good to think about sound rotor procedures at stated intervals and forget about them the rest of the time. Sound rotor procedures have to be a daily affair. The penalties for lapses are too great. There aren't any areas of aviation in which you can safely ignore sound procedures, but when it comes to rotors, constant alertness is absolutely critical to your health.

Where helicopters are operating, skies are more crowded than a subway at the rush hour. It's easy for the pilot whose alertness is the tiniest bit off to stick his rotors where they don't belong. To protect himself, he must always be on the lookout for the other fellow and he has a right to expect the other fellow to be on the alert for him. It's a matter of teamwork on the part of all hands, the way just about everything in the Army must operate if the job is to be done in topflight, professional style.

Finally, a helicopter pilot doesn't have to be told that what can be only a minor mishap for fixed wings can turn into something fatal for helicopters.

Nobody with brains enough to tie his own shoelaces wants a rotor-inspired mishap on his hands for any reason—personnel strikes, blades meshing, or anything else.

An ounce of prevention doesn't cost anything at the corner drugstore, but the pound of cure can set you back a king's ransom. Alertness and foresight, taken three times daily, are guaranteed to prevent rotor headaches. Ask the person who's had one.



Study Branch II
Directorate of Combat Developments
U.S. Army Aviation Center
Fort Rucker, AL

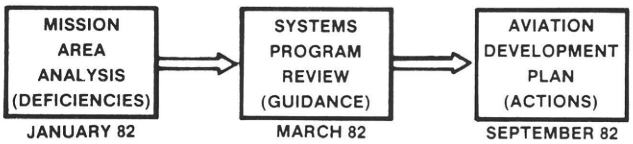
THE ARMY AVIATION Mission Area Analysis (AAMAA) recently has been completed and published by the U.S. Army Aviation Center, Ft. Rucker, AL, Directorate of Combat Developments. This comprehensive study effort examined the role of Army Aviation as an integral part of the Army's combined arms team of the future. As depicted by the AAMAA logo, the analysis considered all aspects of Army Aviation through the use of a front-to-rear conceptual approach oriented on the future threat.

The AAMAA identified Army Aviation deficiencies across the broad spectrum of combat, combat support and combat service support operations in the performance of close combat, fire support, air defense, combat support, intelligence and electronic warfare, command and control, communications and combat service support missions. Corrective actions to overcome these deficiencies were recommended based on a thorough analysis of opportunities presented by changes in doctrine, organization, training or materiel.

The identification of deficiencies in Army Aviation's ability to counter the projected threat was accomplished through evaluation of inputs from other mission area analyses, input from the field and wargame simulations conducted at the Aviation Center and the Combined Arms Combat Developments Activity (CACDA) at Ft. Leavenworth, KS. Once the deficiencies were assimilated, an extensive research effort was undertaken to identify corrective action opportunities. This effort included participation by subject matter experts in the area of training and doctrine, training developments and combat developments from the Aviation Center; the materiel development community; and aviation systems managers. Nonmateriel corrective action opportunities were preferred since they are usually the quickest and cheapest to implement. Only when such opportunities were exhausted were materiel actions considered. With additional staffing and review, a set of recommended corrective actions for each deficiency was produced.

The results of this 1-year effort were examined for appropriateness and completeness by the Army's senior management during the Army Aviation Systems Program Review (AASPR) in March 1982. This resulted in guidance from the Vice Chief of Staff of the Army (VCSA) on major aviation issues and actions which gives direction to Army aviation developments for the next 3 to 4 years. Aviation users and developers will follow through by preparing the Army Aviation Development Plan for the VCSA's approval, detailing the recommended actions necessary to implement the AASPR guidance and providing those capability improvements most critical to the force as a whole.

Thus, the first steps of a continuing process in the advancement of aviation as an integral member of the combined arms team have been completed with the publication of the Army's first, in-depth analysis of its premier arm for deep attack—Army Aviation.



FY 81 CLASS A MISHAPS

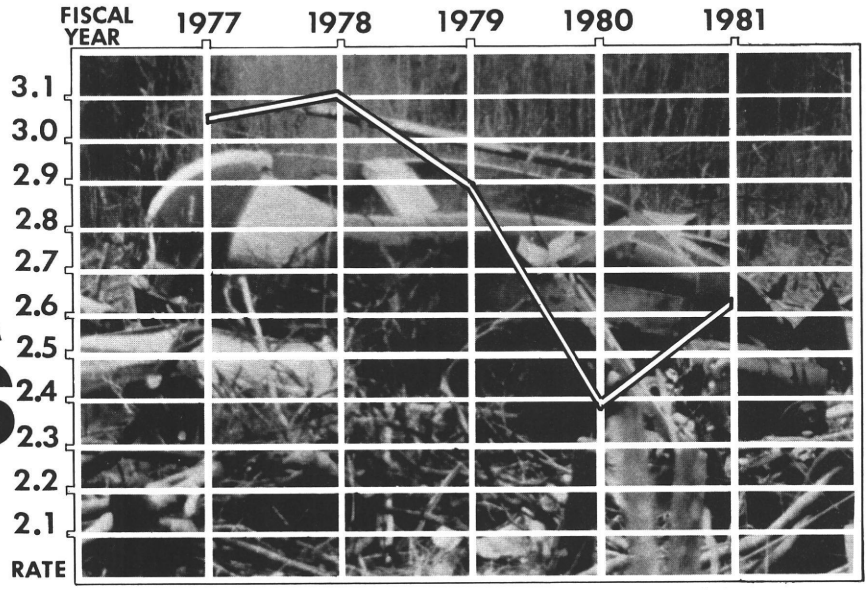


FIGURE 1: CLASS A Mishap Rate

ARMY AVIATION logged 1,632,790 flight hours in fiscal year (FY) 1981, and recorded 43 Class A aircraft mishaps and 26 fatalities. The mishap rate was 2.63 per 100,000 flying hours. Figure 1 displays in graphic form the mishap rates for FY 1977 to the present, with FY 1981 showing a reversal of the downward trend of the two previous years.

The frequency of Class A mishaps and fatalities by aircraft type is shown in figure 2. UH-1 aircraft flew more than half the hours logged by Army Aviation. It was involved in about 44 percent of all Class A mishaps and 54 percent of all fatalities. The UH-1 recorded a Class A mishap rate of 2.32, which was well below the Armywide rate.

For the third consecutive year, the OV-1 was the only fixed wing aircraft that was involved in a fatal mishap. During that period, whenever ejections had been attempted, they were successful.

Figure 3 indicates Class A mishaps by rank and flight hour experience. It is evident that aviators with low flight time experience were involved in several mishaps; however, it is still the experienced aviator who remains the main mishap producer.

CONCLUSION:

The 1,632,790 flight hours logged in FY 1981 were the most flown by Army Aviation since 1974. This sizable increase in flight activity was not without its costs, as indicated by the rising mishap rate.

The Army's instructor pilot (IP) force had a significant effect on the year's mishap rate. Whereas in FY 1980, they were involved in about 5 percent of the mishaps and no fatalities, they were involved in about 30 percent of the mishaps and 35 percent of the fatalities in FY 1981.

Mishaps involving pilots and instructor pilots indicated that deviations from standardized procedures were contributory cause factors. Nonstandard procedures were apparent in the FY 1981 mishaps which are shown in figure 4. The table also makes note of the repetitive nature of the cause factors for the past 3 years.

The eight cause factors represent 50 percent of the Class A mishaps and 39 percent of the fatalities which occurred in FY 1979, 1980 and 1981. The recurring problem areas offer the aviation standardization and safety communities opportunities for improvement. Command interest and application of resources by unit standardization, training, safety and medical personnel should make a positive impact and a reduction of the recurring cause factors.

Other Class A mishap cause factors which have surfaced in FY 81 (not factors in FY 79 and 80) indicate deviations from standardized procedures.

aircraft	hours flown	percentage of hrs flown	mishaps	percentage of mishaps	fatalities	percentage of fatalities	mishap rate
UH-1	817,895	50.09	19	44	14	53.8	2.32
OH-58	294,567	18.04	9	21	4	15.3	3.05
AH-1	109,751	6.72	7	16.2	2	7.7	6.37
CH-47	56,806	3.48	2	5	1	3.9	3.52
U-21	50,742	3.11	1	2.2			1.97
OH-6	37,420	2.29	1	2.2	1	3.9	2.67
UH-60	33,748	2.07	2	5			5.92
OV-1	22,535	1.38	1	2.2	2	7.7	4.43
CH-54	6,406	.39	1	2.2	2	7.7	15.61
OTHER	202,920	12.43	0	0	0	0	0
TOTALS	1,632,790	100	43	100	26	100	2.63

FIGURE 2: CLASS A Mishaps and Fatalities by Aircraft

rank off	number of mishaps	percent	number of fatalities	percent	average flt hours	average age
WI	6	14.0	4	15.4	434	27.66
W2	9	21.0	8	30.8	1991	29.88
W3	16	37.2	8	30.8	3131	34.06
W4	1	2.3	0	0.0	3571	42.00
03	10	23.2	6	23.0	1279	31.80
DAC	1	2.3	0	0.0	5847	44.00
	43	100.0	26	100.0	2159	32.2

FIGURE 3: CLASS A Mishaps by Rank and Experience

• Two simulated single engine mishaps and two fatalities: One of the single engine mishaps was the result of the IP overloading the trainee and the training scenario beyond the capabilities of the IP, the student and the machine. The impractical nonstandardized approach to emergency maneuver training proved fatal to both aviators. The other mishap resulted from a maneuver attempted outside the operational envelope of the aircraft and beyond the capabilities of man and machine.

• Two mishaps while developing new routines for exhibition: One mishap was caused by diversion of attention of both flight crewmembers. The other maneuver was aerodynamically impractical.

• One tachometer generator failure: The tachometer generator failure was mistaken for an engine failure by the instructor pilot. The mishap indicated considerable lack of familiarity with emergency procedures and a breakdown in flight standardization.

• One taxiing into obstructions: There is a saying in aviation, "There is no excuse for a taxi accident." In this instance, the crew was relying on nonstandard procedures while ground taxiing in an area with limited clearance. This type of mishap can only produce a negative impression of the PIC's (pilot in command's) ability and reflects in a similar manner on his supervisor.

There were 11 mishaps as a result of materiel failure or malfunction. These "other" type mishaps were responsible for six fatalities and one missing aircraft and crew. The necessity for close supervision of maintenance procedures is indicated.

RECOMMENDATIONS

I. Commanders, operational personnel and trainers...

. . . examine their standardization programs and determine their validity in relation to the previously discussed eight problem areas and the four areas unique to FY 1981.

. . . require pre-mission and performance planning for all missions.

. . . continue to monitor the training and mission scheduling of the less experienced aviators to enhance their professional development.

. . . continue to emphasize the conditions necessary for a standardized autorotation. At 100 feet above ground level (AGL):

(1) be in a position to make the intended landing area.
(2) have a normal rate of descent.
(3) have the rotor in the green.
(4) have the proper airspeed.

For an autorotation with turn, lane alignment must be achieved by 200 feet AGL.

. . . exercise appropriate disciplinary measures in the control of "over-spirited" aviators.

II. All maintenance personnel adhere to "by-the-book" procedures.

FIGURE 4: Repetitive Cause Factors

cause	FY 1981 mishap	FY 1981 fatalities	FY 1979, 1980, 1981 mishap	FY 1979, 1980, 1981 fatalities
1. Wire strike	3	3	10	11
2. Tree strike	1	1	6	1
3. Operation in IMC	1	3	5	8
4. Hotrodding	1	1	5	4
5. Tail rotor stall	3	3	9	3
6. Autorotation	4	0	14	0
7. Dynamic rollover	2	0	6	0
8. Deceleration	1	0	4	0

DES welcomes your inquiries and requests to focus attention on an area of major importance. Write to us at: Commander, U.S. Army Aviation Center, ATTN: ATZQ-ES, Ft. Rucker, AL 36362; or call us at AUTOVON 558-3504 or commercial 205-255-3504. After duty hours call Ft. Rucker Hot Line, AUTOVON 558-6487 or 205-255-6487 and leave a message

PEARL'S

Personal Equipment And Rescue/survival Lowdown

Carol Stein photo by Reid Rogers

The Art Of Survival

On a cold night in December 1981, a U.S. Air Force F-4 Phantom departed its base on a routine training mission. The aircraft and its crew were both equipped with the latest survival equipment and the crew was well versed in the techniques of survival—just in case.

Over the Atlantic Ocean, just east of Cape Fear, NC, it happened! The aircraft became disabled in flight and the crew was forced to eject. "The water was cold, as you would expect during this time of year," one crewmember reported later, "but my life raft deployed just like the TM said it should."

Unfortunately, while attempting to enter his raft, this crewmember lost both his food and his water. He considered this only a minor inconvenience, since he still had his waterproof survival radio to talk to the search and rescue teams, which he knew would shortly come to rescue him. He did become a bit concerned, however, when he discovered that the radio didn't work—it was waterlogged.

Our unlucky crewmember now found himself without food, without water and without means of communication. He knew there were plenty of fish available for food, but he also knew from his survival training that he shouldn't eat any food without having water available to aid in digestion. This also was of little consequence to him, however, since he was still convinced that his rescue was imminent.

After 4 days, the official search and rescue effort was suspended. The crew was presumed lost.

On the sixth day, our by now very hungry and thirsty crewmember spotted a coastal fishing boat. By waving, yelling and falling out of his raft, he was finally able to attract enough attention to get himself rescued. Shortly thereafter, the search for the second crewmember was resumed. He has never been found.

The lesson to be learned from such a survival experience is this: We should never take for granted that we will be rescued immediately. Once we are safely out of our aircraft and down to earth, we should be prepared to be in a survival situation indefinitely. We must manage to obtain enough food and water to keep us alive. And we must devise ways to communicate with would-be rescuers if our standard methods of communication are unavailable to us. These are all part of the "Art of Survival." (Ed Daughety, DARCOM Project Office for ALSE)

The Incredible Shrinking Helmet

Recently, aircrew personnel from Ft. Campbell, KY, were involved in cold weather exercises in Alaska. While there, they discovered a rather bizarre phenomenon. It seems that their SPH-4 flight helmets, when left out in the extreme cold, shrank to the point where they couldn't even be donned! Consequently, personnel actually had to warm their helmets before they could attempt to use them.

Anyone who has a car or boat made of fiberglass knows that this material contracts considerably when exposed to cold and expands when exposed to heat. Since the shell of the SPH-4 is made of this very same fiberglass, you have to expect that the same physical laws would apply to it.

So, remember, just as you would "keep your powder dry," make sure to "keep your helmet warm." And if you are really disturbed by the fact that your helmet shrinks and expands, don't hesitate to submit a quality deficiency report (QDR) on a Standard Form 368 to: Commander, TSARCOM, ATTN: DRSTS-MCFT, 4300 Goodfellow Blvd., St. Louis, MO 63120.

ALSE School Update

We have been informed by the U.S. Army Training and Doctrine Command (TRADOC) that the Army Aviation Life Support Specialist course 860-67( ) ASI Q2 is now open to personnel in other than 67-series military occupational specialities (MOSs). In addition to those in the 67-series (aircraft maintenance), personnel in MOSs 71P (flight operations coordinator), 91B (medical specialist), 96H (aerial sensor specialist) and 98J (EW/SIGINT noncommunications interceptor) are now eligible for this 5-week course conducted at the U.S. Army Transportation School, Ft. Eustis, VA. As of yet, however, *only* 67-series personnel can be awarded the additional skill identifier (ASI) Q2.

We have also been informed that almost all classes for fiscal year (FY) 1982 are full, including those quotas for the Air Force school at Chanute AFB, IL. Quotas for the Ft. Eustis course will be increased to 180 in FY 1983 and to more than 200 in FY 1984.

In addition, the one class (#8, 22 June to 28 July 82) at Ft. Eustis designated as an officer class is also full. The status of officer classes for next year is unknown at this time. Point of contact for further information is Mr. Dick Allen, ALSE course coordinator, U.S. Army Transportation School, AUTOVON 927-2113.

Radio Pocket Shortage

The U.S. Army Support Activity, Philadelphia, has informed us that the pocket, radio, survival vest, national stock number (NSN) 8415-00-442-3616, is temporarily unavailable for issue. Stocks of this item have been exhausted due to increased requisitioning by Army activities. The effective date of supply for the pocket, which is used to accommodate the AN/PACRC-90 radio, is 1 July 1982. Limited assets may be available sooner to supply some high priority requisitions.

Pending availability, all requisitions for this item submitted to Defense Personnel Support Center, source of supply S9T, will be held on backorder. Point of contact for further information is Ms. G. Lyles, AUTOVON 444-2537.

Visor Track Problem

In the March 1981 issue of PEARL, we told you about the new track, visor, interchangeable, NSN 8415-01-083-8372, used on the SPH-4 flight helmet. A problem has arisen concerning the use of that visor track. It seems that when the lens is in a full down position, and the pilot tries to move the lens to the full up position, the lens tends to bind in the track. When additional force is applied to the lens, it jumps out of the track, leaving the pilot blank faced and lensless.

Should you experience such a problem, replace the new interchangeable visor track with the original visor track assemblies, NSN 8415-00-410-4668 (right hand) and NSN 8415-00-410-4669 (left hand). If these replacement tracks are not available, continue using NSN 8415-01-083-8372 until the replacement tracks are furnished. Point of contact for further information is Mr. H.A. Tetreault, TSARCOM Directorate for Maintenance, AUTOVON 693-3171 or Commercial (314) 263-3171.

New Direction On Lensatic Compasses

Lost and bewildered when it comes to compasses? Here's some information for your guidance and protection.

Lensatic compasses manufactured before 1962 contain radium, a hazardous material. Compasses made after 1962 use tritium, which is less hazardous. The old radium compasses were recalled in 1969, but some of them are still in the field. If your unit has any of these old radium lensatic compasses, DISPOSE OF THEM IMMEDIATELY! Refer to Army Regulation 385-11 for instructions.

It's simple to identify the old compasses. They will either *not* be marked with an NSN, or marked with an NSN *other than* 6605-00-846-7618 or 6605-00-151-5337.

If you are still uncertain, use a gamma radiation survey meter (AN/PDR-27 or equivalent) to measure the gamma field emitted by the compass. The old compasses will emit a measurable gamma field; the new ones will not.

If you need further guidance, write Commander, ARRCOM, ATTN: DRSAR-SF, Rock Island, IL 61201, or call Mr. Byrom Harris, AUTOVON 793-3383/3483.

Obsolete Seat Belts

All supply personnel should take a second look at any requisitions you may be submitting for the belt, aircraft safety, NSN 1680-00-787-4299 or NSN 1680-01-054-6531. The resource code for both of these belts has been changed from PA to PZ (obsolete). Do not requisition either of the NSNs above.

Do requisition NSN 1680-00-447-9504 when replacement belts are required. Point of contact for further information is Mr. R. Halsted, TSARCOM Directorate for Materiel Management, AUTOVON 693-3769 or Commercial (314) 263-3769.

If you have a question about personal equipment or rescue/survival gear, write PEARL, DARCOM, ATTN: DRCPO-ALSE, 4300 Goodfellow Blvd., St. Louis, MO 63120 or call AUTOVON 693-3307 or Commercial 314-263-3307

1981 U.S. Army Aviation
TRAINING SYMPOSIUM/*Policy Committe*

COMBINED ARMS training, doctrine and coordination was the theme that existed throughout the 1981 U.S. Army Aviation Training Symposium/Policy Committee Meeting held in November at the Aviation Center.

The meeting, hosted at Ft. Rucker's Lake Lodge, brought together representatives of major Army commands, Department of the Army agencies and the combined arms team. The two interfacing conferences each occupied 2½ days of a full week of discussions and presentations.

Mandated and attended as outlined in AR 95-1, the Policy Committee meets annually to resolve aviation standardization issues. This DA level forum acts to resolve issues submitted by subordinate aviation standardization boards that cannot be solved or resolved at local or MACOM level. This year, field units submitted 77 issues concerning many aspects of aviation standardization, policy and training.

The Training Symposium concept was introduced during the 1980 meetings and improved and refined for 1981. While last year's symposium used the Army Aviation Training Study as a basis for issues, this year's representatives acted directly on those issues to be voted on by the Policy Committee.

That concept allows discussion input to issues by non-Policy Committee organizations and individuals and subject matter experts, as well as by voting Policy Committee members. This interaction, using an organizational approach, has assured thorough discussions and consideration of alternatives by the aviation leaders and implementors who are directly affected by the decisions. The symposium thus allows expansion from a pure standardization meeting to a forum which allows discussion of many different facets of Army Aviation and assists the Policy Committee by prediscussing and refining each issue.

GLOSSARY

AR	Army Regulation
ARTEP	Army Training and Evaluation Program
ATM	Aircrew Training Manual
BG	Brigadier General
CG	Commanding General
COL	Colonel
CP	Copilot
DA	Department of the Army
DES	Directorate of Evaluation/Standardization
FORSCOM	Forces Command
IFE	Instrument Flight Examiner
IFR	Instrument Flight Rules
IP	Instructor Pilot
MACOM	Major Army Command
MG	Major General
NBC	Nuclear, Biological, Chemical
SEMA	Special Electronic Mission Aircraft
SIP	Standardization Instructor Pilot
UT	Unit Trainer
VFR	Visual Flight Rules

TRAINING SYMPOSIUM

The opening events included remarks and updates to the 150 members by Aviation Center directorates and several DA agencies. (*Aviation Digest,* December 1981, page 17, reported the pertinent opening remarks of several general officers and guest speakers, including special remarks by General Robert M. Shoemaker, CG, FORSCOM.) Of particular interest was a multi-agency presentation entitled "Training for the Integrated Battlefield," which discussed historical, present and future training for aviation operations in an NBC environment.

Four work groups, chaired by COLs David Allen, Bruce Gibbons, William Kuykendall and Joseph Rutkowski, addressed issues grouped by the functional lines of standardization, training, rotary wing training and fixed wing training. Aviation Center subject matter experts attended as needed to provide information and data for those subjects that were discussed. A series of issue status boards

e Meeting

Major Kirk M. Knight
Directorate of Training Developments
U.S. Army Aviation Center
Fort Rucker, AL

Mr. Robert L. Ledbetter
Directorate of Evaluation/Standardization
U.S. Army Aviation Center
Fort Rucker, AL

and comment sheets allowed members to submit written input to other work groups or to visit the groups.

Echoing the emphasis on combined arms training, experts of the combined arms and aviation carrier branches attended the work group sessions. Representatives of the Combined Arms Center, as well as the Air Defense, Armor, Infantry, Intelligence and Transportation Schools provided valuable input.

After 2 days, the symposium groups had completed their tasks and final discussions, alternatives and recommendations for each issue; and results were printed for use during the Policy Committee meeting. COL Frank Estes, Director of Training Developments, noted that the thorough and frank discussions by each group contributed to the operational success and greatly reduced the research requirements and workload to the Policy Committee.

POLICY COMMITTEE

BG Ellis D. Parker, committee executive chairman, opened the meeting at midweek. In his remarks he stressed the need for aviation commanders to "sell" their assets and capabilities to combined arms members to fully integrate their units with the ground maneuver forces and to train the ground commanders to use aviation in a doctrinally and technically sound manner. MG Harold I. Small, CG, United States Army Transportation School, joined the meeting to discuss maintenance related issues.

Every issue from the field was presented to the committee by the representative responsible for its submission. After review and discussion, each issue was then voted and finalized by the members. While some recommendations to issues will require more study, many issues were decided immediately. In order to make it possible for field commanders to implement those without having to wait for printed changes to the ATM and AR 95-1, a message authorizing such implementation was sent to all active and reserve component aviation units (Message, HQDA (DAMO-RQ) DTG 281528Z December 1981, subject: Army Aviation Policy Changes). This is the first time the committee has taken such action, and its timeliness made the policy changes much more meaningful.

Some highlights of changes listed in the message are:

- Crediting ATM task iterations flown in a more demanding mode of flight for iterations required in a less demanding mode.
- Eliminating ATM tasks 4511, 4512 and 4513 as mandatory flight evaluation tasks.
- Authorizing MACOMs to waive, by unit, ATM requirements.
- Revising procedures for evaluation of the vertical helicopter IFR recovery procedure.
- Allowing the logging of copilot time when performing CP duties from the "jump seat" if the aviator is receiving training or evaluation from UT, IP/SIP or IFE.
- Deleting accelerate/stop distance computations for Army airplanes as the sole basis for a go/no-go decision.
- Allowing reserve component aviators to perform VFR pilot duties prior to completing instrument qualification (qualifiers are outlined in the message).
- Authorizing qualified flight surgeons to fly aircraft from the CP position of a single pilot aircraft while accompanied by an IP/SIP in order to evaluate aeromedical factors.
- Refining ATM requirements for aviators

required to fly more than one aircraft.

- Outlining mandatory ATM tasks for maintenance officers.

Many other issues resulted in recommendations which will require additional study and consideration and which involve outside agencies. Some issues and/or recommendations are:

- Simultaneous printing of operator's manual and checklist changes.
- Evaluation of planning for and employment of Army Aviation assets during ARTEP.
- Institutionalized training for SEMA aircrews.
- Refining of the concept/doctrine of tactical instrument flight.
- Review of weight and balance requirements for flight and, if necessary, training of technicians.
- Standardization of emergency locator transmitter procurement for MACOM-optional installation in aircraft.
- Continued study of Individual Ready Reserve aviator training and guidance.
- Continued progress to the goal of institutionalized training for all test pilots.
- Defining standards and depth of knowledge required for pilots, UT, IP and SIP during oral evaluations.
- Emphasis on integration of Army Aviation into the combined arms team through military education systems, ARTEP, conferences and training.

COL George Newton, DES director and executive secretary of the Policy Committee, noted that issues requiring additional action would be aggressively pursued to ensure action and implementation.

The work of the attendees, according to BG Parker, met the challenge of the many difficult and complex issues. He charged the members to return to their units and disseminate the fine detail of the issues and to move ahead with realistic training and combined arms operations.

CONNECTION

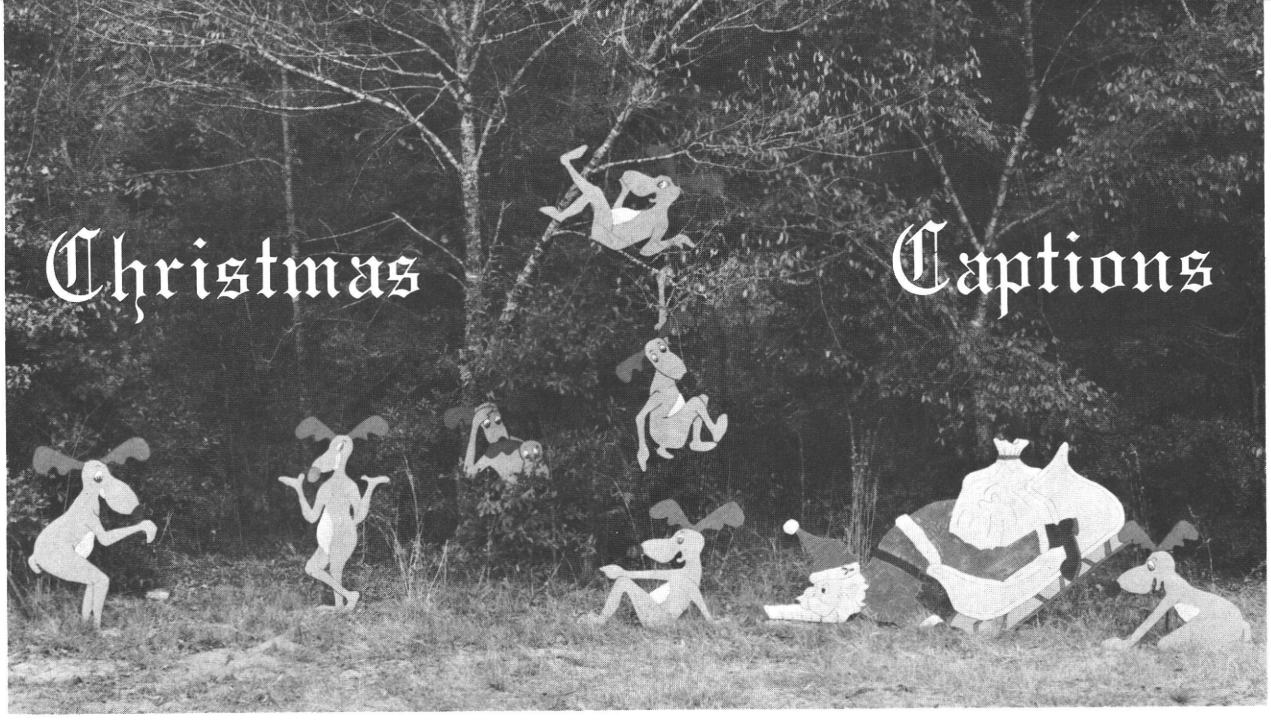
ACTAAT

Aviation Center Training Analysis and Assistance Team

HITMORE vs. GACP

ISSUE: Unit commanders and aviators felt that the Helicopter Installed Television Monitor and Recorder (HITMORE) system does not provide sufficient real time feedback to the gunner while he is engaging a target. The IP monitor is not an adequate device because the IP's attention is diverted to flying the aircraft. Every aviator interviewed preferred the Gunner's Accuracy Control Panel (GACP).

COMMENT: HITMORE was evaluated at the U.S. Army Aviation Center, Ft. Rucker, AL, in 1976 and 1977. In 1978, user evaluations were conducted at Ft. Campbell, KY and in USAREUR (U.S. Army, Europe). Following the evaluations, a decision was made not to procure more Gunner's Accuracy Control Panels (GACP) and to pursue fielding of the HITMORE system. Serious problems with GACP include erroneous scoring and the requirement to have an infrared source on each training target. HITMORE can be used any place and any time, with or without firing actual ammunition. HITMORE now can provide real time feedback as well as pre and post launch constraint indications. (Directorate of Training Developments)



From Jeffery L. Stout
- Well Santa, I knew we should have filed that flight plan before take-off.

From MAJ Joe D. Coyner Jr.
- I tried to tell Santa to recompute the weight and balance after he decided to include batteries with the electronic games.

From SP5 Noelkenya Atkins
- What in the . . . . . .

From SSG Lewis K. Phillips
- Guess which red-nosed ¾%??X& was responsible for figuring weight and balance?
- You see what can happen when just one individual doesn't pull his share of the load. Think safety!
- Okay Rudolph, you were flight lead so you haul the bag out of here.
- For my next trick I'll stand on my head and . . . (old army joke).
- Honest, the BF-TR2E pulled up right in front of me.

From SGT Joseph Kielbasa Jr.
- Wire strikes again!

From LTC William H. Schwend
- Don't spoil your day, keep a tight line on the flight line.

From SP4 Michael J. Anthony Jr.
- Dancer, I thought you said tree top level was at 4 to 5 feet. No Santa, I said 45 feet.

From Marvin P. Fitzgerald
- We told him before we left, he was in violation of AR 95-1 paragraph 2-8 (4).

From CPT William P. Wilson
- Well, so much for TAC instruments!

From MAJ Bill Carroll
- I warned you that flying night NOE without night vision goggles is tricky business.

16th AIR TRAFFIC CONTROL BATTALION IN THE FIELD

An interview conducted for Aviation Digest by Richard P. Fulton, III Corps and Ft. Hood Public Affairs Office

AN UNEXPECTED blanket of snow, reinforced with icy blasts of frigid arctic air, was overrun with a muddy thaw late in the week-long GOLDEN SABER V, corps-level training exercise conducted late in January over 240 square miles of maneuver area at Ft. Hood, TX.

Even though environmental conditions were harsh, soldiers of the post's 16th Air Traffic Control (ATC) Battalion warmed to the tasks the exercise demanded and provided required air traffic control and flight-following services to the many aircraft being used in the exercise.

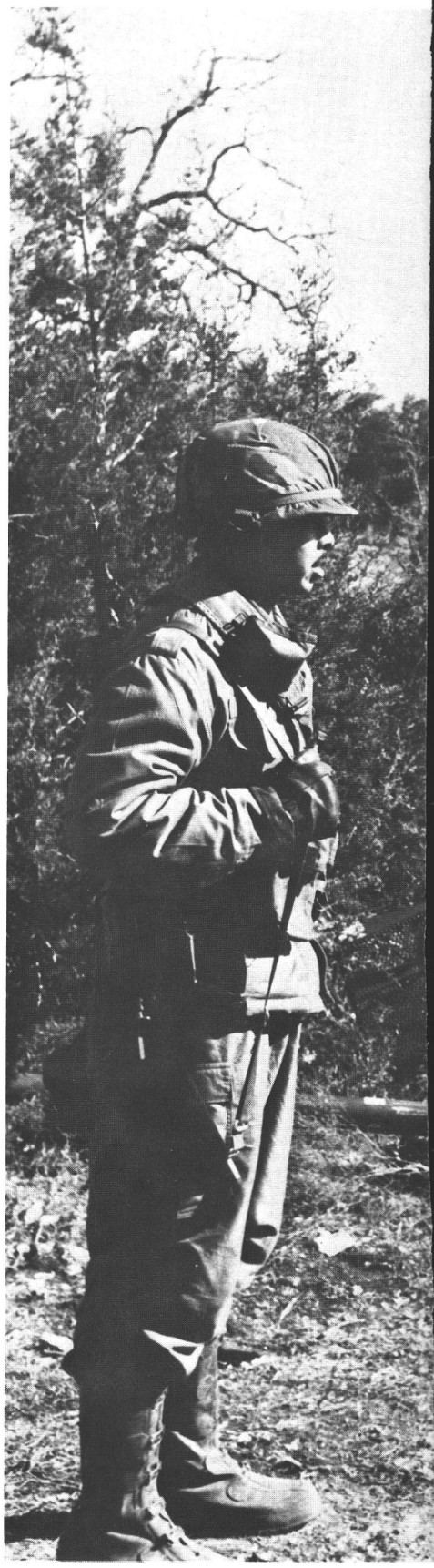
Moving out into the cedar brush north, west and south from the main cantonment area, convoys of 16th ATC troopers crawled their vehicles through ice and snow to predetermined locations, set up heavily camouflaged airfields and flight support facilities, and were soon in business managing the airspace over the huge exercise area.

Even though individual platoons of the battalion frequently go to the field in support of division-level (and below) unit training, GOLDEN SABER V was the first time the battalion headquarters had moved out as well.

The 16th Air Traffic Control Battalion consists of the battalion headquarters and two platoons stationed at Ft. Hood. Both platoons, however, are assets of one of the two companies making up the 16th ATC. One of these companies is stationed at Ft. Sill, OK, and the other is at Ft. Lewis, WA.

Each company has 5 air traffic control platoons, and the 10 platoons are spread out over the western part of the United States, including Alaska, Hawaii, Louisiana, Kansas, Colorado, Texas and other locations. The two platoons at Ft. Hood are in support of activities taking place at the largest military installation in the free world. Units supported under the III Corps umbrella include the 1st Cavalry Division, 2d Armored Division and the 6th Cavalry Brigade (Air Combat).

According to Lieutenant Colonel Carlton Roberson, battalion commander, units manning the numerous field sites set up by 16th ATC soldiers included 1/68th and 2/68th ATC Platoons from Ft. Hood, 5/68th ATC Platoon from Ft. Sill, the 68th Air Traffic Control Company Headquarters and the 16th ATC Battalion Headquarters. In addition to the soldiers from Ft. Sill, the battalion also brought in soldiers from Ft. Riley, KS, and Ft. Polk, LA, to take part in GOLDEN SABER V.



SSG Frank Felix, a Ft. Sill, OK, noncommissioned officer, stands perimeter guard near a portable radar unit at a north Ft. Hood temporary airfield. Members of the 16th ATC from numerous posts came to Ft. Hood to participate in GOLDEN SABER V training. SSG Felix is visual proof of a statement attributed to a retired Army general officer that regardless of assignment, all training must stress that the primary duty of a soldier is the obligation to fight to protect the nation when called upon to do so

photographs by Richard P. Fulton

Aviation Digest: **What is the 16th ATC Battalion doing in the field?**

LTC Roberson: The battalion has come out for the GOLDEN SABER exercise which is happening now (18 to 22 January 1982). GOLDEN SABER is a III Corps exercise with the corps headquarters and key personnel from two divisions participating. It is primarily a command post exercise; but, we will be controlling the airspace over the Ft. Hood training area during the exercise.

Aviation Digest: **When you say controlling the airspace, do you mean everything that flies over Ft. Hood?**

LTC Roberson: Essentially that means that we will provide flight-following to all aircraft in the exercise area. By flight-following, I mean that we will advise aircraft of the range hot areas; we will flight-follow with them or track them from takeoff to landing, and for safety purposes assist in rescue actions if anyone should go down. Finally, we will provide them all types of advisories such as weather in and around Ft. Hood except for the main cantonment area of the post. We will control all of the airspace over Ft. Hood reservation, and all of the training area. We will be putting in a corps-level airfield for the III Corps command post. We also will be putting in a division airfield for the 1st Cavalry Division and a division airfield for the 2d Armored Division. In addition, we will have the flight-following facilities which will talk to the aircraft while they are en route from one airfield to the other.

Aviation Digest: **Is this what you would do in a combat situation?**

LTC Roberson: Yes, this is essentially what we would do in a combat situation, though it is somewhat modified because of the training aspects of the exercise. And of course we are restricted by real-world considerations here around Ft Hood. We have other traffic besides exercise traffic of which we have to be aware. Essentially, what we would do in a combat situation is the same thing except all of the division and corps troops would be out instead of just the command posts. We would work in the corps rear areas and the division rear areas providing airfields and flight-following services to the aircraft who fly in the division and the corps rear areas.

Aviation Digest: **What kind of interface would you have with Air Force operations?**

LTC Roberson: The only interface that we would have with the Air Force would be in terms of airspace itself. In other words, the Air Force aircraft would probably be working at higher altitudes. There is such a thing called the coordinating altitude which runs in the neighborhood of 300 to 500 feet above the

ground. We are primarily concerned with Army aircraft and helicopters that are working below that coordinating altitude at NOE (nap-of-the-earth). The Air Force is concerned with aircraft above this coordinating altitude. We work with the Air Force to coordinate any aircraft that would penetrate that altitude. In other words, Air Force fast-mover aircraft that would come down low or Army aircraft that would go higher than the coordinating altitude would mean that we would need to work that interface.

As far as any airfield operations, no, we would not get directly involved with the Air Force in that respect. In fact, our airfields are primarily for Army elements. Of course, certain Air Force aircraft may land at Army airfields depending on the operation or situation.

There possibly would be, in a combat zone, many airfields that were operated by the Air Force. We would establish communication and coordinate with them, but we would not be part of their operation.

U.S. Army helicopters (below) flying into 16th Air Traffic Control Battalion-operated airfields during GOLDEN SABER V, a III Corps training exercise held earlier this year, received expert instruction from soldier controllers manning flight-following, radar and control tower facilities. The soldiers did an expert job of camouflaging various pieces of equipment and conducting themselves in a tactical manner during the exercise

16th ATC Battalion soldiers (left and center, above), confer with LTC Carlton Roberson, their battalion commander, at a field site high atop Anderson Mountain on the southwest portion of the Ft. Hood military reservation. The soldiers heavily camouflaged their facility, and also put out concertina wire tangles as part of their overall physical security plan

Aviation Digest: **What about the air defense situation? Are you all somewhat interfaced in that respect in terms of watching for bogies?**

LTC Roberson: We are directly involved with the air defense personnel in that we have a great deal of coordination to effect because Army aircraft have to move around in the battle area. In the division rear area and, of course, in the corps rear area, we would advise the Army aircraft concerning the location of hot areas—what things they should avoid and not overfly. We would also pass along warnings from the air defense folks as to any bogie aircraft traffic or some other air defense threat in being in the A/O (area of operations).

We have a direct interconnect with the air defense personnel through an element we call the CAME which stands for corps airspace management element. We also have the DAME which, of course, stands for division airspace management element. In either the CAME or the DAME we have air traffic control personnel, air defense personnel as well as aviation or airspace management personnel or aviator personnel. These elements work as part of the CAME or DAME to coordinate all of the airspace with respect to air traffic control and air defense. It is, as you can see, a coordinated and integrated effort.

Aviation Digest: **Is this the first time the 16th ATC has been in the field at Ft. Hood?**

LTC Roberson: In one respect yes, in another, no. Our ATC platoons here at Ft. Hood go to the field quite often in support of the III Corps divisions (1st Cavalry Division and 2d Armored Division) here. This is, however, the first time the entire battalion headquarters has gone to the field in total support of a III Corps level exercise. It is an experiment, so to speak, with the weather and the elements and getting everything coordinated. It has been quite an experience so far, moving out into the teeth of a heavy snowstorm and getting set up.

Aviation Digest: **When did you come out to the field?**
LTC Roberson: We came to the field on Thursday, the 14th of January, and were finally able to get out of the Ft. Hood cantonment area in spite of the snow. It was quite an experience. We did deploy our aircraft, which was no problem, but the convoys had problems getting up and down the hills on the icy roads. It took quite some time.

Aviation Digest: **How many miles are we talking about?**
LTC Roberson: In the neighborhood of about 20 miles from main post out to the various field sites. For example, here at the battalion headquarters, we moved into the site and began immediately getting the messhall tent squared away, communications established and the sleeping tents up. It was supposed to drop to about 15 degrees F. that night, and we wanted to be ready for it. We got established the first night before dark, and moved in and have been working ever since.

Aviation Digest: **Yesterday there were significantly low temperatures in this area. Did you have a reading out here?**
LTC Roberson: We did not have a local onsite reading, but we estimate it was about 16 to 18 degrees F., and that was in the afternoon. Later it became even colder with the windchill factor making it generally pretty miserable. As you know, this type of cold is not the kind of thing we are used to in the central Texas area during the winter.

Aviation Digest: **When you say you moved the battalion headquarters out here, does that mean you moved everything that a regular Army battalion has?**
LTC Roberson: We have a headquarters and a headquarters detachment, not a complete headquarters and headquarters company. We have most everything that the company would have with the exception of a wrecker and a few other odds and ends. We moved the entire battalion headquarters out here for this exercise. We have the motor pool set up, operations, distribution—we are making our chow runs and so forth. We are conducting both exercise business and real-world business. We have to stay in touch with Alaska and Hawaii as well as the elements in the field for GOLDEN SABER V.

Aviation Digest: **How is air traffic control being implemented in this particular exercise?**
LTC Roberson: Basically the airspace at Ft. Hood has been broken into four distinct areas with one area, of course, being over Ft. Hood proper or the main cantonment area. Outside of that, within the military operational area, the 16th ATC controls all aircraft and three distinct flight-following zones have been set up. In the northern portion of the Ft. Hood military reservation our 2/68th ATC Platoon has responsibility. In the middle zone the battalion headquarters and the 5/68th controls the aircraft in that zone. The 1/68th ATC Platoon controls the aircraft in the southern portion of the post.

Essentially what has been worked out is that any aircraft departing Robert Gray Army Airfield or Hood Army Airfield will initially be controlled from airfield facilities. As they move into the GOLDEN SABER exercise area, control or advisory will be passed to 16th ATC elements. Letters of agreement have been established for these procedures and an aviators' procedures guide has been provided to the aviators.

Aviation Digest: **Air traffic controllers are not normally thought of as people who wear helmets and carry rifles, yet everyone I see, yourself included, is so equipped. Why is this?**
LTC Roberson: We are in an actual training exercise and we have a lot of things to do. The tendency is to want to put the weapon down on the ground and take off the field gear because it is, of course, easier to work without it. In a real combat situation, however, the helmet would be necessary and so would the weapon in case of incoming, or possible perimeter attack or something of that nature.

I require, as most commanders do, that all personnel work completely, totally, in their field gear to not only get used to wearing it but also to be prepared for any contingency that might arise.

The bottom line is that if we don't train with weapons and field gear, and if we don't run our generators, and if we don't put up our tents, then we don't know how to do those things when or if we have to. We need to train with what we have and know how to use it.

Aviation Digest: **I notice some aircraft parked here at your field battalion headquarters. Why are they here?**
LTC Roberson: We have three UH-1 Hueys assigned to the battalion. In addition, we have two OH-58 Kiowas brought from Ft. Sill on loan to us from another battalion. These aircraft are used primarily for flight checks on our radar systems and on the precision approaches installed at each airfield set up. We also flight check the airspace system. So each facility, each airfield, will be flight checked by battalion aircraft flown by an officer who is certified to check the actual approaches. That is how we can be sure that they are safe.

In addition to interviewing the 16th ATC Battalion commander, several of his soldiers were also interviewed. Here are their comments.

Aviation Digest: **Sergeant, what is your job?**

Sergeant First Class Terry L. Howard: I am the battalion motor sergeant.

Aviation Digest: **What kind of challenges have you had on this training problem?**
SFC Howard: Most of the problems we have are with the cold weather. Right now we are kind of low on fuel as far as the fuel trucks getting way out here to us and giving us fuel. About our generators, we had one generator go down back to the rear, and we have had some problems on the vehicles, getting them started in the morning because it is so cold. But let me add this, that we always do get them started. Our M880s are starting real good but the deuce and a halfs and the jeeps are the ones we have to work with. When the cold hits the batteries, you can hang it up as far as trying to get one started, so we pull-start them or jump them. When we get them started we let them run awhile in order to get a good charge.

Aviation Digest: **How long have you been with the 16th?**
SFC Howard: Going on 2 years now. Other assignments have included infantry, mechanized infantry, aviation, medics and signal.

Aviation Digest: **And, what is your job, lieutenant?**
Lieutenant Howell: Roy Howell, the 16th ATC Battalion's headquarters detachment commander.

Aviation Digest: **Where are we, and what is your job?**
LT Howell: We are on top of a hill in the northern part of Ft. Hood, and I am working with some soldiers from the 68th ATC Company's Ft. Sill platoon. We're setting up and running a corps level airfield. These soldiers convoyed 300 miles by truck and jeep to get here for this exercise.

Aviation Digest: **Tell us about the weather.**
LT Howell: When we came out here, we had about 4 inches of snow on the ground. Then, within the past 2 or 3 days, the snow melted and created quite a mud problem for us. The past 2 days it has dried out pretty well. We are doing pretty good right now, having scraped a lot of the mud out of the mess tents and sleeping tents.

Aviation Digest: **Lieutenant, if this airfield were in a combat situation, would the corps folks be using it?**
LT Howell: Yes, sir. What we have over here is the radar set that you would see normally at any airfield—civilian or military. It is ground controlled approach radar. They have the radar sets inside those vans. What they can do is find out what aircraft are out there, who they belong to via the IFF (identification friend or foe), and then guide those aircraft in, in case of adverse weather. This airfield is capable of C-130 drops and also is C-130 landable.

1LT Randy L. Moseng, platoon leader of 5th Platoon, 68th Air Traffic Control Company, uses the desk inside a flight coordination center to record locations of 16th ATC Battalion units scattered around the more than 200 square miles of maneuver area being used in the GOLDEN SABER V training exercise. LT Moseng is from Ft. Sill, OK. The battalion brought in soldiers from its many western United States military posts to observe and take part in the exercise

Aviation Digest: **A lot of people are wearing field gear—in fact everyone we have encountered. Everything is heavily camouflaged too. Why is that?**
LT Howell: We are in a simulated tactical situation and in a tactical situation all equipment and vehicles must be camouflaged so that they cannot be seen from the ground or from the air. Our people are carrying weapons because they are soldiers as well as controllers. They would have the mission of defending this airfield as well as operating it.

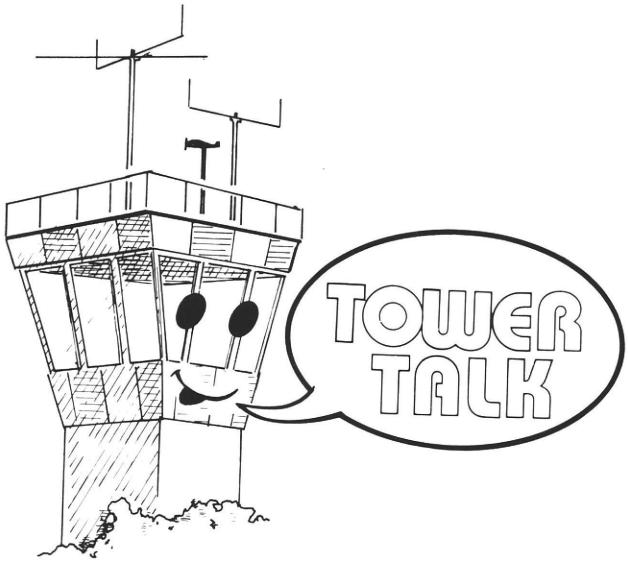
Aviation Digest: **Sergeant, what is your job?**
Staff Sergeant Armando Leos: I am the administration NCO in the NCO Section.

Aviation Digest: **What has it been like for you out here?**
SSG Leos: The first part of our time was spent putting up tents and getting our vehicles deployed.

Aviation Digest: **Did the weather create any problems?**
SSG Leos: Yesterday was a really super cold day for central Texas—snow and ice on the ground—we heard it was minus 2 degrees F. out here, but nobody has had frostbite or other cold weather injuries.

Aviation Digest: **What about the sleeping situation? Did you put blankets in your sleeping bag?**
SSG Leos: Yes, right now I am using two sleeping bags, one inside the other, and I have to say this—it's still cold in there!

The corps-level exercise proved to be a valuable learning experience. ATC personnel working in field gear and confronted with extremely cold weather (for the area) nevertheless succeeded in this mission and demonstrated that they are capable of meeting the challenges of the future.



"Tower Talk" is a quiz containing questions based on publications applicable to Army Aviation. The answers are at the bottom of the page. If you did not do well, perhaps you should get out the publication and look it over.

AVIATION WEATHER FM 1-30

Mr. Ron B. Jackson
Directorate of Training Developments
U.S. Army Aviation Center
Fort Rucker, AL

1. If the lowest barometric pressure at sea level is 29.92 inches of mercury, the pressure (in inches of mercury) at 2,000 feet would be approximately?

A. 27.92 C. 30.92
B. 28.92 D. 31.92

2. Which defines a decrease in temperature with an increase in height?

A. Inversion C. Relative humidity
B. Lapse rate D. Isothermal layer

3. Cold air replacing warm air at the surface is characteristic of what type front?

A. Cold C. Stationary
B. Warm D. Occluded

4. Warm air replacing cold air at the surface is characteristic of what type of front?

A. Cold C. Stationary
B. Warm D. Occluded

5. Which type of icing is the most serious form of structural ice?

A. Rime C. Clear
B. Frost D. Carburetor

6. How often are National Weather Service terminal forecasts issued?

A. Every hour C. 4 times daily
B. 3 times daily D. Every 12 hours

7. A terminal forecast is valid for how many hours.

A. 4 C. 12
B. 6 D. 24

8. When may the terminal forecast visibility be omitted from the forecast?

A. Exceeds 8 statute miles C. 2 miles
B. 3 miles or more (VFR) D. 5 miles

9. An area forecast describes which of the following anticipated conditions?

A. Clouds C. Weather
B. Icing D. All the above

10. Area forecasts are good for how many hours?

A. 8 hours with an 8 hour outlook
B. 12 hours with a 12 hour outlook
C. 18 hours with a 12 hour outlook
D. Period specified for each report

ANSWERS

1. A pg 2-19, para 2-21b
2. B, pg 2-3, para 2-5
3. A pg 7-2, para 7-1b
4. B, pg 7-6, para 7-4
5. C, pg 9-1, para 9-3
6. B, pg 16-1, para 16-4
7. D, pg 16-1, para 16-4
8. A pg 16-3, para 16-4b
9. D, pg 16-1, Section II, para 16-3b
10. C, pg 16-1, Section II, para 16-3a

REPORTING FINAL

Late News From Army Aviation Activities

FROM FT. EUSTIS

Warrant Officer Occupational Survey. The Warrant Officer MOS 160A (Aviation Maintenance Technician) occupational survey is currently being fielded by the Army Transportation School. Its results will be used to design, develop and implement improved aviation maintenance instruction. Transportation School officials believe information from individuals who are performing and supervising the maintenance tasks in field units will enable the school to ensure needed courses are being offered.

All 160A warrant officers and their supervisors are to be surveyed. Individuals who have not received their copy of the form by this time should contact LTC Dilg, CW2 Moriarty or Mr. Cahill at AUTOVON 927-2171/3367, or write to Commandant, Army Transportation School, ATTN: ATSP-TD-PDD, Ft. Eustis, VA 23604. Nonduty-hour calls, with specific reference to the 160A survey, can be made to AUTOVON 927-3571.

FROM FT. RUCKER

Safety Contributions Recognized. SFC Gerald L. Johnson, Army Aeromedical Research Laboratory, has been presented the General Spruance Award by the SAFE (Survival and Flight Equipment) Association, recognizing his outstanding contribution to safety through education pertaining to aviation life support equipment. As NCOIC of the laboratory's Aviation Life Support Equipment Retrieval Program, he has conducted detailed inquiries that resulted in the identification of inadequate equipment which contributed to injuries.

The award was established and first given in 1969 to General William W. Spruance and has been presented each year to individuals or groups for outstanding contributions to safety through education. After General Spruance survived a near-fatal crash in a T-33 (jet trainer), he spent much of his time teaching others how to survive and extolling the use of protective equipment.

SFC Johnson's is the second Spruance Award that has been received by Army personnel; the first resulted from a group effort.

(June Greer, USAARL)

Museum Fund Report. Progress continues to be made in the drive to raise $2 million for a new Army Aviation Museum. The present total is $522,000.

At the recent annual board meeting of the Army Aviation Museum Foundation, Inc., which is directing the fund drive, it was reported that the foundation is now self-sufficient. Its expenses are covered by interest on investments and profits from the museum's gift shop, meaning that all contributions go directly to the building fund.

Other business transacted at the board meeting included the reelection of two retired general officers, LTG Robert R. Williams and LTG John J. Tolson III, as chairman of the board and president of the foundation, respectively. All foundation board members serve without pay.

Parallel building committees have been named by the foundation and by the Army Aviation Center to assist with the specifications and final plans. Selection of an architect is expected to be made in the near future.

Individuals, units, industries, etc., can have a part in the challenging task of procuring a new home for Army Aviation's history. Tax-deductible contributions can be mailed to the Army Aviation Museum Foundation, Inc., P.O. Box H, Ft. Rucker, AL 36362.

STAR OVER BERLIN . . . BG Jimmy Stewart, USAFR (Ret.), looks toward Brandenburg Gate through the window of an Army helicopter while being given an aerial tour of Berlin by the Berlin Brigade's Army Aviation Section. The actor was in the city as an honoree at the Berlin Filmfest.

AASPR-82. The Presidential nominee to be the next chairman of the Joint Chiefs of Staff, GEN John W. Vessey Jr., chaired the Army Aviation Systems Program Review (AASPR) which was conducted at Ft. Rucker, AL, 24 and 25 March 1982.

In addition to GEN Vessey, representatives from all four armed services attended the AASPR which will provide guidance on the future of Army Aviation.

During discussions and displays the attendees were updated on present and future arms, tactics and technology dealing with Army Aviation.

At the conclusion, GEN Vessey, as Vice Chief of Staff of the Army and Chairman of the AASPR, gave guidance on where he feels emphasis should be given during the next 4 years of Army Aviation development.

Within 6 months of the AASPR, a formal development plan will be forwarded to the Office of the Vice Chief of Staff for final approval.

The purpose of the AASPR is to gather representatives of the senior leadership of the Army, Navy, Marine Corps and Air Force and show them where Army Aviation has come from, where it is now and where it should go in the future.

The AASPR is one of only 10 such program reviews held by the Army, according to officials.

Attendees of the AASPR were also guests at the Bogardus S. Cairns Chapter of the Association of the U.S. Army general membership meeting on the night of 24 March 1982.

They were also afforded the opportunity to view flight demonstrations of Sikorsky's Advancing Blade Concept (ABC) helicopter and Bell Helicopter's XV-15 Tilt Rotor System.

The static displays available included the new advanced attack helicopter, the CH-47D Chinook, the UH-60 Black Hawk with the External Stores Support System, and a full-sized model of the OH-58 Army Helicopter Improvement Program (AHIP) Aeroscout.

REPORTING FINAL

Late News From Army Aviation Activities

FROM VIRGINIA

Test Pilots Selected. Five aviators have been selected by a Department of the Army board to participate in the Army Aviation Engineering Test Pilot Program.

Those chosen from 60 candidates were Captains Gary A. Sharon, Frederick W. Stellar and Richard L. Vincent; CW3 Reginald C. Murrell; and Major James M. Correai. These officers will attend a 60-day orientation course at the Army Aviation Engineering Flight Activity, Edwards Air Force Base, CA, before going to the 11-month Naval Test Pilot School at Patuxent River Naval Air Station, MD. Graduates of that course incur a 4-year service obligation, 3 years of which will be spent as developmental test pilots at Edwards AFB, Ft. Rucker, AL, or Ft. Eustis, VA.

Members of the selection board were Colonels Lewis J. McConnell and William B. Woodson; Majors Thomas E. Burch, Kenneth P. Roland, Gary T. Steimle and Michael K. Jennings; and CW4 Velter H. King. **(MILPERCEN PAO)**

FROM PENNSYLVANIA

Repairing Saves Money. A study at the New Cumberland Army Depot has determined that many previously discarded CH-47 Chinook helicopter vertical shaft assemblies can be repaired.

Maintenance personnel modified an existing shot peening machine in order to remove the pitting and corrosion of a worn assembly's spline without exceeding the required tolerances.

The repair cost for an assembly is $5,552; the cost of a new one is $70,000. **(NCAD PAO)**

FROM CALIFORNIA

Aviators are Straight Shooters. The FORSCOM Commander's Company-Level Markmanship Cup has been won by D Company, 7th Combat Aviation Battalion, Ft. Ord. Members of that attack helicopter company outshot 104 other teams, including many from infantry units. **(FT. ORD PAO)**

FROM ST. LOUIS

AAAA Awards. Further plaudits came to the United States' World Champion Helicopter Team and Pilot at the Army Aviation Association of America's 25th convention this month in St. Louis.

The Outstanding Aviation Unit Award was accepted by Major Roy E. Mann, coach of the team which took the world honors in Poland last August.

Recognized as Army Aviator of the Year by AAAA was CW2 George Chrest, who also won his world title in Poland.

Other contributors to Army Aviation and the awards they received were SSG William G. Patterson, 44th Medical Detachment, Ft. Lewis, WA, Aviation Soldier of the Year; SFC Gerald L. Johnson, Army Aeromedical Research Laboratory, Ft. Rucker, AL, James H. McClellan Safety Award; 717th Medical Detachment, New Mexico Army National Guard, Sante Fe, NM, Outstanding Reserve Component Aviation Unit Award; Mr. Michael J. Hoffman, aerospace engineer, Army Troop Support and Aviation Materiel Readiness Command, St. Louis, Army Civilian of the Year; and the Applied Technology Laboratory, Ft. Eustis, VA, a special unit award for 25 years' service to Army Aviation. **(Lindberg Chapter, AAAA)**

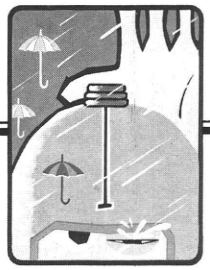
FROM FT. HUACHUCA

ACC Stabilized Tours. Under the new AR 614-5, which became effective in March, several position stabilized tours for communicators and air traffic controllers are reduced from 36 to 24 months.

Since the revised regulation has no "grandfather clause," personnel assigned to Army radar approach control facilities and to an alternate national military command center will become available for worldwide reassignment as soon as they have served 2 years at their present assignment.

The changes will not affect personnel on stabilized tours at headquarters, Army Communications Command or at major subordinate USACC elements. **(Sokalski, USACC PAO)**

VIEWS FROM READERS



Editor:

I would like to get copies of your Recognition Quiz sections from past issues of *Aviation Digest*. I find material such as that useful in teaching vehicle and aircraft identification which I have found is a weak area in my unit.

I would like to commend you on your article on the "Threat—More Than Vehicle ID." This brought out an important point which is often overlooked.

Keep up the good work.

1LT James L. DiSimoni
S2, 1/41 Inf
Ft. Hood, TX

Editor:

I have read the December 1981 issue and was dismayed to read of the devaluation of the Master Army Aviator Badge. (Views From Readers, page 30.)

I suppose if I had entered the program in recent years I would be more sympathetic with the proposed change which will apparently eliminate the requirement to have 3,000 flight hours. It appears improbable that many new aviators will be able to amass 3,000 hours during their career with the current cutbacks in flying hours. However, I, along with dozens of others, paid my dues based on the original ground rules of 15 years, 3,000 hours, special ticket and 50 hours AI. Whoever established the original criteria must have had something "special" in mind when he attempted to distinguish the MASTER ARMY AVIATOR.

You who are so dead-set on changing things ought to change the design of the badge to accommodate the new criteria rather than devalue the badge for those who met the original intent and standard. I agree with CW3 Dennis E. Dura wholeheartedly in his quest to retain the original criteria. (I know the 50 hours AI was eliminated by DA.)

A Master Army Aviator of the "old school," LTC Bob Burris, USA-Ret., once described the Master wings in jest. "The wing means I fly airplanes, the star means I fly generals, and the wreath means I killed one." Everyone knows *how* Bob Burris got his Master Aviator Badge, and what the badge means to *us*.

LTC S.D. Hoyem
2111 Valencia Ave
Monroe, LA

Editor:

Request you send one copy of each reprint of all three articles on NBC subjects. The articles were originally published in the August, October and December (1981) issues of *U.S. Army Aviation Digest*.

CPT F.L. Germano Jr.
Headquarters, 3d Ordnance Battalion
APO New York

Editor:

I read your NBC article in the December '81 issue of the *Aviation Digest*, which referred to two previous NBC articles. I would appreciate your sending me copies of the NBC articles that appeared in the August '81 and October '81 issues.

CW2 William Wightman
New York Army National Guard

Editor:

Please send a copy of "Nuclear, Biological, Chemical—Training and Development" and a copy of "Nuclear, Biological, Chemical Decontamination Problems."

LTC Joseph F. Kasper
U.S. Army Air Defense School
Ft. Bliss, TX

Editor:

Could you please send me MAJ W.P. Patterson's 1980 (November) OPFOR training program article. Apparently copies of other threat articles can be obtained from you folks and I'd appreciate them as well.

I've just been named Threat Officer in a separate National Guard ATK HEL Company.

1LT Timothy A. Tealey
WIARNG
Madison, WI

VIEWS FROM READERS

Editor:

As the commander of the 275th Chemical Detachment (JA), I recently read the excellent article in the December 1981 *Aviation Digest* titled, "Chemical Agents, First Aid and Long-Term Effects." However, there was a gross error made by Captain Savage concerning the first aid for nerve agents.

The following is the correct treatment concept for a nerve agent casualty:

a. Reference, TRADOC Message ATTG-OCS, DTG 222000Z June 81, subject: Treatment Concept for Nerve Agent Casualty. Reference, FORSCOM Message, 301635Z September 81, subject: Treatment Concept for Nerve Agent Casualty.

b. Approved first aid doctrine:

(1) Self Aid—Upon onset of one or more nerve agent symptoms, immediately inject yourself with one atropine autoinjector in the fleshy portion of the thigh. After 10 to 15 minutes, if symptoms persist or get worse, inject yourself with a second atropine injector. If still no improvement after 10 to 15 more minutes, inject yourself with a third injector. After use, stick needle of the expended autoinjector through the flap in your overgarment or shirt. Seek medical attention. If, after the first or second injection, your heart beats very rapidly and your mouth becomes very dry (symptoms of stropinization), you have injected enough atropine and should not use the remaining injectors.

(2) Buddy Aid—Upon finding an individual exhibiting nerve agent symptoms and unable to help himself/herself, immediately mask and inject the soldier with all three atropine autoinjectors at once. (Use the casualty's, not yours.) Stick needle of expended autoinjectors in the soldier's pocket flap and seek immediate medical help. If soldier stops breathing, apply artificial respiration.

(3) The need for more than three injections of atropine is determined only by medical support personnel.

c. Remaining instructions for medical treatment vice self aid/buddy aid will continue to be IAW paragraph 2-11(a)(6) of TM 8-285/NAVMED P-5041/AFM 160-12(J).

In addition to correcting the first aid for nerve agents, please send the previous two articles, "Nuclear, Biological, Chemical—Training and Development," August 1981, and "Nuclear, Biological, Chemical Decontamination Problems," October 1981.

CPT C.A. Gillette
275th Chemical Detachment (JA)
Fort Polk, LA

• **Captain Gillette is correct. Anyone using the article, "Chemical Agents, First Aid and Long-Term Effects," that appeared in the December 1981 issue should place the information contained in Captain Gillette's letter with that article.**

Editor:

I have just finished reading the December 81 issue of *Aviation Digest* and noticed in the "Views From Readers" section a matter of interest to me.

Please send me parts 1 through 4 of the article "From Balloon to Black Hawk, The Army Forward Aeromedical Evacuation Story," by Lieutenant Colonel David M. Lam, M.D.

V. Sterlene Hapner
63d Med. Det. (RA)
APO New York

Editor:

I am writing to request reprints of the series of (four) articles printed in the *Aviation Digest* concerning the issue of attrition (aviation warrant officer retention). Thank you for your assistance.

Kathryn Brooks
Research Associate
HQ, USAREUR & 7th Army
ODCSPER (ARI)
APO New York

Editor:

I just finished reading a recent issue of *Aviation Digest*. The articles were excellent but there were a couple of pictures that upset me. One of these shows an NCO getting ready to hook up a sling load. No problem there, but he has on a wristwatch and a wedding band. The other picture shows an EM working on a UH-1 engine, but he has on a ring and bracelet. Both of these are definite no-nos. The way that safety is stressed in the Army Reserve (at least in my unit), you would show safety-minded photographs. Personnel who wear jewelry while working around aircraft are just asking for big trouble. Thank you and please continue such good articles.

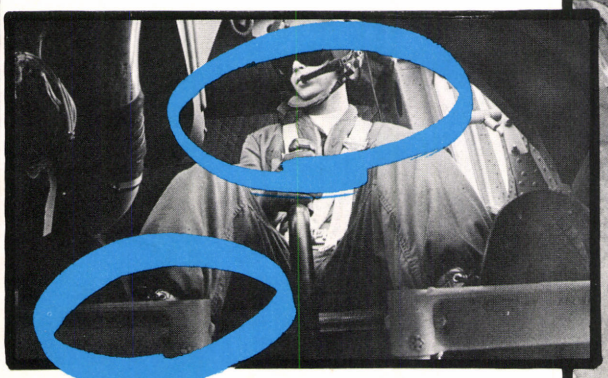
Sergeant Michael Torsiello
315th Engr Gp (USAR)
UH-1 Crewchief
Hagerstown, MD

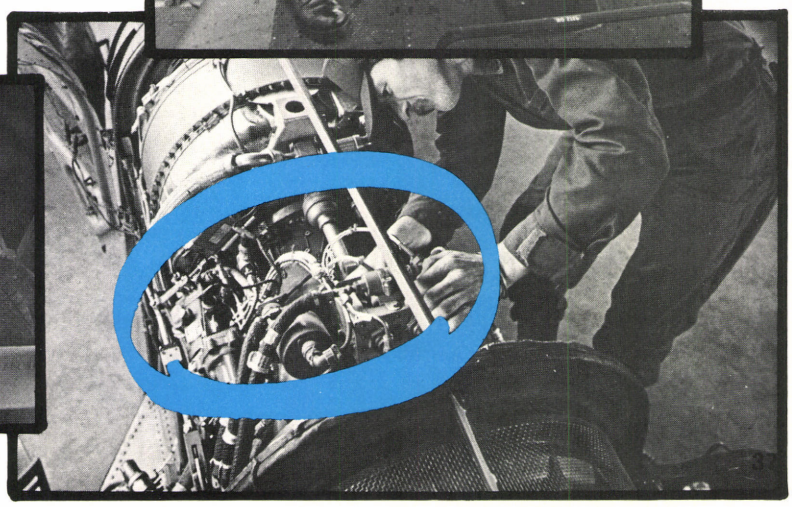
• **We agree with you fully and regret that they slipped through and were printed. But the fact of the matter is this is real—these practices are going on. We hope the poster on the next page will be taken seriously in an effort to prevent accidents, injuries and the loss of lives or aircraft.**

Articles from the *Aviation Digest* requested in these letters have been mailed. Readers can obtain copies of material printed in any issue by writing to: Editor, *U.S. Army Aviation Digest*, P.O. Drawer P, Ft. Rucker, AL 36362

Who's In Error?

We are, for having let the photos on this page slip through into print in a previous issue. But, stop and think about the real danger here. These photos reflect what's going on in at least one unit. And, judging by the number of photos we reject for safety reasons, the problem is pretty widespread. We recommend that you use this page as a safety poster.





Heliborne Electronic Warfare System (HEWS)

Colonel Robert S. Fairweather Jr.
TRADOC System Manager, Scout Helicopter
Fort Rucker, AL

OTHER MILITARY services use many tactical techniques which can effectively be employed by Army Aviation. In this article, I will discuss an adaptation of the U.S. Air Force's "Wild Weasel" concept to greatly enhance the survivability of attack helicopter teams and to generally degrade enemy capabilities.

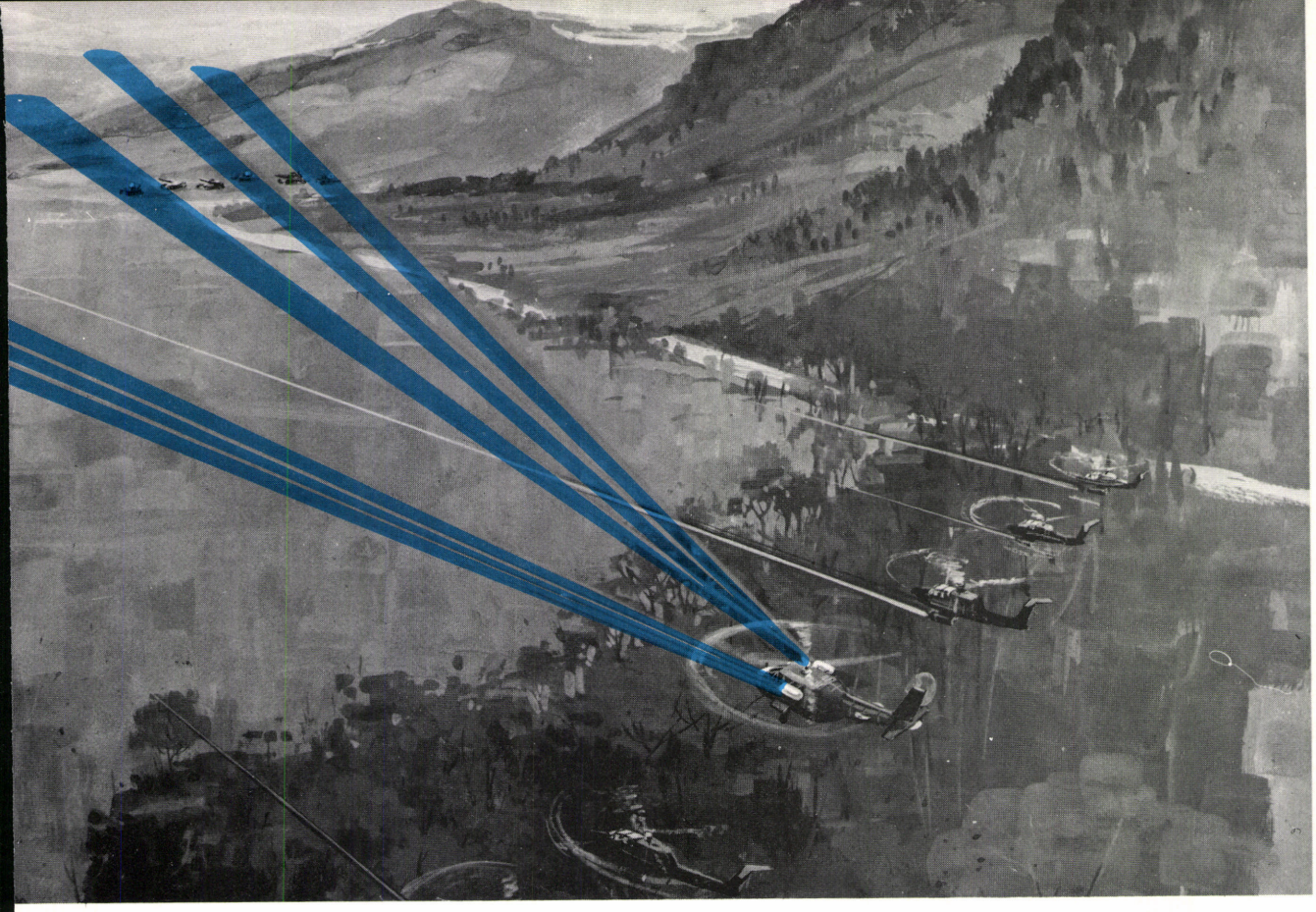
I am sure that many readers have at least a general idea of how the "Wild Weasel" is employed in combat, so I will not spend much time dwelling on that. In simple terms, the "Wild Weasel" is a high performance fighter type aircraft loaded with sophisticated passive and active electronic warfare equipment. It can be used to suppress or destroy enemy air defense missile and tracking systems so that they are ineffective against our airplanes. In most cases, the "Wild Weasel" would be employed to support air operations, especially those directed toward offensive counterair targets.

The idea of an Army Aviation "Wild Weasel" that has different but related missions has been toyed with over the years, but not really ever followed up. Nonetheless, it is an idea that has a lot of merit and bears serious consideration. In the first portion of this article, I posit a conceptual Army "Wild Weasel" that, for the lack of a better name, I will call the Heliborne Electronic Warfare System (HEWS). I then propose how we should use such a system.

A quick review of helicopters available in the Army inventory shows that the UH-1 Huey airframe is the most likely platform for HEWS. Scout airframes are too small, attack helicopters are too valuable as firepower platforms, and of the remaining helicopters, only UH-1s are available in sufficient quantities to divert a number of them away from their normal roles. It should be noted at this point that the UH-1 was the original platform for the Quick Fix Communications Jammer/DF system. However, the Quick Fix system was moved to the UH-60 Black Hawk because of its weight and power demands. The suitability of the UH-1 for HEWS will depend on the successful reduction of weight and power demands through new technology and may require some modification to the helicopter power train.

The real heart of HEWS would be the mission equipment package placed on the helicopter. This mission equipment package would consist of warning/acquisition, jamming/deception, directed energy, communications and aircraft/aircrew protection subpackages. The primary items in the warning/acquisition subpackage would be an interferometer to provide radar warning and to locate radar emitters, directed energy warning receivers, an optical detector, possibly an acoustical detector/locator and any other appropriate warning/acquisition devices.

Sufficient jamming/deception devices would be placed on the UH-1 to jam radars, infrared detectors/seekers, and a wide range of communications while also providing the capability to spoof or decoy enemy acquisition systems. High energy jammers would be particularly desirable. The directed energy subpackage would further extend capabilities by enabling the operator to degrade the enemy's visual acquisition of targets. What I have in mind here are directed energy



systems that cover a relatively broad area with reasonably low power demands. The main objectives would be to blind enemy troops, to deny the use of optical systems and to degrade visibility by "fogging" viewing ports, windows and canopies.

The communications subpackage would include radios/secure devices that are protected from electromagnetic pulse (EMP) and jamming and an automatic target handoff system that would link with similar systems on other helicopters. An accurate onboard navigation system would enhance the effectiveness of the target handoff system, of course.

The aircraft/aircrew protection subpackage is essential to assure survival and mission effectiveness of HEWS. Nuclear and nonnuclear EMP protection is a must. Further, "stealth" technology should be applied where possible to reduce the aircraft's signature to the minimum. Obviously, the HEWS should be protected against any of the systems that it carries since these also could be developed by the enemy.

Given the above operational capabilities for the HEWS, how would it be best employed? Stealing from the Artillery, I would visualize it providing both general and direct support to attack helicopter and air cavalry units. Assuming the Division 86 force structure, a HEWS company of 4 to 6 helicopters would be assigned to the combat support aviation battalion. The HEWS helicopters would then be placed in general support of the aviation brigade, located to provide balanced coverage of the forward line of own troops (FLOT) or would be placed in direct support of specific attack helicopter battalions and/or the air cavalry squadron.

When in the general support role, the HEWS helicopters would respond to threats as determined by the brigade battle tactical operations center. This role would be particularly appropriate when the brigade attempts an over-the-FLOT operation, operates as a covering force or moves to contact. If employed in direct support of an attack helicopter or air cavalry unit, the HEWS helicopters would work directly with aeroscout team leaders and direct their efforts toward augmenting the team's combat capabilities. Specifically, the HEWS helicopter would use its systems to suppress the enemy's ability to acquire and attack targets, disrupt enemy command and control, and inflict damage on enemy personnel and equipment with directed energy. To assure its own survivability, the HEWS helicopter would operate at maximum standoff (well behind the team it is supporting) and would use nap-of-the-earth flight techniques.

Since HEWS is only a concept at this time, I will not attempt to go into further detail. However, I am convinced that the basic idea is sound and is technologically feasible. The advantages, from a tactical standpoint, are obvious and could result in a significant increase in the overall effectiveness of our attack helicopter and air cavalry units.

This article reflects the views of the author and not necessarily those of the Department of the Army or any of its agencies

CONFIDENCE vs. COMPETENCE

Mr Wilburn A. James
Directorate of Evaluation/Standardization
U.S. Army Aviation Center
Fort Rucker, AL

THE DAY STARTED out to be one of those beautiful days that we can all recall. The weather was cool and crisp; the humidity was low, and the visibility was excellent under a clear blue sky. It was a great day to be alive! But, shortly after arriving at the office, my dream world turned into a real nightmare; I was informed of another fatal Army aircraft accident.

It was a real-life tragedy that ruined a beautiful day. The accident involved an OV-1 Mohawk. Although at this time I knew nothing of the details except that the weather in the area of the crash site was just as it was here—I couldn't help but ask myself, "Why." Why did this accident occur? Why didn't the crew eject?

True, the accident investigation board would be composed of the most qualified and experienced personnel available. They would do a thorough job. They would determine the most probable cause of the accident.

The question remains: Just what can be done to prevent tragedies such as this? Do we waste time teaching maneuvers that have little realistic value when more time could be spent on maneuvers that are meaningful? Do we teach our pilots proper flight planning? Does the training enhance their ability to use good judgment, or do we just check to see that they do everything by the book? The "book" is important, but there has never been a book that covered all aspects of flying.

Why didn't the crew eject? Have we been glossing over ejection decisions and procedures? Are we training pilots in such a way that their confidence exceeds their competence?

Confidence is a necessary trait that all pilots must possess but overconfidence can sometimes detract from exercising good judgment more than lack of confidence. Overconfidence in one's ability or the capability of the aircraft can lead to improper decisions and ultimately to an accident.

Some Mohawk pilots have been overheard to say, "I'll never eject—I'll stay with it," etc. Unfortunately, the OV-1 does not provide the best protection for the crew during a crash landing. Hence, the reason for equipping the Mohawk with the best available egress system. As examples: During fiscal year (FY) 1979, half of the fixed wing accidents and the two fixed wing fatalities were caused by the OV-1 type aircraft. The statistics could have been worse; one of the accidents was a midair collision involving two Mohawks. The four occupants involved in this accident ejected successfully from both damaged and uncontrollable aircraft. Two other crewmembers of another OV-1 type aircraft ejected successfully when their craft developed engine trouble. There were six successful ejections out of six attempts—a creditable record for the OV-1 ejection system.

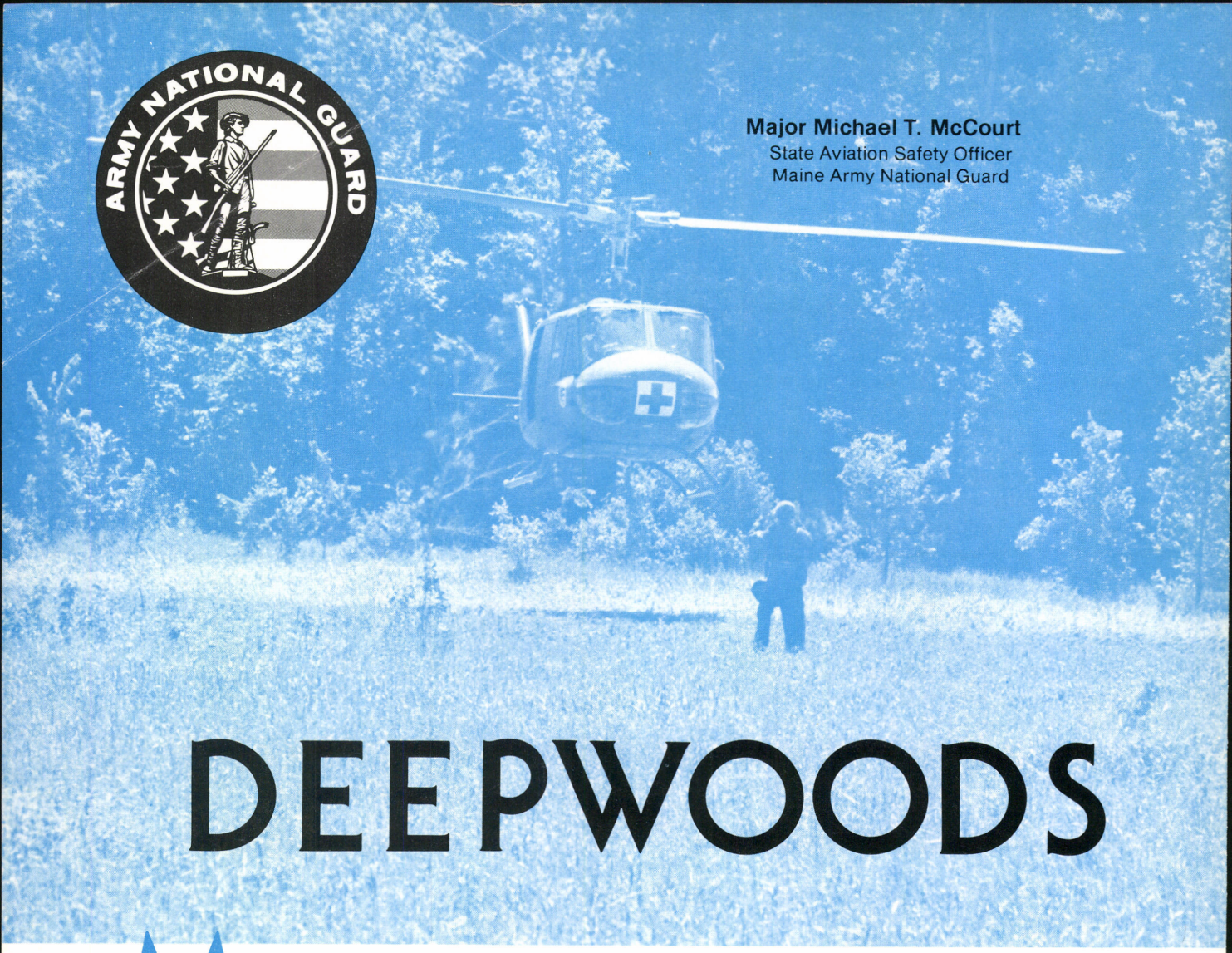
During FY 1980, the OV-1 type aircraft was responsible for all three fixed wing Class A mishaps and three fatalities. Ejection was not attempted in the two mishaps resulting in fatalities. Ejection in the other mishap was successful.

During FY 1981, there was one Class A mishap involving the OV-1 and when no attempt to eject was made, it resulted in two fatalities. No matter how good the system is, it is worthless if it is not used!

Were the previously mentioned decisions to delay or to refuse ejection the result of overconfidence? We are not certain, but we do know that overconfident pilots will tend to expect more from themselves and their equipment than either can produce. All too often, the pilots' competence, skill and judgment falls below their level of confidence, and the capability of their equipment cannot make up for the deficiencies inherent in such a situation.

I could not have written this article if it hadn't happened to me. I have brought aircraft home when the safest course of action called for me to eject. True, I basked in that moment of glory. I enjoyed having my fellow aviators talk about me and state that I "was a really great pilot." Now that I look back on all those years of flying, I realize that while I was classed as a good pilot, I also had some luck. None of us know how much luck we have, so the intelligent thing to do is to play it safe. Thorough knowledge of our emergency procedures, aircraft limitations as outlined in the Operator's Manual, confidence in our egress system, based upon a realistic appraisal of its capabilities and application of sound judgment, will enhance our chances of survival when faced with the ultimate decision—to "PUNCH OUT—NOW!"

Your competence in the use of the ejection system will then increase your confidence in that system.



Major Michael T. McCourt
State Aviation Safety Officer
Maine Army National Guard

DEEPWOODS

MANY INGREDIENTS are brought together to make up that intangible called safety. Training safely to produce unit combat proficiency is the ultimate goal of the Army Aviation Program in Maine. Changes in operational aircraft and doctrine have caused revisions in training programs. Through changes from CH-34s and OH-23s to UH-1Hs and OH-58s and initial aircraft qualification to terrain flight, the most important elements of Maine's accident prevention program have been people, supervision and training.

A National Guard unit has the personnel problems of an active component unit. In addition, there are disruptions to unit operations caused by civilian jobs, distance from home to unit training sites and many other factors. Maine is fortunate that the majority of its unit members are true "Maineiacs." A Maineiac is traditionally a cautious, conservative, reliable person. This Maineiac tradition has played an integral part in 10 years of accident-free flying. Cautious, conservative, reliable individuals will perform preflights or maintenance tasks by the book; they will complete a performance planning card; and they will make in-flight decisions ensuring the odds are in their favor. In short, the accident prevention effort in Maine has been people oriented. Train guardsmen safely, and they will perform safely.

In the course of routine operations, the command structure has many avenues available to influence accident prevention. From the Deputy Adjutant General, who is president of the State Aviation Safety Council, to the instructor pilots who administer the standardization flights, each supervisor in the chain has accepted a responsibility to make safety the primary consideration.

Each supervisor in the chain of command can influence the sequence of events leading to an accident. Maine has had Class E mishaps that would have been Class B or A mishaps if someone in the chain had not interrupted the sequence of events leading to the mishap. True, some may attribute this to divine intervention, or luck, but in most cases it takes a supervisor who knows the signs of an impending mishap and takes effective corrective action.

Maintaining proficiency in all flight tasks is a constant problem for aviators. This is especially difficult for National Guard aviators who only fly once or twice per month. To help eliminate this problem, a training program has been developed that incorporates many unit tasks. It implements a schedule that requires instrument, terrain and medical evacuation flight training. The 112th Medical Company (Air Ambulance) is divided into four flight platoons consisting of six UH-1s with a crew of pilot, copilot, medic and crewchief. One flight platoon is designated to conduct instrument training, another provides administrative support and two others conduct tactical mission training. The administrative support required consists of individuals to serve as patients, personnel to apply moulage and an aircraft crew to position patients in the pickup sites. A typical training day might be as follows:

0700 Morning Formation

0715 Safety Meeting/Tactical Situation—Safety meetings include appropriate topics for missions to be flown such as: flight planning, weight and balance, terrain flight, confined area operations, medevac operations and hoist operations. Tactical situation briefings include friendly situation, enemy situation, enemy air defense artillery positions, weather, logistics, tactical air/artillery, communications, command and control and downed aircraft procedures. (After the initial briefing, aviators post maps and partially complete flight planning and weight and balance.)

0900 The first tactical mission is given to the platoon leader, who then assigns a crew. The crew completes its flight plan and computes weight and balance. Tactical missions are conducted until 1330 hours.

1400 Debriefing—Problems and corrective measures are discussed to formulate lessons learned to pass on to other unit members.

1500 Dismissal

Throughout the training period, unit instructor pilots are available to answer questions and assist in the preflight phases. Along with safety officers, they participate in flight missions as crewmembers and as evaluators. At each stage of the day's training, there are many opportunities to influence and ensure that the training conducted is in accordance with aircrew training manual and ARTEP (Army Training and Evaluation Program) requirements. Maine operates its own tactical training area. Tactical mission training and/or terrain flight training is conducted in Deepwoods Military Operation Area (MOA). Deepwoods is located 20 nautical miles east of Bangor, ME. The MOA is 1,025 square kilometers of sparsely populated woodland and is a designated terrain flight area. It has been used by aviators of U.S. Army Reserve, U.S. Marine Corps, U.S. Marine Corps Reserve, Active Army and National Guard of other states.

Command supervision of dedicated people coupled with an effective training program are the ingredients of Maine's accident prevention program. A program that has been effective for the past 10 years and will, with continued dedication, provide many more accident-free flying hours.

"Medevac" in progress; from the FLOT (forward line of own troops) by Medevac UH-1 (above) to triage (assigning a priority to each casualty) while the "birds" stand by

The Third Ingredient

Mr. Ken Arnold
U.S. Army Air Traffic Control Activity
Aeronautical Services Office
Cameron Station, Alexandria, VA

UNFORTUNATELY oral radio communications are the weakest link in the air traffic control (ATC) system. The misunderstanding of ATC clearance messages leads to more midair conflicts than any other system operational factor reported to the National Aeronautics and Space Administration (NASA) Aviation Safety Reporting System (ASRS). The "Whaddesay?" syndrome is probably the most frequently noted cause for clearance message and automatic terminal information service (ATIS) monitoring errors. Why is it the message always comes just as you were busy doing something else?

That's another story. Let's assume there is no communication problem. You heard the message. The situation now depends on what you do with the information.

Your eyes may be 20-20 or better and your ears may be 15-15 or better. *But*, we need to add one more component (the third ingredient) at the 100 percent level to make the people, part of the interface between people and machines, work successfully in aviation. That component is the *brain*! It takes total concentration on the ear, eye, hand coordination effort to overcome the complacency and carelessness which have a way of creeping into the cockpit and air traffic control facility.

Reading the altimeter is one area where pilots sometimes do not use that one vital component we mentioned earlier. Altimeter setting/reading errors happen often enough to cause NASA to devote half of a quarterly report to the problem. The following examples were excerpted from the ASRS Quarterly Report No. 12 and are statements of professional pilots with years of experience.

1. "While climbing to cleared altitude FL240, ABC Center called and requested the altitude. I responded 12,000 climbing. Center asked altitude confirmation. I again responded 12,800 climbing. Center said altitude readout was 22,800 feet. Upon rechecking I found I had misread the altimeter by 10,000 feet. This was a first time for me, but I have seen it done before on four occasions in 23 years. Obviously, once is enough under the right circumstances."

2. "We had been cleared to 27,000 feet direct to ABC. We then received another clearance to 13,000 feet. The copilot was flying the aircraft and I was working the radio. We leveled off at 23,000 feet thinking we were at 13,000 feet. Scattered clouds and haze obscured ground visibility. Center then cleared us to cross ABC VORTAC at 6,000 feet. At 20,000 feet I reported passing through 10,000. The copilot completed the descent to 16,000 feet and I reported 6,000 feet. Center changed us over to Approach Control and I contacted Approach when level at 6,000. The Approach controller then said that Center had had a problem with our altitude transponder readout and that he showed us at 16,000 feet on his altitude readout. We checked our altitude, immediately realized we had been misreading our altimeter and descended immediately to 6,000 VFR."

3. "I was assigned 9,000 feet. My copilot was flying the aircraft. At 8,000 I called out one thousand to go and he acknowledged. Approximately 15 minutes later, Center asked for altitude verification which turned out to be 8,000, not 9,000 feet as assigned. Why did we level off at 8,000 considering the above conditions? Why did we both miss the error?"

4. "This incident involved climbing to and leveling off at an altitude 1,000 feet high due to both *pilot and copilot* setting the wrong barometric pressure prior to departure. Apparently the altimeters had previously been set near 28.80 because only a small adjustment was required to set 28.84. Upon starting the engines the ATIS was used to obtain the altimeter setting of 29.84. *Both of us stated 29.84 and set them at 28.84.* ATC questioned us when we reached level-off and said our Mode-C was inoperative. A cross-check on the radar altimeter quickly revealed our error."

Each of the above incidents attests to the potential gravity of misreading/missetting altimeters. Incident number two also reflects a certain laxity on the part of the Center in that it assumed an inoperative altitude transponder and failed to question the pilot. It wasn't until the approach controller questioned the altitude that the extremely dangerous situation was discovered. This shows that controllers, too, sometimes fail to engage the brain in the coordination effort.

Readers are encouraged to address matters concerning air traffic control to:
Director, USAATCA Aeronautical Services Office, Cameron Station, Alexandria, VA 22314

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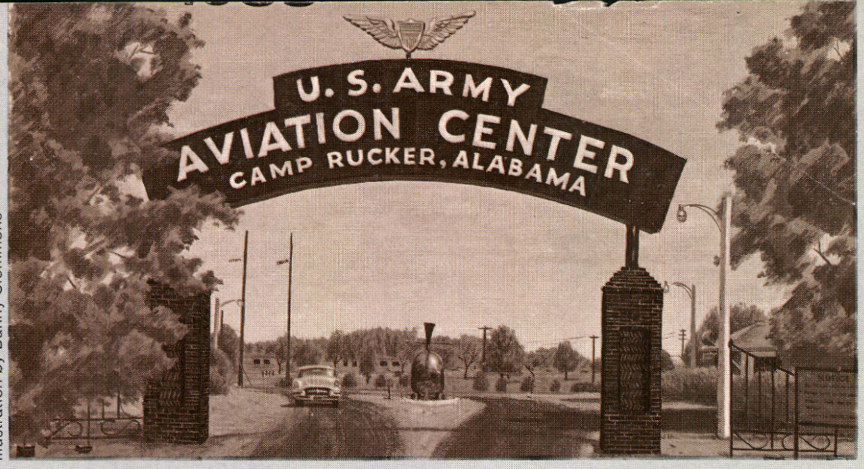

illustration by Danny Clemmons

40th Birthday of ARMY AVIATION and FORT RUCKER

CALENDAR OF EVENTS

THURSDAY 3 JUNE 82

0900-1800 (9am-6pm) **Information Center** Building 9204

0900-1700 (9am-5pm) **Museum Open House** Building 6007

1000-1700 (10am-5pm) **Golf Tournament** Golf Course

1400-2100 (2-9pm) **Carnival/Bazaar** Old Division Parade Field

FRIDAY 4 JUNE 82

0800-1800 (8am-6pm) **Information Center** Building 9204

0800-1000 (8-10am) **Golden Hawk 10K Run** Physical Fitness Center, Building 4605

0900-1700 (9am-5pm) **Museum Open House** Building 6007

0900-1700 (9am-5pm) **Synthetic Flight Trainer Open House** Building 4901

0900-1700 (9am-5pm) **Safety Center Open House** Building 4905

0900-1700 (9am-5pm) **Aeromedical Research Laboratory Display** Building 6901

1000-2100 (10am-9pm) **Carnival/Bazaar** Old Division Parade Field

1530-1600 (3:30-4pm) **JRROTC — Drill Team** Post Parade Field

1615-1700 (4:15-5pm) **Brigade Review With Retreat** Post Parade Field (Inclement Weather-Physical Fitness Center, Building 4605)

SATURDAY 5 JUNE 82

0800-1800 (8am-6pm) **Information Center** Building 9204

0800-1200 (8am-Noon) **Static Display** Cairns Army Airfield

0900-0930 (9-9:30am) **Band Concert** Cairns Army Airfield

0900-1700 (9am-5pm) **Museum Open House** Building 6007

0930-1100 (9:30-11am) **Army Aviation Air Display—Yesterday and Today** Cairns Army Airfield

1000-2100 (10am-9pm) **Carnival/Bazaar** Old Division Parade Field

1200-1700 (Noon-5pm) **Synthetic Flight Trainer Open House** Building 4905

1200-1700 (Noon-5pm) **Safety Center Open House** Building 4905

1200-1700 (Noon-5pm) **Aeromedical Research Laboratory Display** Building 6901

1330-1430 (1:30-2:30pm) **New Army Aviation Museum Site Dedication** Corner of Headquarters Road and Andrews Avenue (Near Building 6022)

1500-1600 (3-4pm) **Memorialization of Warrant Officer Career College** Building 5301

1830-2400 (6:30-Midnight) **Army Aviation Ball** Officers' Club, Building 113

SUNDAY 6 JUNE 82

0800-1300 (8am-1pm) **No-Host Brunch** Officers' Club, Building 113

0900-1000 (9-10am) **Memorial Service** Post Parade Field (Inclement Weather-Post Theater)

1000-1700 (10am-5pm) **Carnival/Bazaar** Old Division Parade Field

For more information contact:
Commander
1st Aviation Brigade
ATTN: Planning Committee
Fort Rucker, AL 36362

Telephone: AV 558-2141/3413
COMM 205-255-2141/3413

Editor:

I notice in your December 1981 issue of *Aviation Digest* that your back cover is given over to aviators leaving the service with a point of contact for U.S. Army Reserve aviation units.

My division, not unlike other Army National Guard divisions and nondivisional units, also has aviation units; and we under the Total Army Concept could benefit from the same service you provided the USAR.

Units in the 42d Infantry (Rainbow) Division are located in:

NEW YORK
Freeport (516) 378-0187
- 42d Avn Bn (Cmbt) (Div)

Latham (518) 457-7098
- Co D, 42d Avn Bn (Atk Hel)

Niagara Falls (716) 297-0180
- Co B, 42d Avn Bn (Cmbt Spt) (Div)

KENTUCKY
Frankfort (502) 564-8434
- Co C, 42d Avn Bn (Cmbt Spt) (Div)

SOUTH CAROLINA
Eastover (803) 748-4328
- Co D, 1-101st Cav (Air Cav) (Div)

MG Joseph A. Healey
Commander, 42d Inf Div
NYARNG
125 West 14th St.
New York, NY 10011

The Aviation Digest is happy to publish the listing of aviation units in the 42d Infantry (Rainbow) Division. Others (National Guard or Reserve) are invited to send us listings of their units which contain Army Aviation. Please give mailing addresses to include zip codes and telephone numbers, both AUTOVON and Commercial. If we have not used them, we will be happy to do so in future issues.