UNITED STATES ARMY
AVIATION DIGEST
AUGUST 1978

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"Getting Ready"

page 1

UNITED STATES ARMY
AVIATION DIGEST
AUGUST 1978
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page 4

page 8

1 **Army Aviation—"Getting Ready,"** BG Charles E. Canedy
4 **AVNEC Report,** MG James C. Smith
5 **AVNEC Part III: How To Fight—Defense,** MAJ Kenneth H. Bardot
8 **If It Feels Good, Fly It,** MAJ Walter J. Probka
11 **Crew Rest In Reserve/Guard Components,** J. Scott Bond
12 **The Aerial Observer Team And TACFIRE,** MAJ Gary N. Grubb
15 **Views From Readers**
16 **Reporting Final**
19 **Fort Rucker Activities Day**
20 **Why Air-To-Air Missiles On Attack Helicopters,** MAJ Lonnie S. Beasley
22 **Training Developments and Methodologies: ISD,** A. Frank Rushton
24 **WOC-D**
26 **DES Report To The Field**
28 **ATM: A Better Way To Train,** CPT Ronald Cox
30 **American Legion Valor Awards**
31 **EPMS Corner: Career Management Individual Files,** SFC George L. Alston
32 **OPMS Corner: Update—Officer Specialty Code 71,** MAJ Richard G. Larson
40 **Think About The Unthinkable,** CPT Charles F. Nowlin
44 **The Threat: The SA-9 Gaskin**
45 **You Wanna Hear From Me?**
46 **PEARL**
48 **ATC Action Line**
Inside Back Cover: **M49C Refueling Tanker On Fire**
Back Cover: **Second Air-To-Air Symposium**

page 12

page 20

page 46

Richard K. Tierney
Editor

ABOUT THE COVER

The Army aviator on the cover reflects the "getting ready" theme of the article on page 1 by Brigadier General Charles E. Canedy who takes a comprehensive look at Army aviation today and where it is headed.

The mission of the *U.S. Army Aviation Digest* 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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"GETTING READY" Army Aviation

Brigadier General Charles E. Canedy
Deputy Director of Requirements
and Army Aviation Officer
Office Deputy Chief of Staff for Operations and Plans
Department of the Army

SINCE I BECAME your Aviation Officer in August of 1975, I have had the privilege of working with and for countless individuals, both military and civilian, that have and will continue to put forth a maximum effort towards achieving a goal of complete readiness in Army aviation. From the young people who just entered 67Y (AH-1 Helicopter Repair) training at the Transportation School and Center at Ft. Eustis, VA to the Senators and members of Congress, who annually support our budget requests—I applaud you. I can assure you, however, even though we are making progress, we are not ready.

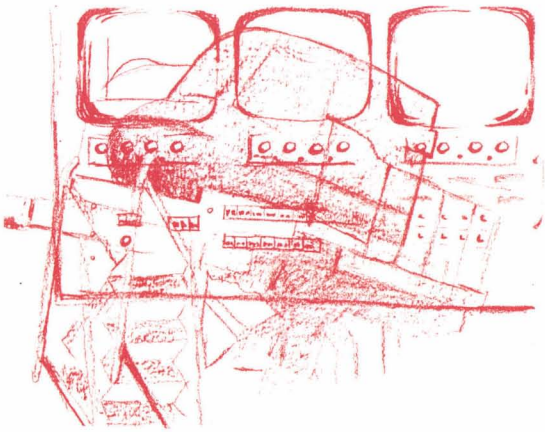
In hopes of providing you some additional insight regarding the total Army aviation picture, let's discuss some of our more significant aviation programs and why we feel they are important to the Army and its readiness. As you will see, despite my previous bluntness, progress is prevalent.

Flying Hour Program

Our fiscal year (FY) 78 flying hour program resulted from major revisions in our aviation training policy and constituted the Army's best effort to effectively modernize its flying hour program. Our FY 79 program continues this effort with a goal of enhancing aviation readiness.

The number of flying hours we are allowed to fly, however, continues to be a major concern. As you recall, the aircrew training manuals established our "first pilot" training hours that vary from 228 hours a year for our scout pilots to 46 for our fixed wing utility pilots. The manuals were tested during March through August 1977 and the final versions are scheduled for distribution to the field by 1 October. (See "ATM: A Better Way To Train," page 28.)

I am convinced that our new task and event oriented training hour requirements provide us with a vehicle to directly correlate flying hours to readiness, and therefore, will not only reduce the aviator mishap and fatality rate, but equally important, improve the combat readiness of our aviation units. Congress cut our FY 78 program by 13 percent and, obviously, this is impacting on our readiness. We have solicited their full support for our 79 proposal of 1,617,880 hours.



Flight Simulators

The flight simulator program continues to be one of the bright spots in Army aviation. Forecasted,

This article was prepared by General Canedy prior to his departure from Washington for a new assignment (see "Reporting Final," page 16)

as well as actual, flying hour reductions and monetary savings are once again extremely encouraging. During FY 77, using flight simulators, the Army achieved a cost avoidance of $30.1 million—representing 115,997 flying hours. It is anticipated these savings will increase in FY 78 and FY 79. Additionally, while I cannot relate empirical results, I feel the use of these simulators provided significantly increased proficiency in instrument and associated procedures for our young aviators.

There are currently 16 UH-1 Huey simulators operational and by October there will be 22. The majority of the savings just stated can be attributed to the fielded UH-1 simulators. This simulator also uses 101 preprogramed inflight emergencies; at least one of which so far has saved five lives. The CH-47 Chinook simulator prototype has completed testing and now is being used in aviator transition training. The AH-1 Cobra prototype was accepted by the Government last April, with operational testing to be completed in January. This will be our first total systems simulator, simulating visual, instrument and all weapon systems.

Research and development for the UH-60 Black Hawk and AH-64 attack helicopter simulators has been funded. The UH-60 simulator will test the computer generated imagery systems of visual display that we hope will solve our nap-of-the-earth (NOE) simulation problem and significantly reduce the cost of these devices.

Special Task Force (STF) Studying Warrant Officer And Officer Aviators

We have organized a task force designed to evaluate the warrant officer aviation program and to assess and review the management of our commissioned aviators. Although Brigadier General Dick Sweet, Deputy Director of Military Personnel Management (DCSPER) and I have cochaired this effort, our real working director of this task force studying aviation warrant officer and officer specialty 15 management has been Colonel Ron Hill who has done just a super job. I will give you a quick overview of the issues that are of primary concern to the Army and particularly to Army aviation.

As a result of the Warrant Officer Aviator STF, we have:

- initiated a promotion policy that will result in significantly improved promotion opportunity for all warrant officers;
- strengthened the attractiveness of the regular Army warrant officer program;
- initiated a selected continuation process so that we can retain warrant officers in critically short specialties;
- increased the initial flight training obligation from three to *four* years.

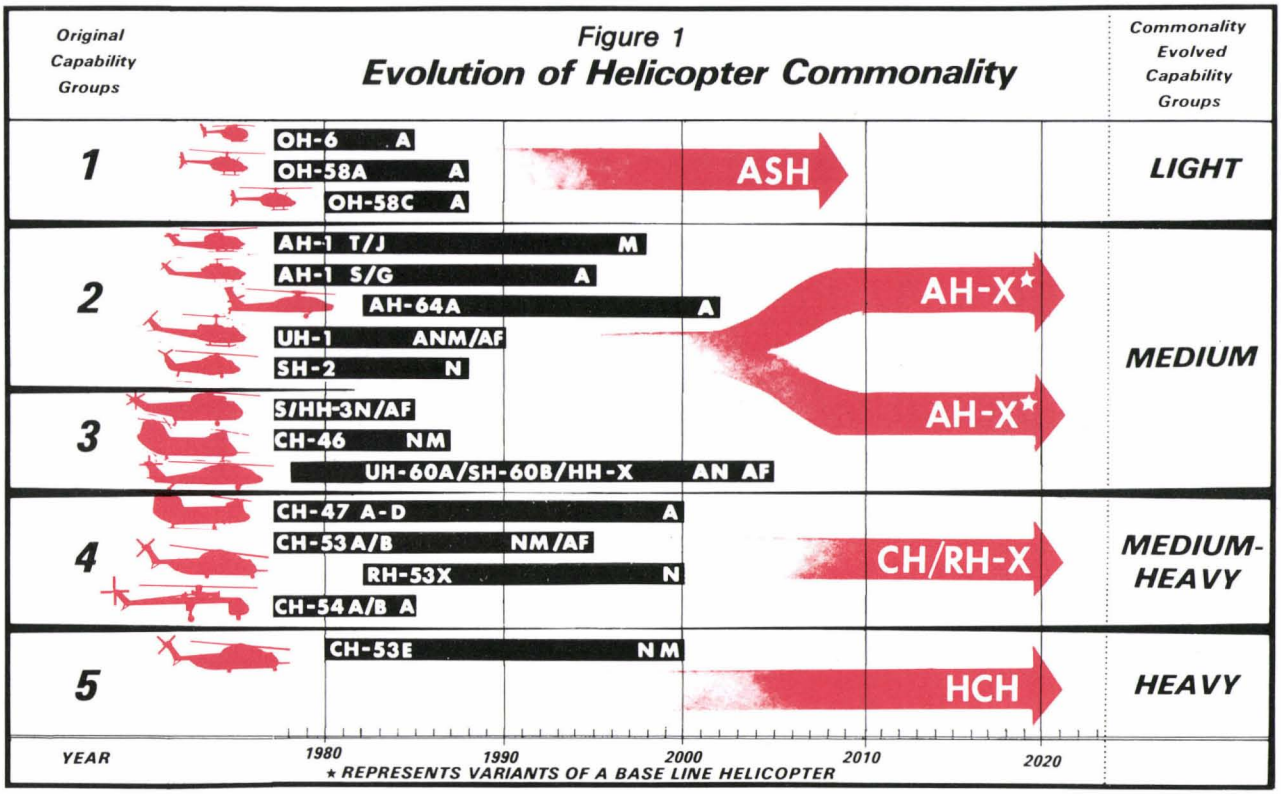
These actions are designed specifically to improve the overall aviation warrant officer program, to provide for an increased return on our training dollar investment, and to enhance Army aviation readiness.

In regards to readiness, our task force also proved its worth. As currently written, our tables of organization and equipment (TOEs) essentially reflect one aviator for each cockpit seat. This ratio will not sustain a European level of combat. As we increase the capabilities of aircraft to be flown 24 hours a day in all types of weather and reduced visibility, the crews become the limiting factor in the combat power of these units. The U.S. Army Training and Doctrine Command (TRADOC) currently is revising our crew ratios to optimize the performance of the aircraft as new technologies increase performance and capabilities.

In the officer aviator field we determined that as a result of the high and continued demand for Army aviators during the Vietnam conflict we now find ourselves with too many senior major and lieutenant colonel aviators. To compensate, the Army was directed to reduce training input and in 1977 we were permitted only 100 commissioned aviators. As a result, commissioned officers programed for training during the next 5 years will not meet the Army's company grade aviation requirements—365 officer trainees in the FY 79 budget.

The shortages, if not corrected, would require 100 percent use of our commissioned aviators in aviation positions, thereby prohibiting assignments in career developing basic entry skills. The Department of Defense (DOD) philosophy on training and using commissioned aviators is significantly different from the Army's. It is only fair to add, however, that *all* our problems do not stem from training input constraints, but involve the proper use of our officers once they become aviators.

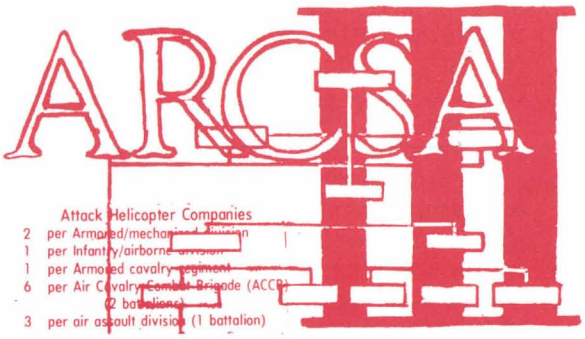
The Army philosophy regarding its commissioned aviators, I might add, is not complex. We believe our commissioned aviators must be equally skilled in ground as well as aviation warfare. They must not only possess skills as an attack or assault helicopter



team member or leader, but also must be well trained and experienced as Armor, Infantry and Artillery officers. The Congress and Office of the Secretary of Defense (OSD) as well as we in the Army, should demand that the Army's aviation leaders be sufficiently competent so that they can ensure Army aircraft are employed in such a manner so that they are an integral part of the ground battle.

Unlike our Air Force or Navy counterparts, the Army aviators' war does not center around the aircraft they fly or those they control. Instead, our war is the ground battle into which the aircraft we control must be interwoven—if they are to be effective. Therefore, our task force has recommended:

- training rates be increased from 465 commissioned officers and 465 warrant officers per year to 654 and 808 respectively.
- combat arms officers serve a 1-year specialty qualifying assignment in their basic entry specialty prior to assignment to flight school.
- aviators serve 4 years in an aviation utilization assignment after graduation from flight school.
- aviators in the grade of captain serve in at least one primary/entry specialty qualifying assignment.
- that the Officer Personnel Management System (OPMS) General Officer Steering Committee consider specialty 15 to be an alternate only and that 0-4 aviation company level commanders be centrally selected.



Aviation Requirement For The Combat Structure Of The Army (ARCSA III)

As you may recall, ARCSA III, a study specifically designed to improve the aviation force structure of the Army, was approved by the Army Chief of Staff and implemented last February (see July 1977 *Digest*). Our emphasis is to place the bulk of the Army's combat aviation assets into the hands of our division and corps commanders where they can be most effectively and efficiently used. Concurrently,

Continued on page 34

AVNEC REPORT

Major General James C. Smith
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Fort Rucker, AL

THIS IS THE third of four articles which cover the main portions of the Army Aviation Employment Conference (AVNEC) hosted at the U.S. Army Aviation Center, Ft. Rucker, AL last March. Part I, "Standardization and Interoperability," appeared in the June issue of the *Aviation Digest* and Part II, "How to Fight—Offense," followed in July. As indicated in the previous articles, the purpose of the conference was to achieve a consensus regarding the employment of Army aviation and to prioritize aviation systems as a prelude to the Army Aviation Systems Program Review (AAPR) scheduled for 4 and 5 December. The participants at the conference represented a cross-section of general officers within the Army. Of significance is the fact that the majority of the participants were not rated aviators.

Prior to convening the conference, the participants were assigned to one of four workshops and provided issue papers relative to their particular workshop's area of interest. During the workshop discussion, the participants were invited to arrive at conclusions and recommendations for each issue paper as well as prioritize aviation equipment. The resulting conclusions and recommendations from the workshops have been forwarded to the Combined Arms Center (CAC) and other organizations for appropriate action. The resulting equipment prioritization is under review at the Aviation Center and will be developed into discussion topics for the forthcoming AAPR. More information about the AAPR can be obtained by contacting Major Frank Peterlin, AAPR Project Officer, Directorate of Combat Developments, Ft. Rucker, AL 36362—or by calling Major Peterlin at Commercial 205-255-3702 or AUTOVON 558-3702.

AVNEC PART III

How To Fight: Defense

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AS A CONTINUATION of the *Digest's* coverage of the Army Aviation Employment Conference (AVNEC), this article provides an overview of the conclusions and recommendations developed by the How to Fight—Defense workshop. The workshop discussed issue papers pertaining to the employment of Army aviation in the covering force area, the main battle area and the attempted breakthrough sector. Issues on the employment of the joint air attack team, countering threat helicopters and employment of Army aviation during special missions also were examined.

Since the preeminent mission of the Army today is to provide for the successful defense of western Europe, the defense workshop discussions were most appropriate. Because of the significance of U.S. Army Europe (USAREUR) the workshop discussion centered largely upon a European scenario and was viewed in a 1978 as well as 1985 timeframe. Furthermore, the discussion focused on employment of Army aviation as a member of the combined arms team and emphasized the integration of aviation maneuver units into fire and maneuver plans, as opposed to aviation units operating as a separate entity.

The workshop concluded generally that aviation roles will not change dramatically in the 1985 timeframe. Then as now the basic contributions of Army aviation will impact on combined arms operations in the covering force area, the main battle area and the critical breakthrough sector. These contributions would have application in varying geographical areas and climatic conditions.

To highlight some of the contributions discussed, the attack helicopter units were considered to provide the force commander the capability

to thicken the defense rapidly and integrate antiarmor firepower on key avenues of approach. Also, the firepower and mobility of attack helicopter units could be exploited to compensate for a lack of reserve forces and contribute to the maneuver aspects of the battle. Air cavalry troops would perform screening, reconnaissance and economy of force functions. Finding the enemy by air cavalry units was thought to be an important contribution in addition to providing combat information.

By the same token support aircraft in the combat support aviation company (CSAC) were considered to provide a means to thicken defenses. The CSAC would provide air movement of antitank guided missile and Redeye/Stinger teams to critical sectors, and deliver mines and unattended ground sensors. Also the CSAC occasionally would transport units to critical defensive positions such as builtup areas or strong points.

Other support aircraft in medium helicopter units would shift critical logistical support and would support forward area refueling and rearming operations. Other aviation roles considered by the workshop included intelligence gathering and command and control. Electronic warfare and intelligence gathering aircraft of the Combat Electronic Warfare Intelligence units were considered to perform functional roles for commanders at all levels. Command and control (C&C) aircraft were considered to provide commanders with a means to traverse the battlefield as required.

The use of C&C aircraft does not imply that they will be operated in the same flight envelopes or perform the same functions as they performed in Vietnam (i.e., high orbit with command and control consoles). But rather these aircraft would provide commanders the capability to move about the battlefield in terrain flight modes and facilitate the accomplishment of command functions. These roles and contributions of Army aviation within the combined arms team are contained in FM 90-1 "Employment of Army Aviation Units In a High Threat Environment"; FM 17-50 "Attack Helicopter Operations"; and FM 100-5 "Operations."

The workshop discussed other special considerations for the employment of aviation units. Due to the extended frontages in Europe and the lack of air cavalry units within USAREUR, covering force commanders may by necessity have to employ attack helicopter units to defend in sectors, and to perform reconnaissance and screening missions. In the breakthrough sector force commanders will experience additional logistical requirements as attack helicopter units consume large volumes of class III and class V supplies. The attack helicopters' capability to rapidly mass tank-killing firepower can be optimized in the target rich breakthrough sector. The air cavalry units are suited for economy of force roles to fill gaps created by the movement of other forces to thicken defenses in the critical sector.

The workshop's examination of the issue regarding employment of the joint air attack team focused upon air space management and suppression of enemy air defense systems. The joint air attack team concept consists of an attack helicopter team and U.S. Air Force close air support element attacking a given target array at the same time. The workshop concluded that the joint air attack team is a viable concept which should be exploited in the breakthrough sector. Airspace management was considered not to be a problem in the forward combat areas since there is little need to maintain positive airspace control

in these forward areas. Suppression of enemy air defense systems and artillery was considered important to the survivability of the joint air attack team. Existing Army systems and procedures were thought to be adequate for the bulk of coordination required. The workshop further identified the training requirements necessary to effect this concept.

The workshop's deliberation on the issue of countering threat helicopters indicated that there was a potential for air-to-air engagements between helicopters during threat airmobile assaults into rear areas and during chance or meeting engagements along the forward edge of the battle area. The workshop concluded that the problem of countering threat helicopters was an Army problem as a whole, not specifically applying to aviation. The responsibility for resolving this problem belonged to the Air Defense Center. The discussion of the concept of countering threat helicopters was concluded with the recommendation that further investigating and testing should be conducted in order to define aviation requirements, roles, capabilities and responsibilities.

Some areas of interest for further doctrinal development were suggested by the workshop. There is a need for development of tactics for existing weapon systems to combat the potential air-to-air and ground-to-air engagements with threat helicopters. Foremost, however, there is a need to develop doctrine and procedures for the employment of laser guided weapons and laser designators. Recommendations were provided for the resolution of these doctrinal concerns.

Since it is difficult to discuss tactics without discussing systems, numerous equipment requirements and deficiencies were surfaced during the workshop discussion. There was total agreement that the advanced scout helicopter (ASH) is an immediate field requirement. The ASH was viewed as essential to proper employment of the AH-64 attack helicopter and Copperhead systems.

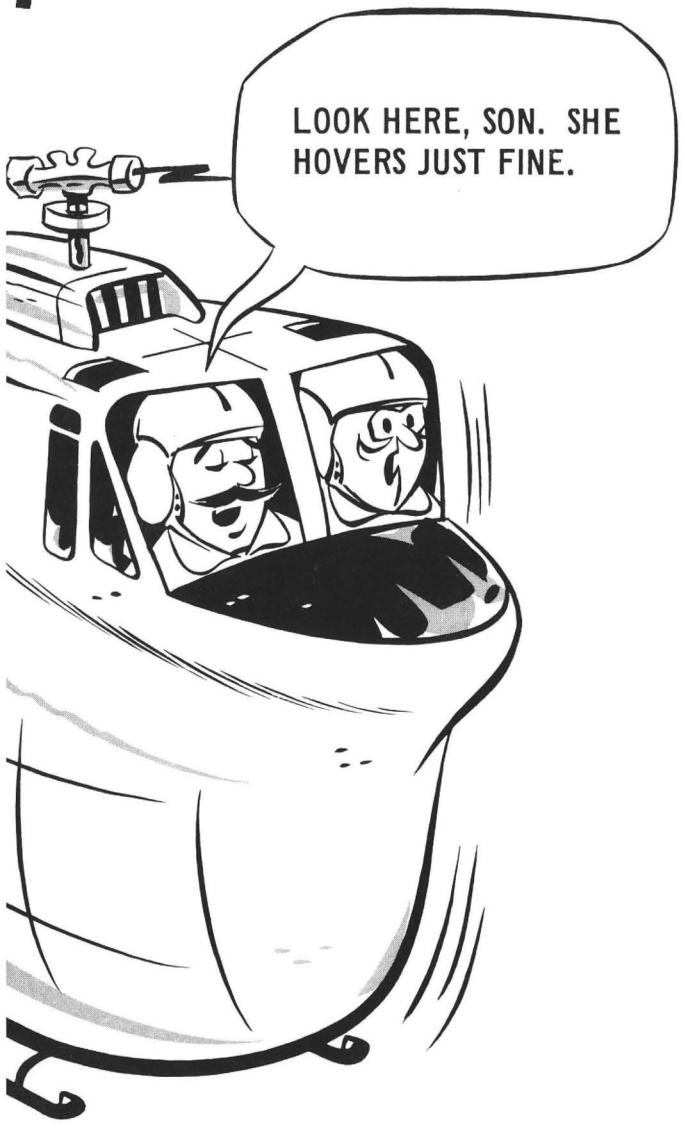
To achieve greater capabilities at night, it was recommended that the CH-47 Chinook and UH-60 Black Hawk helicopters should have night vision capabilities comparable to those provided by the pilots' night vision system being developed for the AH-64. In the nuclear, biological, chemical (NBC) area it was noted that the Army faces a serious deficiency. Aviation-peculiar equipment is required to promote continuous operation in an NBC environment.

The aerial mine dispenser was viewed as a current and future tactical requirement. The present aerial mine delivery system, the M-56 mine dispenser, is an interim system applicable only to the UH-1 Huey helicopter. It was suggested that the requirement for an aerial delivery mine system be evaluated on the basis of developing a new system with application to all support aircraft. During operations in mountain, desert and jungle areas it was concluded that there would be an increased aircraft workload and a requirement for greater aircraft power such as will be provided by the UH-60 Black Hawk once it reaches the field.

The defense workshop accomplished its goals for the conference in reaching a consensus regarding Army aviation doctrine, tactics and employment concepts. With much of our current thinking oriented on conducting a successful defense, we will have to master a fundamental principal which was reiterated during the workshop discussion—that being the need for combined arms operation in combat. Aviation can be a valuable member of the combined arms team and its capabilities should be recognized and integrated into combined arms operations.

"I'VE FLOWN THAT BIRD OVERGROSS BEFORE. NO BIG THING."

USAAAVS Major Walter J. Probka



IF IT FEELS GOOD, FLY IT

THERE I WAS, right out of flight school and scheduled to fly with 'Pappy' Hightime. Pappy knew Otto and Igor personally, and what he didn't know about flying just wasn't worth knowing. You name it, he's flown it. Here was my chance to really learn from an expert.

"At the mission briefing I learned that we were to be met at our UH-1H by five troops and 1,075 pounds of tools and spare parts. We were to fly to a training site, unload, and return. It sounded easy enough, so I decided I'd impress Pappy by planning the flight while he was 'swapping lies' over a cup of coffee with a few good ol' boys. I copied down the total aircraft weight from the DD 365F, added in our payload of 2,275 pounds, and got worried. Our takeoff gross weight turned out to be 9,550 pounds. I waited while Pappy finished a story and the laughter died down to tell him about it. 'No big thing,' Pappy said, 'I've flown that bird overgross before. Besides, we'll burn off most of that on start and runup.' As I walked away, I wasn't sure if they were laughing at me or at another of Pappy's jokes.

"We met on the flight line that afternoon. I had trouble keeping up with Pappy in the —10CL as he zipped through preflight, start, and runup procedures, but it looked like he got it all. He eased it up to a low hover and said, 'Look here, Son, she hovers just fine, the egt's not over the red line, and we've got a little margin of stick travel.' Since I still looked uneasy, Pappy showed me the ultimate test—a left hovering 360-degree turn. 'You know what I always say, Son. If it feels good, fly it.' Pappy eased it forward, and off we went.

"The flight proceeded uneventfully until the landing at our destination. Pappy let me fly en route, but

took the controls back for the approach into a small clearing surrounded by trees. We were just below treetop level when I heard the low rpm warning. 'Hang on,' Pappy said as we settled in. He gave one final pitch pull as we neared the ground, but the rpm was so low that it didn't seem to do much good. When the dust cleared, Pappy surveyed the broken plexiglass and bent cross tubes and said, 'I can't figure it out; it just lost power.'"

There are many variations of the somewhat fictitious story told above, but they all end the same way: "I just ran out of power," or "I just ran out of pedal," or both. The above flight was destined for a hard landing or worse before it ever left the ground because the crew just didn't understand the importance of proper mission planning.

In the first place, the crew should have realized that power for hover OGE would be required in that confined area. In fact, the operator's manual states that if the type of surface/terrain over which hovering is to be conducted is known to be steep, uneven, or covered with high vegetation, or the type of terrain is unknown, the mission should be planned to provide OGE hover capability. Next, figures 14-21 and 14-22 in the UH-1D/H operator's manual should be used to determine mission allowable gross weight based on performance. (Ninety-five hundred pounds is a structural, not a performance, limit.) To obtain pressure altitude for use in the charts, our crew could have dialed 29.92 into the altimeter's Kollsman window to get the pressure altitude at the takeoff point. To get the pressure altitude at the LZ they should have simply added the elevation difference (obtained from a map). Applying a lapse rate of 2° C./1,000 feet to the OAT at the point of takeoff would have given them the LZ temperature. At the LZ (27° C., 3,000 feet) their UH-1H could have hovered OGE at a maximum weight of 8,900 pounds. Carrying the minimum amount of fuel to complete the mission, our crew could have arrived weighing 8,740 pounds instead of their 9,275 pounds. These figures, in turn, could have alerted our crew that, although with reduced fuel they apparently would have had enough power for this mission, the margin would be slim, and other factors must be considered. These factors include varying engine performance, winds, inaccuracies in reading instruments and charts, and humidity. Of these, the effects of humidity are the most overlooked.

As the temperature of air increases, so does its ability to hold moisture. When it's hot and humid, water vapor can account for up to 10 percent of the atmosphere, which would cause a 4- to 5-percent reduction in air density. Since density altitude is altitude corrected for nonstandard density (temperature and humidity effects), the effect of this reduction might be 1,000 feet or more of increased density altitude. Since rotor blades and engines are less efficient in thin air, less payload can be carried. How much less? For a utility helicopter, the error in neglecting humidity can be more than 1 pound of torque or over 200 pounds of lift capacity.

For planning purposes, our crew would have had a 160-pound lift capacity margin with minimum fuel on board. Most of this would be eliminated considering humidity (all of it and more on a hot, humid day. The operator's manual performance charts are based on dry air). Keeping in mind the other sources of error mentioned above, and the fact that it takes more power to terminate to a hover than to hover, it is questionable whether or not this mission could be safely performed. Without this type of careful planning, "If it feels good, fly it," often is followed by, "I can't figure it out; it just lost power."

MAJ Walter J. Probka, an aerospace engineer, recently graduated from the Command and General Staff College, Ft. Leavenworth, KS. Currently assigned to the Education and Evaluation Division, Directorate for Plans, Operations, and Education, U.S. Army Agency for Aviation Safety, he teaches technology subjects in the Aviation Safety Officer Course.

CREW REST IN RESERVE/ GUARD COMPONENTS

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BECAUSE OF THE insidious nature of fatigue factors, no one can guess how many accidents and incidents involving fatigue have occurred. Most often fatigue cannot be definitely established as a cause factor because aviators do not freely admit they overextended their physical capabilities. Too often the fatigued aviator becomes a deceased aviator.

The problem of fatigue is especially serious in Army Reserve and National Guard components because of the complicated crew rest environment in which aircrewmembers must operate. The problem is compounded by the unique situation of a full-time civilian job and the demands of Reserve/Guard duties. In this situation the supervisor has a nearly impossible task of evaluating the fatigue level of his aircrews.

What we are talking about is mental as well as physical fatigue. In a survey of 500 experienced helicopter pilots, the Advisory Group of Aerospace Research and Development (AGARD) listed some 47

Mr. Bond wrote this article while attending an Aviation Safety Officer Course at USAAAVS.

Continued on page 38

The Aerial Observer Team and TACFIRE

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1st Cavalry Division Artillery
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ARTILLERY AERIAL observation tactics have evolved from the sedentary balloon to the modern, highly mobile rotary wing aircraft of today. Throughout this development, various tools have been integrated for use by the FAAO team from both aviation and weapons research. Now the 1st Cavalry Division Artillery FAAO has available the speed and efficiency of the computer through the TACFIRE System.

TACFIRE is an electronically integrated command and control information system capable of performing both technical and tactical fire control. The system is composed of central computers and computer access remote terminals. The functions or programs available with TACFIRE are extensive and complex.

Functions:

- Ammunition and fire unit programs maintain current unit location and ammunition status by type, number and fuze. Amount of ammunition on hand constantly is computed and updated.
- The tactical fire control function is concerned with selection of units to fire.
- Technical fire control is the determination of the ballistic gunnery solution with the final product being fire commands to the firing unit.

The total time elapsed between transmission of the fire mission by observer and receipt of fire commands at the guns can be less than 15 seconds, and the system can process 30 simultaneous missions.

The central computer located at division artillery and the computer at each field artillery battalion are similar with only slight differences in program availability. The division artillery computer has a larger memory unit, expanded display capability and greater communications capacity than the battalion set. On the other hand, the division artillery computer is limited to tactical fire control (command and control functions) while the battalion unit can perform both tactical and technical fire control (specific firing data).

These computers interface with a variety of remote devices employed by members of the artillery system.

- The digital message device (DMD) is used to input fire missions and combat intelligence.
- The variable format message entry device (VFMED) is used to both transmit and receive information.

The 1st Cavalry Division Artillery (The Red Team) recently completed Operational Test III of the TACFIRE system and summarizes their experience with the field artillery aerial observer (FAAO) and the Tactical Fire Direction (TACFIRE) System

• A battery display unit (BDU) is located in each firing battery to receive fire commands.

The aerial observer assigned to the division artillery headquarters, like the ground fire support team (FIST) counterpart at the artillery direct support battalion, is equipped with the DMD to permit a data link with a central computer. The DMD is a small, lightweight, remote unit used by the FAAO and the FIST to transmit, over standard radio nets, fire mission requests, intelligence reports, and other data used by the fire direction center.

Under the ARCSA III (Aviation Requirements for the Combat Structure of the Army) organization concept, light observation helicopters, formerly organic to the division artillery, are now centralized in the division aviation battalion. The once separate aviation section becomes the division artillery support platoon assigned to the division aviation company. The division artillery platoon provides the second teammember and the aircraft to permit accomplishment of the FAAO mission. All platoon pilots in command (PIC) must be thoroughly proficient in aerial observation and artillery adjustment procedures before being assigned FAAO team missions.

The FAAO's ability to traverse the battlefield rapidly and use multiple observation areas has placed increased demand upon the artillery fire direction center response time. The speed of digital frequency modulated (FM) communications and the TACFIRE computer system have provided the requisite immediate response.

TACFIRE uses existing communications equipment and networks within the artillery organization. Application of the DMD to the OH-58A Kiowa requires only the installation of an external radio harness to the intercommuncation system (ICS) unit located in the passenger compartment. This cable is then passed around the center post to the observer station, providing a matching of the DMD with the aircraft FM radio.

Digital radio transmissions vary greatly from standard voice communications and require more precise radio alignment for reliable passage of traffic. A typical digital data message is encoded in a special format, then changed to an analog voltage for transmission. When received, the voltage is converted into digital data, the format decoded and the message passed to the display device in use. The transmission of both voice and digital traffic on the same radio net can at first be confusing and distracting. Digital traffic will override voice. Training, patience and familiarity with the artillery system will ensure effective communications. Using the current family of FM avionics, reliable digital messages have been transmitted for a distance of 12 to 14 kilometers while operating in the nap-of-the-earth (NOE) flight profile. Extended transmission ranges required increased altitude to permit digital communications.

The DMD does not eliminate the need for voice communications between the observer and the fire direction center. "SHOT" and "SPLASH" alert information is transmitted by normal voice procedures. This practice enhances the team effort by informing the PIC of the status of fire mission processing and serves as an invaluable aid when positioning the aircraft within the observation area.

Assigned aerial observers received general TACFIRE system instruction and detailed DMD operator training last August. The U.S. Army Electronic Command fabricated one ex-

Cockpit view of TACFIRE equipped FAAO team during fire mission processing

perimental DMD aircraft installation cable which was evaluated successfully by an FAAO team for the Communications, Research and Development Command (CORADCOM) on 11 October. FAAO team training was initiated immediately and integrated into division artillery command post exercises (CPXs) and field training exercises (FTXs) conducted biweekly throughout the period October through December 1977. Both voice and digital fire missions were practiced at various transmission ranges and terrain flight configurations. Training missions included both simulated and live artillery adjustment. Forty-eight training missions, encompassing 30 hours of aircraft use, thoroughly prepared the FAAO teams for Operational Test (OT) III. Periodic ground DMD operator refresher exercises were included to ensure observer TACFIRE hardware proficiency, and provide the PIC with a better understanding of observer duties during the conduct of fire mission processing.

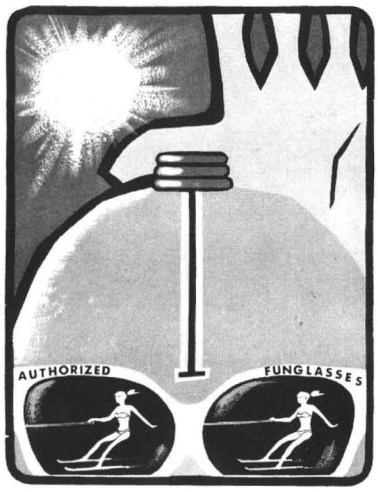
The only significant departure from established FAAO teamwork roles as a result of TACFIRE occurs during the conduct of fire while in the observation area. The display surface on the DMD is subject to glare and requires the observer's full attention whenever transmitting or receiving a message. During a voice mission the observer generally can direct attention outside the aircraft, even when transmitting corrections or making reports. However, a digital fire mission requires that the DMD be monitored continuously when traffic is in progress. This predominant "in the aircraft" visual environment causes spatial disorientation and nausea even among experienced observers. With the observer's attention directed toward the DMD, the PIC must assume even greater responsibilities regarding aircraft exposure, detection by enemy air defense artillery and obstacle clearance during the most critical phase of the flight. Both teammembers must be trained extensively with respect to crew coordination techniques.

Plans include "The Red Team" testing the Battery Computer System (BCS) which replaces the BDU and completes the final link in the TACFIRE system. BCS places a technical fire control computer at each firing battery, thereby permitting digital fire requests to be transmitted directly to the firing element. This concept will not only reduce the transmission range for fire mission processing, but also reduce the amount of traffic on the digital net. The integration of BCS into the artillery computer system will further increase the responsiveness of TACFIRE and provide faster, more efficient fire mission processing. This increased responsiveness and greater battlefield effectiveness translates to the cockpit as, "getting more firepower, quicker" thereby reducing exposure time and enhancing survivability.

TACFIRE as fielded for OT-III posed some problems relative to the FAAO team. These have been identified and possible solutions have been recommended. TACFIRE is not a "black box" with all the answers, but merely another tool responsive to the initative, judgment and decisions of the user. Whatever tools are adapted for use by the FAAO team, surely the basic concept of survival through teamwork between artillery troops and aviators remains paramount.

When a digital fire mission is in progress the observer must monitor the DMD exclusively: This requires the PIC be even more vigilant to avoid detection by the enemy yet ensure obstacle clearance

VIEWS FROM READERS



Editor:

I am the Aviation Safety Officer of a brigade aviation section. We have four OH-58 aircraft. Enclosed you will find several photographs that you may have for your files.

During a 300-hour periodic inspection, the vertical panel on the aft side of the center support column was removed and we discovered that a bird had somehow managed to become lodged under the interconnecting bellcrank. [Photo below.]

The bird was easily crushed so no control problem was encountered. Our feathered friend must have been a super NOE pilot to get himself into this area.

CW3 John M. Parry
4th BDE, 4th INF DIV (MECH)
APO New York 09358

Editor:

Joint United States Military Advisory Group duties require that we possess the latest information available on accident prevention. The *U.S. Army Aviation Digest* is an excellent publication and has helped us considerably in providing valuable insight about accident prevention which we in turn pass to the Royal Thailand Air Force (RTAF).

The RTAF is equipped with aircraft that our military still have in active service and they are purchasing new aircraft from U.S. manufacturers. To enable this office to better help the RTAF with their aviation safety program, please establish distribution for five copies of your fine publication per publication cycle. Our safe and sincere thanks for your assistance.

Lt Col John C. Waresh, USAF
Headquarters
Joint U.S. Military Advisory Gp, Thailand
APO San Francisco 96346

• We do not handle distribution in this office. The *Digest* is a DA magazine with all distribution controlled in Washington. To subscribe it will be necessary for you to submit a remittance of $17.00 to: Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

Editor:

I want to applaud Captain Littlejohn on his article, "Airborne Air Defense Artillery Weapons Systems" (March 1978 issue). His analysis of the requirement for more effective air defense on the next battlefield is well done, especially the requirement for air defense weapons mobility.

Although many of us may disagree with the title of a proposed "air defense system," I believe there is user consensus concerning the threat. It would be irresponsible to ignore the potential threat armed helicopter force, not to mention high performance aircraft. The Army and Army aviation are behind the power curve concerning this problem; we must do better. Again, well done, Captain Littlejohn!

COL John C. Bahnsen
TSM Attack Helicopters
Ft. Rucker, AL 36362

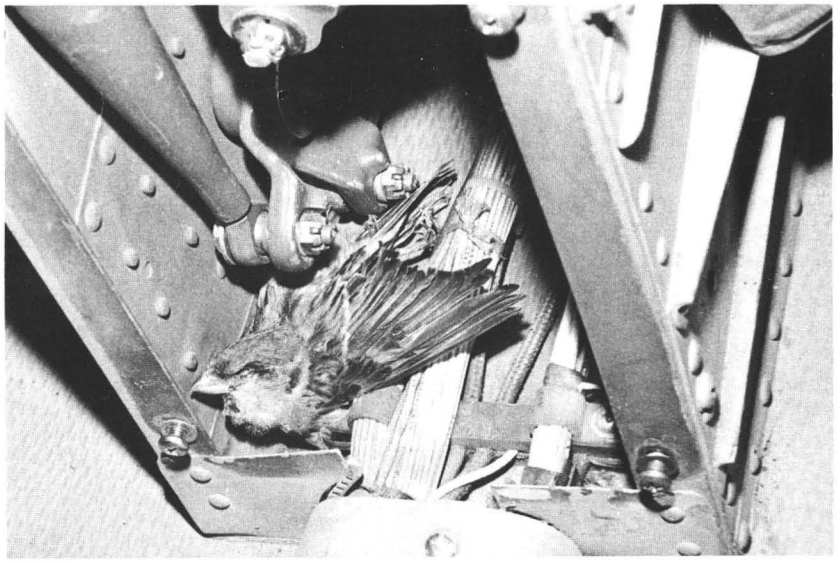
Editor:

I am researching and writing a book on the employment of Army aviation in Indochina during the decade 1962 to 1972. The thrust of the book focuses on the flying and fighting qualities of both the aircraft and the aircrewmen involved. Of special interest are photos of aircraft with unit insignias clearly displayed.

I would be interested in hearing from anyone who believes he has anything of interest to contribute in the way of photos, art, poems, songs and information. Duplicate copies of material should be sent to ensure against inadvertent loss. Credit will be given for material used although no remuneration can be made.

. . . please mail items to P.O. Box 8-9015, Mountain View, AK 99508.

LTC W. F. Gabella
804 St. Louis Rd #3
Collinsville, IL 62234



Reporting Final

Late News From Army Aviation Activities

FROM THE PENTAGON, AUGUST 1978

New Army Aviation Officer. Brigadier General Carl H. McNair Jr. recently assumed duties as Deputy Director of Requirements and Army Aviation Officer from Brigadier General Charles E. Canedy. BG McNair is no stranger to the Pentagon and Army aviation, having just left the position of Executive Officer, ODCSRDA and served earlier as the Deputy for Aviation to the Assistant Secretary of the Army (R&D). Entering active duty from the U.S. Military Academy in June 1955, he has served in a variety of command and staff assignments within his infantry, Aviation and R&D specialties. A Master Army Aviator with fixed wing, rotary wing and multiengine qualifications, BG McNair completed flight training at U.S. Army Aviation Center, Ft. Rucker, AL, in 1956. He brings with him a great depth of combat and peacetime aviation experience. During the Vietnam conflict he served successively as Commander, 121st Assault Helicopter Company (SOC TRANG TIGERS); S3, 164th Combat Aviation Group; and Commander, 145th Combat Aviation Battalion. More recently BG McNair commanded the Aviation Brigade at the Aviation Center, 1974 to 1975. He and his wife, Jo Ann, have three children. BG Canedy's new assignment is as Assistant Division Commander, 3d Armored Division, Germany. **(ODCSOPS)**

☆ ☆ ☆

Fire Resistant Hydraulic Fluid. Recent hydraulic fluid fires clearly underscore the importance of expeditiously converting all Army aircraft to fire resistant hydraulic fluid. DA has directed that all Army aircraft be converted to MIL-H-83282A Fire Resistant Hydraulic Fluid not later than 31 December 1978. Conversion should be accomplished in accordance with specific instructions contained in TB 55-1500-334-25, "Conversion of Aircraft to Fire Resistant Hydraulic Fluid," dated 2 May 1975, with changes 1 and 2. Maintenance personnel should ensure that converted hydraulic systems are **not** diluted with MIL-H-5606. Commanders, if you cannot meet the conversion suspense date, a request for extension--giving justification--must be submitted to HQDA, ATTN: DALO-AV, for action. DALO-AV point of contact is LTC Dick Thompson, commercial (202) 697-0487, AUTOVON 227-0487. **(ODCSLOG)**

☆ ☆ ☆

Direct Flying Hour Costs. HQDA DALO-AV message, DTG 151515Z Jun 78, subject: Aircraft Direct Flying Hour Costs, announced major changes to both Army fixed wing and rotary wing reimbursement rates. This message supersedes the FY 78 Flying Hour Costs that were published 22 December 1977. Cost categories, by rotary wing and fixed wing aircraft, as revised are:

Rotary Wing -- 1. DOD
2. Non-DOD

Fixed Wing -- 1. DOD
2. Non-DOD, U.S. Government
3. FMS and Non-U.S. Government

It should be noted that for rotary wing aircraft, FMS cases, Corps of Engineers civil works projects, other U.S. Government agencies and non-U.S. Government users are now treated as non-DOD users. Questions concerning these new reimbursement rates should be directed to DALO-AV, LTC Dick Thompson, commercial (202) 697-0487, AUTOVON 227-0487. **(ODCSLOG)**

Commissioned Officer Aviation Positions in TDA. ODCSPER recently tasked major commands and DA agencies/activities to submit written justification for all TDA commissioned officer aviation positions (LTC and below) by the end of August. The 1,900+ justification statements will be reviewed by a board to determine how these positions are to be documented in The Army Authorization Documents System (TAADS). This effort is being undertaken to satisfy statutory provisions of the Aviation Career Incentive Act of 1974 and is directed toward ensuring prudent and economical use of flying hours as well as other Army aviation resources. The ODCSPER review is further intended to parallel Defense Audit Services (DAS) recommendations to the Office of the Assistant Secretary of Defense (Manpower Reserve Affairs and Logistics) that the uniformed services reappraise their aviator requirements in an effort to:

- Properly identify operational flying requirements as those positions where the incumbent must perform actual cockpit duties as a necessary dimension of the assignment.

- Determine which positions require aviation expertise but do not require the performance of actual cockpit duties.

- Determine which positions require only a general knowledge of Army aviation but do not require incumbency by a rated aviator. **(ODCSPER)**

☆ ☆ ☆

AR 95-33. Attention aviation commanders and operations personnel! Interim Change 1-1 to AR 95-33, "Army Aircraft Inventory, Status and Flying Time," dated 8 June 1978 changed the monthly reporting period for submission of DA Form 1352 (Aircraft Inventory, Status and Flying Time). Effective with the September 1978 report, the reporting period for DA Form 1352 will commence on the 16th of each month and continue through the 15th of the following month. To ensure all time is reported during transition from the old reporting period (21st to 20th of following month) to the new, the report rendered in August 1978 will be for the period 21 July through 20 August while the September report will cover the period 16 August through 15 September--a 4-day overlap. September and subsequent reports will address the new reporting period. Personnel having questions regarding submission of DA Form 1352 are encouraged to read the interim change to AR 95-33 or contact DALO-AV, MAJ Tom Walker, commercial (202) 697-0487, AUTOVON 227-0487. **(ODCSLOG)**

Advancing Blade Concept (ABC) Helicopter. Developed by Sikorsky Aircraft for the Army, the ABC has completed much of the preliminary work leading to the high speed flight testing. Tests in the pure helicopter configuration were completed in the spring of 1977, attaining speeds up to 170 knots. The Navy and NASA have joined with the Army to fund the high speed flight tests, expected to achieve speeds up to 300 knots. The test aircraft has been fitted with thrusting engines (J-60s loaned by the Air Force) in order to achieve the high forward speeds. Conceptually, the ABC system combines the advantages of a helicopter with those of a high speed aircraft without using a wing. **(ODCSRDA)**

☆ ☆ ☆

Rotor Systems Research Aircraft (RSRA). Being built by Sikorsky Aircraft under a joint Army/NASA contract, the RSRA made its flight in the compound configuration in April 1978. The RSRA is, in effect, a "flying wind tunnel" which will be used by the Army and NASA to assist in the development of new rotor systems with improved performance and reduced vibration, noise and required maintenance. The compound configuration adds two TF-34 auxiliary propulsion engines and a 45-foot span wing to the basic RSRA helicopter configuration in order to greatly expand the operating envelope in which rotor system testing can be done. **(ODCSRDA)**

Reporting Final

Late News From Army Aviation Activities

General Officer and Colonel Aviation Positions. In June ODCSPER published an approved list of general officer and colonel aviation positions. The list includes 16 colonel aviation positions designated as operational flying (incumbent must perform actual cockpit duties as a necessary dimension of the assignment), plus nine general officer and 58 colonel positions designated as nonoperational flying. The latter designation specifies that incumbents are limited to flying under visual flight rules (VFR) and only when accompanied by an Army aviator or instructor pilot current in the type of aircraft being flown. The list of approved general officer and colonel aviation positions is updated by HQDA on a semiannual basis. Subject aviation positions are monitored carefully to stress adherence to the Aviation Career Incentive Act of 1974. **(ODCSPER)**

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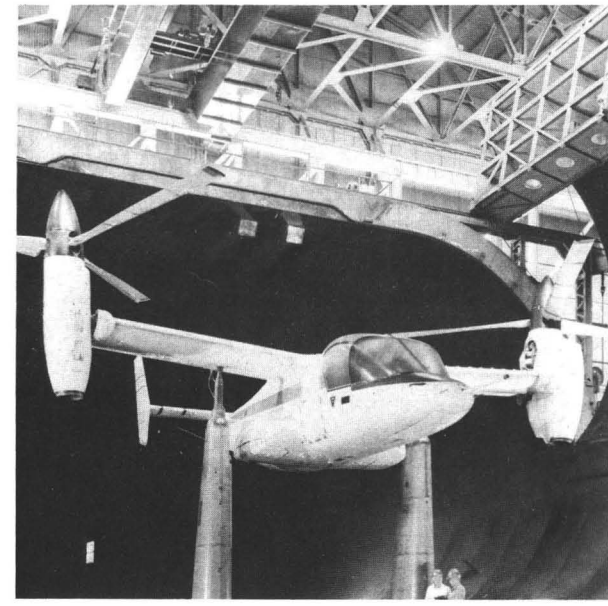
Aircraft Assignment Priorities. The assignment priority for new tactical aircraft into the active and reserve components is based upon the Department of the Army Master Priority List (DAMPL). Those units having the highest DAMPL are issued new tactical aircraft first. Those units forward deployed to Europe and Korea traditionally have had priority for new tactical aircraft based upon the DAMPL. Unfortunately, procurement authorizations will not allow immediate issuance of new tactical aircraft into both the active and reserve components concurrently. However, in the case of utility and attack helicopters, provisions have been made to provide "first line" aircraft at the earliest date. Since there are no plans to provide all active and reserve component units new advanced attack helicopters (AAH) and UH-60A (Black Hawk) helicopters, the Army will retain the UH-1H and AH-1 series helicopters thru the 1990s. HQDA is currently developing plans to provide the National Guard a number of AH-1S Cobra/TOW helicopters. The purpose of the plan is to provide more advanced technology attack helicopters to the National Guard so as to advance the training level in National Guard units and to facilitate the transition of our attack helicopter capability from peace to war. The experience level of National Guard aviators is well recognized and is intended to be used to its full potential should the need arise. **(ODCSOPS)**

☆ ☆ ☆

XV-15 Tilt Rotor Research Aircraft. Being developed jointly by the Army and NASA, the XV-15 has just completed full scale wind tunnel testing in NASA's 40 X 80 foot wind tunnel at Ames Research Center, CA. The aircraft used for the tunnel tests is the first of two which will be built by Bell Helicopter Textron under this joint program. This aircraft previously had been flown for 3 hours in hover and low speed air taxi and will resume flight testing after being refurbished. The second of the two XV-15 aircraft is expected to make its first flight later this year. The planned flight test program includes the exploration of potential Army and other service mission applications for this concept which combines the hover characteristics of a helicopter with the cruise characteristics of a turboprop fixed wing aircraft. **(ODCSRDA)**



Fort Rucker Activities Day

General officers who participated in Fort Rucker Activities Day help cut the Army aviation birthday cake 10 June at the Fort Rucker Officer's Club. The officers are: (L-R) LTG William R. Peers (Ret); BG Jack W. Hemingway (Ret); MG James C. Smith, Fort Rucker's commander; LTG Harry W. O. Kinnard (Ret), guest speaker; LTG John J. Tolson III (Ret), former commander of Fort Rucker and MG George S. Beatty (Ret). In the background is COL Robert A. Bonifacio, president of the local chapter of the Army Aviation Association of America

FORT RUCKER opened its doors to the public 10 June 1978 to allow its civilian neighbors an opportunity to become better acquainted with the U.S. Army, U.S. Army aviation and Fort Rucker. Known as "Fort Rucker Day" the observance was a joint celebration of Armed Forces Day, Flag Day, the U.S. Army's 203rd birthday, U.S. Army aviation's 36th birthday and the First Aviation Brigade's Organization Day.

In addition, Fort Rucker Day served to increase the morale, provide recreation and enhance the welfare of active duty military and dependents at the installation.

Soldiers from Company C, 509th Infantry (Pathfinder/Airborne) give a rappelling demonstration at the Army Aviation Center parade field 10 June as part of Ft. Rucker Day activities. The post's big celebration was in observance of Armed Forces Day, Flag Day, Army Birthday, Army Aviation Birthday and 1st Aviation Brigade Organization Day

Static displays, "rides" in flight simulators and demonstrations involving military personnel and equipment highlighted the day's activities. Personnel from units, departments and activities throughout Fort Rucker participated in the day-long festivities.

During this same period, eight retired general officers visited Fort Rucker for a briefing on the results of the Army Aviation Employment Conference which was held during March 1978. The officers provided their insight and recommendations for incorporation into the Army Aviation Systems Programs Review (AAPR-78) scheduled for Fort Rucker on 4 and 5 December.

The retired officers who participated were: Gen John R. Dean; LTG Harry W. O. Kinnard; LTG William P. Peers; LTG John J. Tolson III; LTG Robert R. Williams; MG George S. Beatty Jr.; MG Jerry B. Laver and BG Jack W. Hemingway.

A youngster tries his hand at "flying" a flight simulator 10 June during the Aviation Center's "Fort Rucker Day"

WHY — Air-To-Air Missiles On Attack Helicopters

Major Lonnie S. Beasley
Office of Deputy Commanding General
U.S. Army Forces Command
Fort McPherson, GA

THE TITLE WOULD indicate that I'm going to attempt to explain why. Not so—I'm asking why?

While reading a recent article concerning this subject, I got my "dander" up and decided to express a personal view. First of all, I'm sure the author meant well and normally I would just read the article and go about my business. However, this particular author has something to do with doctrine at the U.S. Army Aviation Center, Ft. Rucker, AL. The word "doctrine" always gets my attention. Not that one article makes an Army, but it concerns me to a degree. Therefore, I believe the other side of the house needs to be heard, i.e., a Soldier in the trenches.

First, I don't claim to be an "expert" in air cavalry or the attack helicopter business, but I do have some personal experiences. During the past 7½ years, 6½ of which I have spent at Fort Hood, TX, I have mostly been in either air cavalry or attack helicopter units. I've commanded three troops, to include an attack helicopter unit, and have been an S-3. As I said, I'm not an expert, but because of Fort Hood's involvement in this area these past 7½ years, I couldn't help but pick up a tidbit here and there.

I have seen or been part of our new attack helicopter doctrine from its inception. Yes, I was here when we hit trees in excess of 100 knots and had the gall to call it nap-of-the-earth (NOE) flying. I was here when we discovered the magic number of a 3/5 mix in attack helicopter units. I was here when the AH-1 Cobra platoon leader was the battle captain and rode with the scout (an issue still kicking around in some circles and worth considering). My point is we're still doing a lot of searching.

No one has been able to convince me that we're completely on track. For example:

- Why a 3/5 mix (4/7 platoon)?
- Who *should* be the battle captain? Scout? Which Scout? Attack platoon leader?
- Where should the forward air controller (FAC) ride? Why do we need one?
- Why ARCSA III [See *Digest,* July 1977]? Why not *more* Air Combat Cavalry Brigades (ACCBs), i.e., concentration of forces?
- Why 8 tube-launched, optically-tracked, wire-guided (TOW) missiles versus 6 or 10, or any other number?

There's only one thing I'm sure of and that is *all* aviators need to remember and never forget that when you are in air cavalry or the attack helicopter business, your sole purpose for existence is to support that ground commander as a part of the maneuver force. If you allow yourself to waiver from that role, we'll all be losers—primarily the Army.

To think of air-to-air combat as *so important* that it requires a *dedicated* weapons system, i.e., air-to-air missiles, is pure *bunk!* That statement about hanging air-to-air missiles on the advanced attack helicopter (AAH) must have been made by a person "far removed" from the trenches. Granted it will raise applause from within the aviator ranks because, on the surface, it sounds like it might improve the aviator's chances for survival. However, in reality, the way you survive is by using sound tactics and proper flight techniques *and* by being a part of a ground commander's overall scheme of maneuver. I'm not say-

ing forget the possibility of meeting up with an unfriendly chopper; and maybe designing the *turret*, which is almost useless anyway, into a suppressive weapon which would allow you to evade (I didn't say the 30 millimeter (mm) gun was the answer); but don't take rockets, TOW or endurance time away from the ground commander.

Right now, I truly believe the attack helicopter can assist the ground commander in winning, but when you start hanging air-to-air missiles on it, you've given us another mission. Like it or not, that what you've done. You've got people looking skyward—dividing their attention. You've got people looking for a few enemy attack aircraft while 20,000 tanks roll under your belly.

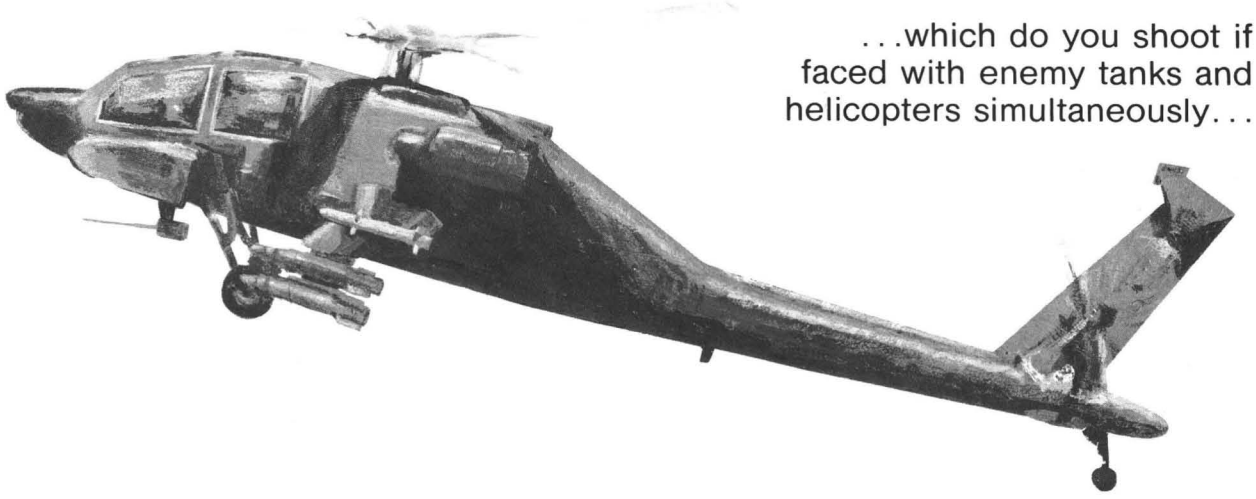
Which do you shoot if faced with enemy helicopters and enemy tanks simultaneously? Think about it! The attack helicopter can't do it all. We've got to depend on cooks with .50s [machineguns] and the Soldiers with M-16s [rifles]. We've got to depend on combat air patrols and other USAF goodies. Our mission: "We've got to kill tanks and other mechanized vehicles."

Some people have said you'd only dedicate one or two aircraft out of a 3/5 mix to this role, i.e., capable of engaging enemy air. It'd be my luck that it would be the one down for maintenance or that my air-to-air tactician would be on sick call, or the enemy would choose the wrong flank, or, in the heat of battle the gunner would choose wrong and shoot a TOW at an enemy chopper and a Stinger (missile) at a tank.

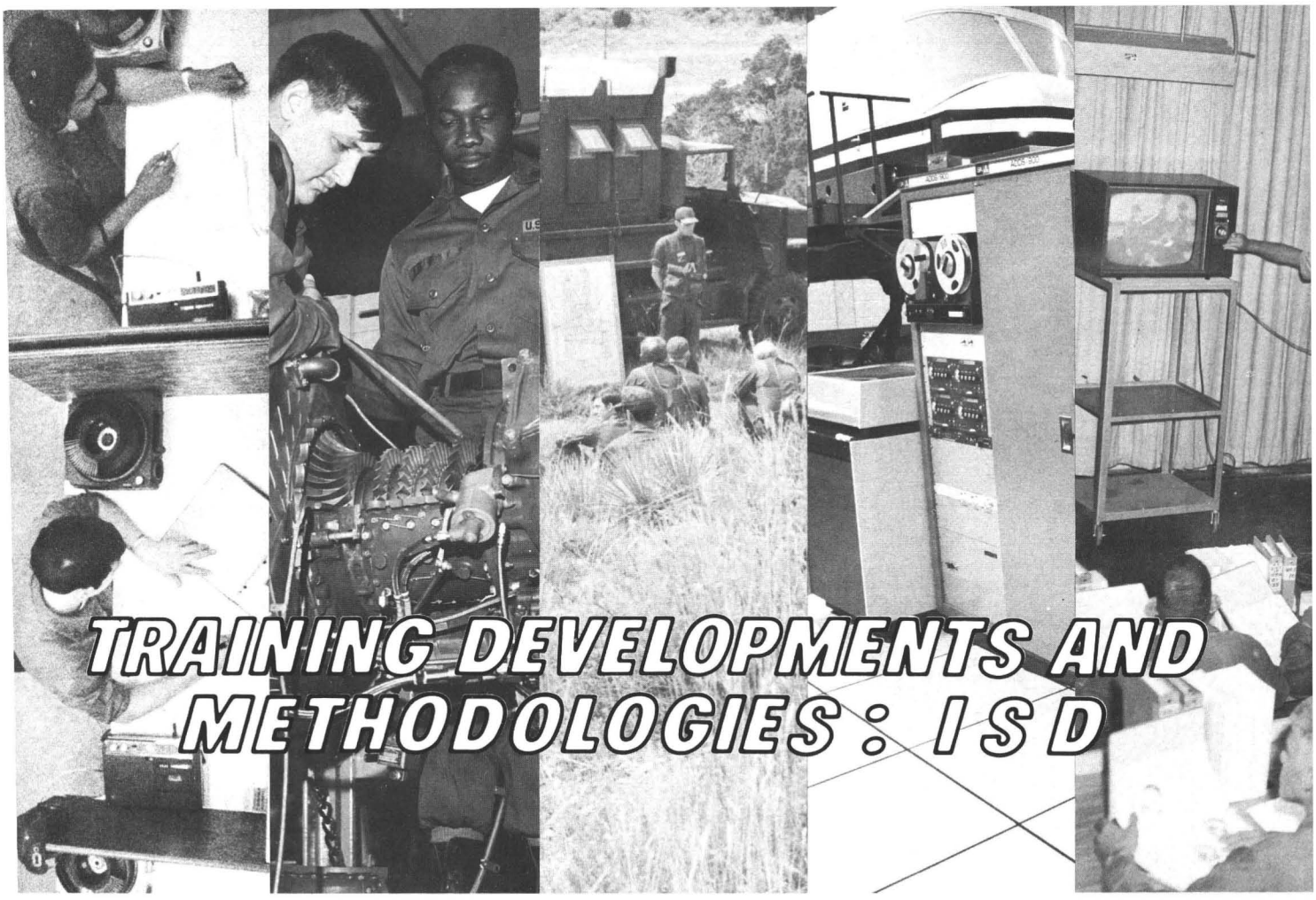
This article represents the opinion of the author and does not necessarily reflect the position of any Department of Defense Agency

I don't mean to sound like I'm taking the enemy air force lightly—I think it would be a real threat. I'm just saying that I feel my survival will depend to a great extent on the wisdom of the ground commander and the air commander, and not to a great degree on the aggressiveness of enemy attack helicopters. I don't think the enemy is dumb enough to hover over enemy ground forces while engaging enemy attack helicopters any more than we would. I've always felt my biggest threat was that Soldier with a pistol, bleeding beside a tank, wanting to get off just one more shot for the motherland.

So I ask, *Why? Why air-to-air missiles?* If we accept this thought, then why not a capability for counter battery artillery—artillery is a real threat and there's more of it. What if we meet Infantry troops (which I feel is more likely than meeting enemy air)—do we need a little gun dedicated to them? Why not a weapon which is *integrated* into a useful ground system that can do a little of all, i.e., provide a degree of protection at no cost to your primary arsenal. Let's don't put on the "Red Baron" scarves so soon after 1970 when aviation finally woke up and realized it was just another maneuver force to be utilized by the ground commander. This article probably will irritate folks who are determined to change the AAH into a "Batmobile"—it seems we continue to try hard to come up with a sophisticated weapon system that only tends to confuse folks. One thing for sure though, the article I've been referring to has got to make all attack helicopter pilots happy in one respect: No longer do they have to worry about the scout aircraft becoming a scout/gun platform—it would never get off the ground.



. . .which do you shoot if faced with enemy tanks and helicopters simultaneously. . .



TRAINING DEVELOPMENTS AND METHODOLOGIES: ISD

A. Frank Rushton
Directorate of Training Developments
Fort Rucker, AL

WITH INCREASING emphasis on exportable training, procedures for systematic design of military instruction assume even greater importance. Whether under "systems engineering" or other names, the military training community has long recognized the requirement for a systematic approach to the design of instruction. Because of accelerating inflation and associated budget constraints, maximizing results from resource expenditures is absolutely essential.

To successfully address this situation, those who manage the design and delivery of instruction must attain progressively higher levels of precision in meeting their responsibilities. One tool with which to successfully reach this goal is Instructional Systems Development (ISD), a set of interrelated procedures designed specifically for application to military instruction. The ISD concept is based on what is known about how the various kinds of learning take place. ISD's effectiveness has been proven in applied research during development, and by "real world" applications since publication.

ISD has not been represented by its developers as a one-stop panacea or answer to all training issues. On the contrary, ISD requires an environment in which command support is seen as both real and apparent.

Under the direction of Dr. Robert K. Branson, principal investigator, the ISD procedures were developed at Florida State University's Center for Educational Technology. ISD manuals and workshop materials were formatively evaluated three times during development. Effectiveness was established with respect to target population representatives, including senior noncommissioned officers, officers and civilian educational specialists.

At its beginning, ISD was monitored by the Army's Combat Arms Training Board under a contract with the Center for Educational Technology. Subsequent to quadservice recognition of ISD's training benefits, the monitoring board was expanded to include representatives from the Navy, Air Force and Marine Corps. The monitoring board, designated as the Interservice Committee for Instructional Systems Devel-

opment, remained active until the five phase manual, "Interservice Procedures for Instructional Systems Development," was approved for distribution.

ISD goes beyond previous approaches in comprehensiveness and detail in using what has been learned through applied research in learning and learning conditions. ISD procedures can serve military instruction well only where their application receives strong command support.

Using ISD terminology to designate previously used and less effective methods will result in frustration for training developers and the unfair acquisition of a tarnished reputation for an effective way of designating instruction. With proper orientation, individuals assigned to training development or administration will find increased satisfaction in their professional lives, and will view their work as markedly changed but satisfying to a previously inexperienced degree.

The training developers newly involved in the ISD process will perhaps first be aware of changes in "front-end analysis"—that is, they will find that ISD identifies and defines decisions to be made *before* beginning the design of instruction. For example, ISD provides an objective basis for decisions on job task training settings. Should training be accomplished in a resident school environment, on the job, or elsewhere? Will a given job require infrequent performance of certain tasks? Perhaps some tasks will not be performed at all unless there is an unlikely emergency or outbreak of hostilities. When poor performance will endanger lives or threaten mission completion, the requirement for instruction in such tasks may be obvious.

Instructional Systems Development requires generation and application of alternative training methodologies. Platform instruction is no longer to be assumed as the universal medium for delivery of instruction. ISD uses test data based on absolute performance standards for given tasks. Grading "on the curve" now stands unmasked as an inappropriate means of answering the question: Can the newly-trained individual perform the designated skill under specified conditions and to a predetermined standard? Also, the ISD process requires the application of modern technology as a means of optimizing training efficiency and effectiveness on an objectively realized cost basis.

ISD then, *does not* randomly discard useful methodologies or instructional media. It *does* objectively assure cost-effective expenditures of training resources. To illustrate, those who work with recognized instructional media will find a new and sound basis for applying characteristics inherent in those media to tasks at hand.

Aviation Digest readers not in the usual distribution channels for military training publications (or wishing extra copies) will be interested in sources for the five ISD manuals. They are available from the Defense Documentation Center (reference number ADA 019 486 through 490) to qualified users. They also have been issued by the Army as TRADOC Pamphlet 350-30 and by the Navy as NAVEDTRA 106A.

The *U.S. Army Aviation Digest* regrets having omitted the names of the model and the photographer who took the picture of PEARL which appeared in the July issue. Our sincere apologies to both.

Jan Johnson
Photograph by L. B. Epstein

Saturday, 29 July 1978

Dear Mom and Dad,

I realize that I should have written to you much sooner than this, but I have not had much free time since I started training in the WOC Program. I have just completed the first 2 weeks of my training and I am beginning to get fully accustomed to all that is going on around me.

The Army seems to use a different language than I am used to. For example, the course that I am taking now is officially called the Warrant Officer Candidate Military Development Course which is abbreviated as WOCMDC, but everybody calls it WOC-D.

WOC-D is something that the Army has just recently added to the Warrant Officer Flight Course and I have been told that it is supposed to provide us with the instruction that we will need to become better officers. This may be so, but what I am really looking forward to is learning how to fly helicopters.

Our class has a "TAC" officer assigned to it; his name is CW2 Pottman and sometimes I think that his first priority in life is to make us miserable. He wakes us up at 0500 every morning and expects us to be ready for PT at 0510. In those 10 minutes, we have to get dressed, make our bed and be in formation, ready for PT. Not many of us were able to do it the first few days but now we seem to have a couple of extra minutes to spare. I never believed that I would ever be able to get going as fast as that in the morning. Mom, you would be proud of the way I am keeping my room. Mr. Pottman inspects it almost every day and if there is one thing out of place or if there is one speck of dirty anywhere, we get demerits for it. Everybody gets some demerits but the object is to get the least amount that you can.

Our daily PT is usually over by 0545 and we must be showered and shaved by 0600 so we can be in the messhall by 0630 for breakfast. Our classes begin at 0730 and are usually over by 1530 or 1630 (that's 3:30 or 4:30 in civilian time). Once we have finished classes for the day we go back to the company area for more instruction from Mr. Pottman. We have a study hall every day and it is very important to learn all of the material. We are studying leadership, dismounted drill, management and unit administration. We are also learning how to give briefings and how to counsel people. We were even taught how to listen effectively and how to write so that people will understand what we are trying to say. Mr. Pottman told us that we will need to know all of the subjects that are taught in WOC-D if we are to succeed in the Army as warrant officer aviators. I had expected to learn about nothing but flying here at Fort Rucker, but we will not receive any instruction about Army aviation until after WOC-D. Mr. Pottman told us that WOC-D will teach us the fundamentals of being an officer. I must admit that during the first few days I was wondering if all of this was going to be worth it, but now I am even more determined to get through this program. Our class started with 33 people and two guys quit the very first day. I don't think that they really wanted to be in the program if they quit that easily.

I will write to you again in a week or two.

Love,

Tom

Wo

Dear Mom and Dad,

Well, I'm over half-way throu
anxious to start flying. Our schedu
first 2 weeks. We are kept busy fr
instruction continues to be challen
disturbances, management techniq
Army. They even had a class that
finances (and you know how bad I
our first test. I am a little disappoi
done better than the 87 I received
who failed it are in real trouble and

We had another guy quit this w
he didn't seem to belong here anyw
development training continues thr
think that the WOC-D phase is desi
those individuals that won't be able
eliminate them from the program.

This last week was one of the
short course in military justice and
lot of training on the Army mainte
command and staff, customs and c
relations. We aren't becoming expe
to build on once we graduate.

I should tell you more about m
officer, by the way, stands for Trai
Mr. Pottman seems to be everywhe
we make and immediately makes w
We have another phrase for these "
we know that he won't hear us. On
when we have done something righ
it but we finally managed to please
done a good job it made us all feel
of the most demanding people that
second best or a half-hearted effor

It is getting late and I have a l
shine my boots and brass and get n

C-D

Saturday, 12 August 1978

C-D now and I am getting
out the same now as it was the
) until 2200. The academic
Ve have learned about civil
nd the different roles of the
us how to manage our personal
out money). Last week we had
myself because I could have
had some people fail it! Those
are worried about it.
I can't believe it! But you know
ven though our officer
the entire flight program, I
to identify, as early as possible,
ake it as a warrant officer and

st that we have had. We had a
more leadership training and a
system. We also learned about
sies of the Army and human
ut we have a good foundation

AC officer, Mr. Pottman. TAC
Advising and Counselling officer.
are. He sees every mistake that
e calls "on the spot corrections."
ections" but we only use it when
er thing that he does is tell us
took my flight 3 weeks to do
and when he told us that we had
. Mr. Pottman has got to be one
ve ever seen. He will not accept
I I kind of like that.
studying to do and then I have to
iform ready for tomorrow.

Love,

Tom

Saturday, 19 August 1978

Dear Mom and Dad,

Well, I finally made it! I finished WOC-D and will start preflight training tomorrow. I thought that the first month was tough but it was nothing like these last 2 weeks. I have never been so pressed in all my life!

We have had three exams and a one-and-a-half day performance check at the company. The three tests covered map reading, roles of the warrant officer, and nuclear, biological and chemical training. The performance check was a 10-hour affair that really covered everything that we have learned since the start of WOC-D. All of the classes that Mr. Pottman gave us were tested to include the conduct of an inspection, peer rating, dismounted drill, and leadership training. We also had an in-rank inspection, conducted by the senior TAC officer, CW4 Grenovich, that was unbelievable. Mr. Pottman has been giving us in-rank inspections two or three times a week since we started and I thought that he was tough but Mr. Grenovich's inspection was demanding as all get out. We also had a barracks inspection that took 3 hours and a PT test. We had one man fail the performance test and he will probably be put back to another class because he just isn't ready to begin flight training yet.

When we started training 6 weeks ago we had 33 people in our class. But now there are only 27 people in our flight. We had three people quit and three people just couldn't make the grade. When I started WOC-D, I thought that all I would have to do to be a good warrant officer was to learn to fly but I have learned that there is much more to it than that. WOC-D was one of the most difficult things that I have ever done and I wouldn't like to do it again, but all of the effort has been worth it. When I finally graduate from flight school I know that I will be more than a helicopter pilot, I will be trained to be a warrant officer with enough of a background in military leadership to help me get started toward a good career in the Army. I know that there is still a lot that I have to learn and that with time and experience I will be able to be like Mr. Grenovich and Mr. Pottman, who are professional Soldiers as well as Army aviators.

I am going to cut this letter short because this is the first weekend that we have been able to earn a pass and I am going to take advantage of it!

Love,

Tom

Editor's Note

These letters are fictitious but they are representative of letters that WOCs might write to their parents to describe the WOD-D program. Once students complete WOC-D, they face an additional 8½ months of intensive flight and academic instruction. This is in addition to a continuing officer development program that does not end until the students are graduated and appointed warrant officers.

U.S. ARMY

AVIATION STANDARDIZATION

Directorate of Evaluation/Standardization

REPORT TO THE FIELD

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 558-3617 or commercial 205—255-3617. After duty hours call AUTOVON 558-6487 or commercial 205—255-6487 and leave a message

Have You "TOLD" Any Lately?

ARMY AVIATORS may be more familiar with the term "performance planning data" than with the title acronym "TOLD"; but, as new operators' publications come out and revisions continue, this term will be used more and more. Takeoff and Landing Data is the acronym's meaning, and it will replace most Army fixed wing performance planning cards. Our T-42 and C-12A planning cards are designated TOLD, and the remainder of the fixed wing fleet will follow in the near future. Also, a study to develop a rotary wing TOLD card is in the mill.

Although performance planning is discussed in most Operator's Manuals let's take a brief look at what factors we're talking about on the TOLD card and how the information is used. We'll address the fixed wing community first and then close with some rotor wash.

Most fixed wing Operator's Manuals have a blurb on the beginning page of the performance planning section that goes something like this: "This card is provided to assist the pilot in recording data applicable to the mission and may be reproduced at the local level. The data card provides readily available information for takeoff, takeoff emergencies and arrival. Data required to complete the card can be computed from performance charts and tables contained in this manual and from existing conditions at the time of takeoff or landing. The *takeoff and landing data shall be* computed prior to the takeoff as a precaution against emergency conditions which could develop after takeoff."

That paragraph is not only very easy to understand, it clears up the question most often asked: "Do I have to fill out one of these things for each mission?" Of course, the answer is yes; so without further adieu, let's see what can be derived from the information blocks on the TOLD card.

At the top of the card, there are several lines to be completed, which indicate the prevailing conditions under which the data will be computed. The conditions include pressure altitude, outside air temperature (OAT), winds, runway conditions, takeoff weight and estimated landing weight. With these blocks filled out, you're ready to obtain the data from the performance charts. Don't forget temperature and weight change throughout the mission day, so environmental data and weight will vary for subsequent landings.

First, we have *Takeoff Power* (torque, manifold pressure, revolutions per minute (RPM), etc.) which, once determined, lets you know the minimum power indications that you should accept when adjusting power for takeoff. Correct engine performance will assure the proper acceleration to achieve liftoff at the predetermined distance. It also may be the decision maker in aborting a takeoff prior to reaching a critical distance or speed. Remember that, although a multiengine aircraft can takeoff with one or both engines developing below-rated power, it may not be able to continue flight under this condition if an engine fails after liftoff.

Takeoff Ground Run data may be used to determine if sufficient runway length is available for a safe departure. If obstacles are involved immediately after liftoff, the *Takeoff Over X Feet Obstacle* will allow you to determine if safe clearance can be achieved after liftoff.

Rotation (Vr) and *Liftoff* (Vlof) speeds are important as target speeds to ensure that desired performance is obtained. The use of these speeds provides the aviator with safe margins above single engine stall speed and single engine minimum control speed.

Velocity at X Feet indicates you're accelerating properly. Most Army aircraft use the 1,000 feet distance marker to check computed speed. This speed check could be the deciding factor in aborting if runway length is critical.

Minimum Control Speed (VMC) is determined to alert you to the minimum speed at which you can maintain directional control of the aircraft with the critical engine failed and takeoff power on the remaining engine. (Configurations vary in accordance with Operator's Manual.)

Knowing the *Single Engine Climb Speed* (Vyse) is

most useful in the transition period immediately after liftoff until accelerating beyond it, as this speed provides for the best one-engine-out rate of climb.

Accelerate Stop Distance gives you the distance required to accelerate to Vr, lose an engine and stop. Could be a very definite consideration factor on short runways.

Most cards also have best rate of climb (Vy) and best angle of climb (Vx) lines which are used to establish initial climb speed (Vy) or obstacle climb speed (Vx) after liftoff.

That pretty much covers most of the data required to "get off," but what about an emergency immediately after liftoff or closed traffic work after takeoff (weight permitting)? Well, we have two more blocks of data with two entries each: *Approach Speed* and *Landing Ground Roll* immediately after takeoff and *Approach Speed* and *Landing Ground Roll* at completion of mission. The approach speed obtained from the chart is the indicated air speed (IAS) to be achieved at about 50 feet above ground level (AGL) over the landing threshold. The landing ground roll distance is the amount of runway needed to land and stop using normal technique. Don't forget wet or icy runways lengthen this distance.

Now let's address the larger half of the Army aviation fleet, our "rotary" club. We'll address the UH-1 Huey for purposes of explanation, but the philosophy can be used on other helicopters as well, considering the various performance charts available throughout the rotary wing inventory.

As you are no doubt aware, the GO-NO-GO placard using N_1 speeds to determine whether or not an aircraft can takeoff will be deleted from the UH-1. The following procedure using the performance charts located in TM 55-1520-210-10 will eventually be adopted. A power check will be performed at a 5-foot hover to determine if sufficient power (torque) is available for takeoff, hover and out-of-ground effect (OGE) operations for the entire day's operation using the highest pressure altitude, temperature and gross weights anticipated for the mission. A normal takeoff may be attempted if the UH-1 can hover at 5 feet without exceeding operating limits. That is the first of two separate GO-NO-GO checks to be employed, depending on type of takeoff planned.

For OGE or confined area departures, the second GO-NO-GO check is accomplished by comparing the torque indication at a 5-foot hover with the GO-NO-GO torque required for a 5-foot hover as derived from the "maximum torque available 30-minute limit chart" and the "hover chart" in the UH-1 —10. Computation of this figure is explained in Standardization Communication (STACOM) Number 18, June 1977. If indicated torque exceeds the GO-NO-GO torque OGE, confined area operations will not be attempted.

If wind is present, all power checks must be made during a 360-degree left pedal turn.

A power check must be performed prior to the first takeoff and prior to each takeoff thereafter whenever gross weight, pressure altitude or free air temperature has changed significantly.

So a departure has been completed, and a landing must follow. Most landings that are completed under the same general takeoff conditions will not require computation using performance charts. However, let's address a case where the takeoff is to be made from sea level and a landing accomplished at 5,000 feet pressure altitude. Again, reference to the hover chart and anticipated gross weight at the time of landing will indicate whether or not a successful landing can be attempted.

Continued use of the TOLD card or, for those without a card, consistent logging of required information on a mission sheet or other appropriate material will provide a standard pattern for daily use, improve your knowledge of performance margins and assist you in making safe decisions when unexpected conditions are encountered. The TOLD card is not changed for the sake of change. It is changed for the sake of safety!

ATM: A Better Way To Train

Captain Ronald Cox
ATM Program Coordinator
Directorate of Training Developments
Fort Rucker, AL

AIRCREW TRAINING Manuals (ATMs) were inevitable. When the enormous and highly mobile combat power of the attack helicopter units became a key element in our plans for the defense of Western Europe, the ATMs were just around the corner. When rapidly increasing defense costs encouraged the Congress to search for a better and cheaper way to ensure aviation combat readiness, the ATMs became an urgent and practical necessity.

The ATMs are no longer just around the corner; *they have arrived!* This month, they are being mailed to every U.S. Army aviation unit worldwide and should be in your hands by next month. If you don't have them by late September, check with your major command's aviation officer. You don't have much time, because the ATMs will become *the* Army aviation training documents on 1 October.

The ATM is a training diet designed for aviator consumption. Like most diets, its primary purpose is health for the consumer. However, to be effective, a diet must be edible, and it doesn't hurt to make it as tasty as possible.

If the ATM is a diet, this article is an appetizer to acquaint your taste buds with what you may expect in the main course. The only difference is that a dash of philosophy may be admixed here just for flavor, but these philosophical condiments may be rejected out of hand as untasteworthy. It won't harm the overall diet.

Before launching into a description of the ATM, it is helpful to discuss their historical development. Considering the speed with which change takes place in our technologically and informationally overtorqued society, ATMs—or at least the concept—are not all that new.

A report to the Congress by the Comptroller General of the United States in June 1976 cited a lack of planning and documentation for the combat readiness of our aviation units. The Vice Chief of Staff directed the aviation community to correct this problem, and his order gave impetus to the first generation of aircrew training manuals.

A task force of U.S. Army Training and Doctrine Command proponents was created in late 1976 to formulate and write aircrew training manuals. The objective was to develop a system for individual task oriented training for each major category of aircraft. The system would be used in conjunction with the Army Training and Evaluation Program (ARTEP) and unit collective training programs as a systematic training management tool for commanders.

The aircrew training manuals became the basic training documents for Army aviators, effective 1 October 1977. The manuals delineated tasks, conditions and standards for all aircraft systems.

Although readiness was addressed in the first edition of ATMs, no method was established to quantify readiness and equate it to a "C" rating. This was a serious shortcoming. The next edition—those now speeding through the mails—will include a quantifiable method of equating individual aviator training with aviation unit readiness. By assessing the training status of all aviators assigned to their units, commanders will be able [to apply a formula] to compute their unit's combat readiness rating for aviator training.

In addition to the readiness aspect of the new manuals, other existing publications and regulations were reviewed for information which more properly belongs in the ATMs. As a result aviation literature is more consolidated, and in some instances, documents will be eliminated.

So much for ATM history. The aircrew training manuals are designed as a *one source document* for individual aviator training. They provide aviation unit commanders with a precise method for developing aviation training programs tailored to the specific needs of their units and a means of determining aviator training readiness at any given time. Aircrew training manuals represent a major effort to measure objectively officer and warrant officer performance in the Army.

As good as we think the ATMs are, the writers are not so naive as to believe that all aviators will receive them with joyous celebration. Not everyone will be happy to learn about mandatory flying requirements; many will take umbrage at the suggestion that proficiency demands regular practice; I will lead the chorus of those who insist that

some of these conclusions are arguable. That's one reason this edition is still a draft. Nevertheless, the ATMs are excellent products and they are long overdue.

Few aviators will argue that any arm of any other service faces a more difficult or important challenge on the next battlefield than does Army aviation. Because we will be outnumbered, we must rely on quality, both in personnel and materiel, to win. We can be assured that our equipment is at least technologically equal, if not superior, to the best anywhere.

It would be nice if there were no more to it than that, but there is a great deal more. All the technological gadgets in the world won't help the untrained Soldier. History is filled with examples of superior forces having been defeated by smaller forces. Rarely were those defeats attributable solely to inferior technology. They are most often attributable to a combination of factors within the control of individual commanders. These factors—some objective, a great many subjective—meld into the decisive factor called combat readiness. The readiness of Soldiers to do battle hinges in large measure on their self-confidence and faith in their comrades. This confidence can be gained only through realistic training.

This brings us to where the rubber meets the road. An aviator sitting at the controls of an aircraft for a given number of hours guarantees nothing in terms of training value and aviator readiness. Soldiers must train like they fight and fight like they train. Only through realistic training in pursuit of an established training goal can readiness be guaranteed.

Another—perhaps mundane—but powerful impetus to the development of aircrew training manuals was money. Aviation is expensive, and it becomes incumbent upon the Army to show where aviation training dollars are going and why. The ATMs then, attempt to achieve the best of both worlds; combat ready aviators at the lowest possible cost.

To achieve this best of both worlds, it was necessary to mandate flying hour requirements, what tasks would be practiced and how often, and at the same time provide sufficient flexibility to permit commanders to develop training programs tailored to the specific needs of their units.

Here is a quick run-down on what is contained in the ATMs and how a marriage between mandatory requirements and the principle of flexibility was achieved. Pilots will belong in one of three flying activity categories (FACs).

- FAC 1 includes pilots who have a combat, combat suport, or combat service support mission.
- FAC 2 includes pilots other than FAC 1 who occupy an operational flying position.
- FAC 3 includes pilots occupying nonoperational flying positions.

Aviator readiness levels (ARL) are unchanged from the previous manuals; training phases also remain the same.

Each aircrew training manual contains task lists for FAC 1 and FAC 2 aviators. Also included are the condition (givens), the standard (degree of exactness), and the description (how to do it) for each task. The FAC 1 task list includes all tasks that may be performed with the particular system.

The FAC 2 task list includes the tasks which must be performed by all aviators occupying a flying position. The manual specifies the number of times each task must be performed per semiannual period.

Commanders will select those tasks from the FAC 1 task list which their FAC 1 aviators must perform. Selection is based on the unit's mission and ARTEP. In most units several tasks will be deleted because they are not normally performed by that unit. Once the unit FAC 1 task list is chosen, all FAC 1 aviators in the unit will practice those tasks the specified number of times per semiannual period.

FAC 1 aviators maintain ARL 1 if they perform at least 80 percent of the FAC 1 task list the specified number of times in the specified timeframe. Allowance has been made for those units which delete several tasks because they only pertain to certain units or locations.

Those tasks have been identified and designated as optional by the Training and Doctrine Command proponent. Only those optional tasks selected by the commander will be counted when computing whether an aviator has flown 80 percent of the FAC 1 task list.

The 80 percent factor can be, but should not be, misconstrued. It should *not* be used to compute the number of tasks an aviator will practice. The aviator is required to practice the entire FAC 1 task list, less those mission and tactical tasks deleted by the commander. The factor simply recognizes that matters beyond the control of the aviator and the commander may preclude completion of the required iterations of the entire task list. The 80 percent factor, then, is nothing more than an established figure which quantifies individual aviator readiness.

The ATMs also recognize that not all aviators require equal amounts of training to maintain proficiency. Highly experienced aviators may require fewer hours to maintain proficiency than do aviators with little experience. They also will be able to achieve acceptable proficiency in the required tasks more quickly.

Therefore, the commander may on a case by case basis adjust the mandatory flying hour requirements downward by up to 15 percent for highly experienced aviators and transfer those hours to less experienced aviators who need additional training. The ATMs provide no guidelines here; criteria for these adjustments are the commander's prerogative. In any case, the task iteration levels are not proportionally reduced, and the unit's flying hour program will remain unchanged.

This brings us to the all-important subject: combat readiness. The ATMs are only concerned with avia-

tor training readiness. An aviation unit's training readiness is based upon individual aviator readiness. As already pointed out, a FAC 1 aviator must complete 80 percent of the FAC 1 task list to sustain ARL 1. Aviator training readines is computed as follows: To be C-1 for aviator training, at least 85 percent of a unit's Modified Tables of Organization and Equipment (MTOE) authorized aviator strength must be FAC 1, ARL 1.

To be C-2 for aviator training, at least 70 percent must be FAC 1, ARL 1. To be C-3 for aviator training, at least 60 percent must be FAC 1, ARL 1. If less than 60 percent of a unit's MTOE authorized strength is FAC 1, ARL 1, the unit is C-4 for aviator training. Refer to AR 220-1 for detailed readiness information for overall unit training readiness status.

The first question out of the box easily is anticipated. What about the unfortunate commanders who have less than 85 percent of their MTOE authorized strength? Obviously they cannot be C-1 for aviator training.

The next question is whether it is fair to commanders who happen to be excellent trainers to be less than C-1 for aviator training. It boils down to a matter of opposing imperatives. On the one hand the commander understandably entertains the imperative of "looking good" by reporting C-1. On the other hand is the military imperative which demands readiness reports which accurately reflect a unit's capability to perform its combat mission.

The ATMs embrace the latter imperative without ignoring the former. The military imperative compelled adoption of authorized, rather than assigned, strength. "The Commander's Guide for the Utilization of Aircrew Training Manuals" (TC 1-134) recognizes the commander's dilemma—be it real or perceived—by stating that a less than C-1 for training for reasons beyond the commander's control does not reflect adversely on the commander.

The aircrew training manuals have a great deal of information which cannot be detailed here because of space limitation. But as I said at the outset, this was not meant to be the entree.

Like them or not, aircrew training manuals are here to stay, so it is incumbent upon all users to make them the best possible training publication. During the ensuing year, we must examine them critically to ensure that the final edition is exactly what we want and need. I believe the ATMs, even now, are the most comprehensive and sensible aviation training documents published to date, providing single source training guidance for achieving aviation unit combat readiness at the lowest possible cost.

American Legion Valor Awards

TWO ARMY warrant offices and an Air Force captain were honored with the 1978 American Legion Aviators' Valor Award last month at Fort Hamilton, NY. All three are helicopter pilots.

The award, established in 1953 by American Legion Post No. 743 in Brooklyn, NY, is given for "a conspicuous act of valor or courage performed during an aerial flight, in or out of combat, by a rated member of the armed forces."

Chief Warrant Officer 3 Thomas J. Janis and Warrant Officer 1 Jukka P. Norri, both of the 193rd Infantry Brigade, the Canal Zone, were honored for their daring medical evacuation of a Soldier who had gone into shock and respiratory arrest from an insect bite. The Soldier had been participating in jungle training when he was bitten.

The first attempt at air rescue was aborted when winds and thunderstorms in the area were so bad that visual reference with the ground could not be maintained.

A second, successful attempt was made after learning that the life-sustaining drug used on the Soldier had been exhausted. For 20 minutes and during torrential rains WOs Janis and Norri hovered their craft over a small circular clearing, surrounded on all sides by 100-foot trees, while the rescue hoist was lowered, the patient strapped on and raised back up to the aircraft. Further deterioration of the weather forced them to make their return flight at about 10 feet above the water, using only the lighted buoys which mark the canal's channel for navigational reference.

Captain Ronald C. Cunningham of the Air Force's 71st Aerospace Rescue and Recovery Squadron at Elmendorf AFB, Alaska, was cited for his courageous rescue of 17 half-frozen men stranded and dying on a glacier in the mountain wilderness of Alaska.

In turbulent, stormy weather and with the performance of his helicopter limited by its weight and high altitude, Captain Cunningham inched up a narrow, winding mountainpass and maneuvered the hovering helicopter sideways in a confined recovery area where forward flight was impossible.

With the 17 men finally aboard, Captain Cunningham coaxed his now underpowered helicopter into a hover and diving down the face of the glacier, was able to gain enough airspeed for the treacherous return trip through the pass.

Enlisted Personnel Management System

EPMS CORNER

Career Management Individual Files (CMIF)

SFC George L. Alston
Aviation Career Advisor
U.S. Army Military Personnel Center

THERE ARE THOSE enlisted aviation types who have seen the term career management individual file (CMIF) and shrugged it off as records that are kept at Ft. Benjamin Harrison, IN or Military Personnel Center (MILPERCEN). Those same persons gave little thought as to how much importance their CMIF might have on selection for assignments and making other career management decisions.

In this article we are going to cover some points that might enlighten a few of you with respect to your CMIF. A CMIF is maintained on Soldiers in the 67 career management field (CMF) in grades E6 through E9. For grade E9 the record is kept in the Sergeants Major Branch, and records on E6 to E8 are kept in the Aviation Section, Transportation/Aviation/Maintenance Branch of the Enlisted Personnel Management Directorate (EPMD), MILPERCEN in Alexandria, VA. The initial documents for establishment of the CMIF are forwarded by the service member's local personnel office when the Soldier attains grade E6.

The CMIF plays a vital role in individual Soldiers being selected for retraining, assignment and the installation to which the Soldier is assigned to upon eligibility for the homebase/advanced assignment program (HAAP). Since the CMIF plays such an important role for each of you it would help if you would ensure that all necessary documents are in your file and are kept current.

The following are documents maintained in your CMIF that you can ensure are forwarded and updated: DA Form 2166-4, 2166-5 or 2166-5A, enlisted efficiency or evaluation report; USAEEC Form 10, enlisted evaluation data report; DA Form 1059, service school academic evaluation report; DA Form 1059-1, civilian institution academic evaluation report; college transcripts; DA Form 2, personnel qualification record part I (latest copy); DA Form 2-1, personnel qualification record part II (latest machine reproduced copy); item 38, DA Form 20, enlisted qualification record (for those individual Soldiers on whom this record initially was maintained) and DA Form 2635, enlisted preference statement.

The enlisted preference statement commonly is referred to as a "dream sheet." Many Soldiers prepare this document as if they were in a dream world. Be realistic when preparing this form. You should select those areas where you are likely to be assigned and ensure that the areas of preference you select are in the priority that you desire. Many Soldiers make their selections haphazardly and are surprised when they get their first choice of somewhere they didn't really want to go.

The boxes in block 14 of the preference statement should be numbered according to your choice of priority, not checked or "X"ed as many Soldiers have done in the past. Block 22, current address of dependents, should be updated as this status changes. Block 23 is of utmost importance as this information is used to help to determine your HAAP assignment. There is no requirement for individuals to keep a personal copy of the preference statement but it is a good idea to either keep a copy or record of the information someplace where you can check it and determine when it needs to be updated.

If you are in doubt as to when an updated preference statement should be or can be submitted you should check paragraph 1-8, AR 614-200.

Other items that are included in the file are letter efficiency reports, letters of reprimand, assignment transaction sheets, reclassification orders, volunteer applications, career manager's notes, copies of correspondence, disposition forms and indorsements.

For additional information on CMIF check paragraph 1-9, AR 614-200. If you are in doubt as to how current your CMIF is you may contact your career advisors: SFC Douglas Allen, SFC George Alston, SFC Tom Bice, Ms Lucia De Oca or SFC Ed Trotman at AUTOVON 221-8323/7700.

OPMS CORNER Officer Personnel Management System

UPDATE Officer Specialty Code 71

Major Richard G. Larson
Specialty Development Branch
Officer Personnel Management Directorate
U.S. Army Military Personnel Center

IN THE TWO years since the U.S. Army Military Personnel Center (MILPERCEN) began assigning officers using specialties rather than branches, specialty 71 (Aviation Materiel Management) has proven to be a viable and dynamic career field. Officers designated specialty 71 can anticipate involvement in all phases of the life cycle management of aviation materiel. This involvement includes production control, inventory control, storage, distribution, maintenance and supply of Army aircraft and related component systems.

Duties for an officer with specialty 71 include: service platoon leader, commander of units engaged in aviation unit maintenance (AVUM), aviation intermediate maintenance (AVIM) or depot level maintenance, aircraft maintenance officer, aircraft supply officer and aviation materiel staff officer.

How does an officer obtain specialty 71? Newly commissioned officers in the Transportation Corps may have the Aviation Materiel Management Specialty designated as their primary specialty upon entry on active duty. To attain basic qualification, the newly commissioned officer will attend the Initial Entry Rotary Wing (IERW) Aviator Course and the Aircraft Maintenance Officer Course (AMOC) after completion of the Transportation Officer Basic Course (TOBC). TOBC and AMOC are both conducted at Ft. Eustis, VA; the IERW aviator course is located at Ft. Rucker, AL. Assignments in this specialty require the officer be a rated Army aviator. This allows commissioned officer aviators in branches other than Transportation to have specialty 71 designated as one of their two specialties (primary or alternate). Aviators desiring specialty 71 should meet the basic qualification listed above or have equivalent training or practical experience.

As of January 1978, the Army had a total requirement for 661 specialty 71 positions. Of the total requirement, 19 were for the grade of colonel, 64 for lieutenant colonel, 110 for major, 409 for captain and 59 for lieutenant. To meet these position requirements, there were 79 colonels, 239 lieutenant colonels, 291 majors, 629 captains and 194 lieutenants who possessed 71 as either their primary or alternate specialty.

Does this information mean we have more officers than we need? No—because, in all cases, the Army needs more assets than requirements to allow for oficers in training or in transit and to permit alternate specialty development and utilization. However, as previously announced by MILPERCEN, specialty 71 is overaligned at the grade of lieutenant colonel—we have more lieutenant colonels in 71 than can be efficiently utilized in Aviation Materiel Management with alternating assignments in their other specialty. Lieutenant Colonels who do not feel they can perform as a 71 may request a change to another specialty more compatible with their experience and capabilities.

Command opportunities are always a point of interest to the officer corps, and specialty 71 offers command at the grades of captain, major, lieutenant colonel and colonel. Presently, there are eight battalion-level commands coded specialty 71. These units are the 1st Student Battalion, Ft. Eustis; 42d Transportation Battalion (Provisional), Ft. Meade, MD; 34th Support Battalion, Ft. Hood, TX; 5th Transportation Battalion, Ft. Campbell, KY; 194th Maintenance Battalion, Korea; and the 70th, 205th and 394th AVIM Battalions in Germany.

For those of you aspiring to colonel command, the position of the Commander, U.S. Army Depot, Corpus Christi, TX is coded 71. Additionally, colonels possessing specialty 71 are eligible for project manager positions, division support command (DISCOM) commander, command of a general support group, and transportation commands such as the 7th Transportation Group, 37th Transportation Group and the Transportation School Brigade.

During calendar year 1977, the specialty 71 officers fared very well in promotion and school selections. Of those officers considered for the first time in the primary zone, 75 percent were promoted to major, 62 percent to lieutenant colonel and 32 percent to colonel. Six officers possessing 71 were selected for senior service college and 30 were selected for attendance at Command and General Staff College equivalent schooling. Advanced civil schooling opportunities in logistics management, aeronautical engineering, and procurement and contract administration exist for eligible specialty 71 officers.

At present, there are 39 Army Educational Requirements Board (AERB) positions for specialty 71 which require an advanced degree in one of the above disciplines. Although 27 percent of the Aviation Materiel Management officer population possesses an advanced degree, interested individuals desiring an advanced degree should contact their local personnel and/or education officer for information concerning the many options available.

One of the most frequent questions posed to the specialty managers in MILPERCEN by officers in the field is: "What can I do to enhance my professional development and competitive status?" Although the answer will vary depending on the individual, the following suggestions apply to all specialty 71 officers.

First, and most important, perform the job you are in to the best of your ability. With the reduction in our force structure in recent years, all jobs are important, and the single best indicator of an officer's potential is his/her manner of performance in duty positions.

Second, keep your Officer Record Brief (ORB) and official file up-to-date. A promotion board only knows what it sees in your file and on your ORB. I recently saw an officer's ORB which indicated he was 5 feet tall and weighed 185 pounds! Obviously, a selection board would have considered the individual grossly overweight; in reality, the officer was 6 feet tall, but his ORB was in error.

Speaking of weight, make sure your weight is within the limits prescribed in AR 600-9, "The Army Physical Fitness and Weight Control Program," 30 November 1976. A recent Department of the Army (DA) policy states, "Effective 1 July 1978, the weight standards contained in AR 600-9 will be enforced by DA as an eligibility requirement when processing applications for integration into the Regular Army or Voluntary Indefinite status for retention on extended active duty." As an aviator, keep yourself current, as appropriate—physical examination, annual writ, changing doctrine, new techniques, etc.

Last, talk to your commander and MILPERCEN specialty manager—seek advice and counseling on your performance and professional development needs.

Personnel assigned to MILPERCEN are there to assist you—the officer corps. For information or assistance concerning specialty 71, contact one of the officers listed in the figure below.

The wide range of responsibilities associated with specialty 71 positions require the highest degree of leadership, trust, technical knowledge, and managerial ability. The recent advancements in aviation technology provide challenges and oportunities which are both exciting and rewarding. Officers serving in Aviation Materiel Management are meeting the challenges and enjoying the rewards of participating in a dynamic and essential logistical support field.

Officer	Telephone Number
LTC Bud Mayes **Colonels Division**	**AV 221-7868/7869**
LTC Patty Brown **Lieutenant Colonels Division**	**AV 221-7898/0422**
MAJ Chuck Bullard **Majors Division**	**AV 221-8121/8123**
MAJ Gerald Kokenes **Transportation Branch (Captains)**	**AV 221-7504/7505**
CPT John Kennedy **Transportation Branch (Lieutenants)**	**AV 221-7504/7505**
MAJ John Moran **Professional Development Branch** **Combat Service Support Division**	**AV 221-7444/7445**
MAJ Dick Larson **Specialty 71 Monitor** **Professional Development Division**	**AV 221-8151/8154**

Figure 2

UH-1H Versus UH-60A Crashworthiness

	UH-1H	UH-60A
• Crash Data:		
• Impact Conditions:		
Airspeed (Knots)	50	70-90
Vertical Rate of Descent	1,140 Feet/Min (13 MPH)	2,500 Feet/Min (28 MPH)
• Injuries	2 Major	None
• Hardware Damage Cost	$344,912	Minimal

Figure 3

ASH Mission Needs:

- Reconnaissance
- Intelligence
- Surveillance
- Target acquisition
- Antiarmor operations
- Artillery support
- Battle management
- Economy of force operations

ASH Tactical Tasks (Examples):

- Laser designated for guided munitions
- Observe artillery fires
- Recon air and land routes
- AH-64 command, control, target acquisition and overwatch
- Gap surveillance
- Visual battle situation evaluation

"GETTING READY" *Continued from page 3*

we are reducing the number of administrative aviation units by consolidating or eliminating where feasible. To date, action has been taken to consolidate or reduce aircraft and personnel assigned to headquarters units. There are 10 Cobra/TOW (tube-launched, optically-tracked, wire-guided) attack helicopter companies in U.S. Army Europe (USAREUR) with more planned for the future. We will continue to review our aviation force structure annually and will have another formal study in FY 80.

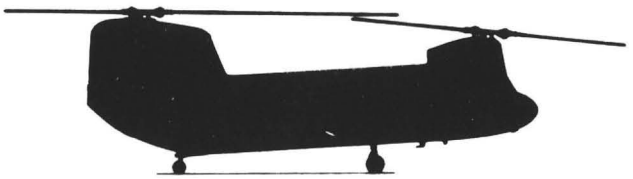
Helicopter Commonality

Before discussing our tactical aircraft systems, I would like to briefly introduce a subject we have not properly communicated to the field, but one that directly affects our future aircraft systems and subsystems—*helicopter commonality.* The objective of triservice helicopter commonality is to effect a total DOD cost savings by developing a helicopter inventory consisting of a minimum number of baseline and variant helicopters and yet be consistent with the Services' requirements.

The governing agency within Department of Defense for helicopter commonality is the Triservice Steering Committee, which is composed of the three service assistant secretaries responsible for research and development. They report to the Secretary of Defense and are chaired by Dr. (Hon.) Percy A. Pierre, the Assistant Secretary of the Army for Research, Development and Acquisition. The workers in this effort are found in an organization entitled the Joint Helicopter Commonality Planning Group. The Planning Group serves as the DOD focal point for harmonization of the Services' helicopter requirements. It is composed of representatives from each service's plans and analysis communities. A flag officer actively and regularly leads their respective service delegations. The Army has executive responsibility for the planning group which I have been appointed to chair.

Figure 1, page 3, graphically portrays our helicopter commonality objective. On the left we have the present capability groups indicated, followed by the present as well as programed helicopters that are or will be in the DOD inventory. As we move from left to right we see the development of an interservice helicopter force characterized by a few highly versatile types rather than the numerous individual service developed systems existing now.

For example, in the 1995 timeframe, we envision the two basic medium helicopters, the AH-X and UH-X, will satisfy all DOD medium requirements through the year 2020. It also is anticipated that these two helicopter systems will have many common components and systems such as engines, drive trains and rotor blades. The only significant variance will be in the airframe because of their assigned missions.



Tactical Aircraft Systems

UH-60A Black Hawk. This year's budget submission included a request for procurement of 129 UH-60 Black Hawk helicopters to support our doctrine of the 1980s. Based on last year's budget approval, second year contracts were awarded for 56 Black Hawks and 170 T-700 engines. The first production Black Hawk delivery is scheduled for this month and the Force Development Test and Experimentation (FDTE) is scheduled during the timeframe January through May at Ft. Campbell, KY with the 101st Airborne Division (Airmobile).

It is anticipated that the Black Hawk will become the platform for QUICK FIX, a Signal Intelligence and Electronic Warfare System and for SOTAS, a Standoff Target Acquisition System. The presence of these systems is critical to our success on the modern battlefield and simply cannot be properly accommodated or used on the UH-1. UH-60 airframe requirements for these systems are being finalized by the Army staff, at this time, and will increase the total requirement for UH-60 airframes.

Before leaving the Black Hawk, I feel it essential to discuss our military standard (MIL STD) 1290. MIL STD 1290, as you may or may not recall, prescribes the level of crashworthiness that must be engineered in all of our new helicopters and already has been incorporated in the UH-60 and AH-64. The data presented in figure 2, page 34, clearly illustrates the value of this feature. The UH-1 which was in flight test at Edwards AFB, CA contacted the ground at a forward velocity of 50 knots and 1,140 feet per minute. The aircraft was totaled and both crewmembers barely escaped death. The UH-60 struck the ground at 80 knots forward velocity and 2,500 feet per minute, or more than twice as hard as the UH-1. Damage to the UH-60 was a blown out tail wheel tire. My prediction is that MIL STD 1290 will cut our fatalities and crash damage by more than half.

CH-47 Modernization. The CH-47 Chinook modernization program is progressing quite well. To meet the medium helicopter requirement we will rebuild (modernize) almost all of our CH-47s. The currently funded engineering and development program is now 1 percent under planned cost. The three prototypes, an A, B and C model, are in the Boeing Vertol Plant and have been prepared for the modernization process. The first prototype flight is scheduled for May.

AH-1S Cobra TOW. The AH-1S Cobra TOW remains our first line attack helicopter and we are continuing to modernize our Cobra fleet to enhance its effectiveness, particularly against opposing armor. The conversion of an initial 290 G-model Cobras to Cobra TOW configuration is now complete. Fielding of these converted assets has allowed us to completely equip USAREUR's attack helicopter units with Cobra TOW, giving these forward units a major added antiarmor capability. We are now in the process of filling Continental United States (CONUS) attack helicopter units as Cobra TOW assets become available.

During March 1977, the Army accepted delivery of the first of 324 new production AH-1S aircraft. Bell's production line for the Army is on schedule, with new 'S' models now being assigned to CONUS units. We are continuing to apply product improvements to these new production Cobras as new development items are available. Later this year, for example, we will begin installing on all production aircraft, a universal turret capable of accepting either 20 mm or 30 mm weapons.

The Army's FY 79 budget request, as it pertains to the AH-1, includes $10.8 million for research and development and $342.9 million for procurement.

AH-64. Engineering development continues on our future primary attack helicopter, the AH-64. During March 1977, competitive development contracts were awarded to Northrop and Martin-Marietta for the Target Acquisition Designation System/Pilot's Night Vision System (TADS/PNVS). These systems are the heart of the AH-64 providing day/night and adverse weather capability as well as designation-tracking provisions for the helicopter launched fire and forget (HELLFIRE) missile and other laser guided munitions. This year's budget request included $177.4 million for continued development of this *vital* antiarmor helicopter system.

The success of the AH-1S Cobra TOW and AH-64 programs is not only vital to Army aviation, but to the free world. We must be constantly on our toes to properly articulate our need for and professionally demonstrate the capabilities of the attack helicopter. There must be no doubt that the attack helicopter is a necessary ingredient to the combined arms team. Until our attack fleet reaches the desired quantities and are capable of defeating armored vehicles, we are not ready. I would remind you that our potential adversary already has fielded an advanced attack helicopter. Given the proper support, we will field the AH-64 in the early 1980s.

Advanced Scout Helicopter (ASH) Program. After almost 2 years of looking for quick short-term solutions and reviewing requirements, the Army continues to say—we critically need an advanced scout helicopter. The reasons are shown in figure 3, page 34.

The ASH need still is valid. In fact, it is even more urgent due to the growing gap in the Initial Operational Capabilities (IOCs) between the ASH and the sytems it is to support, the AH-1S, COPPERHEAD and AH-64.

During this past year, opportunities for joint U.S. and North Atlantic Treaty Organization (NATO) ASH development have been explored in detail; solid support with the Army has been formally established; and considerable in-house efforts have been devoted to exploring and challenging the ASH requirement—resulting in its full revalidation. Subsequently, a proposed program was developed which received Vice Chief of Staff of the Army approval. In support of this program, $5.5 million is being requested for FY 79. Three million will cover establishment of the Project Manager's office, development of the concept formulation package and preparation of a request for proposal, while the remaining $2.5 million will support U.S. participation in a joint concept development agreement with Germany and France.

We will continue in-house activities during FY 78 by preparing the required ASH Mission Element Need Statement (MENS) documentation and defining other light helicopter requirements. Previous exploration of NATO helicopter programs identified a planned German and French program leading to joint development and coproduction of a scout and light attack helicopter (LAH) compatible with our ASH requirements. On 27 February a letter from the office of the Secretary of Defense was sent to the German Ministry of Defense expressing U.S. interest in participating in the joint concept definition phase.

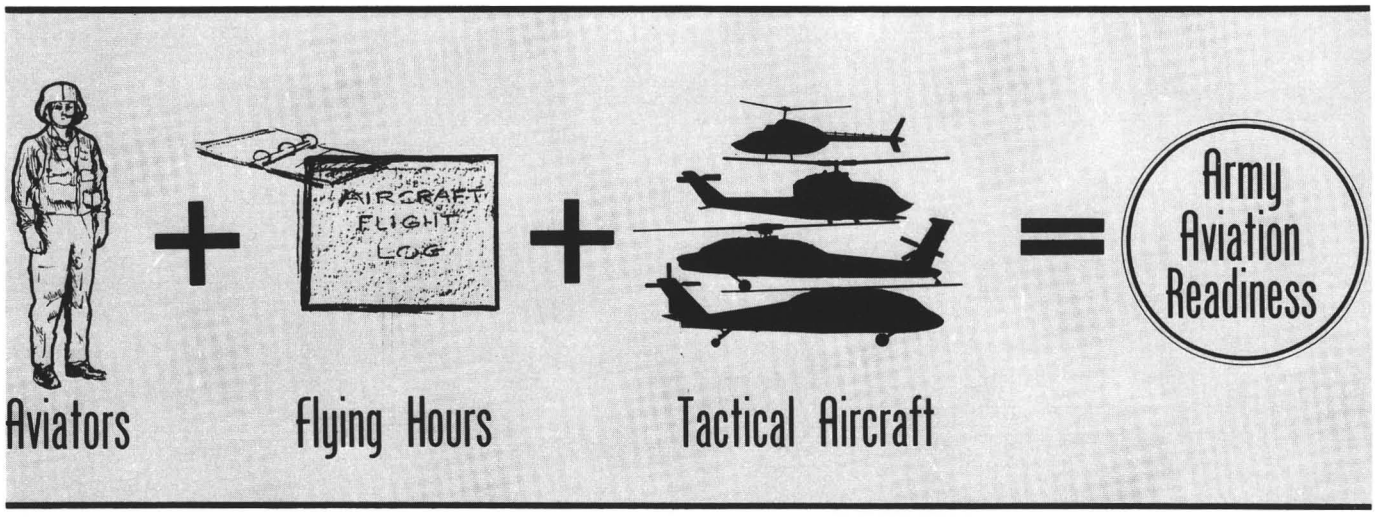
We have asked Congress for its full support to establish firmly this urgently needed ASH program.

Can The Attack Helicopter Survive? As a result of Secretary of Defense Harold Brown's concern over the survivability of the AH-64, the Army, in conjunction with the Air Force and Marine Corps, has launched into a series of evaluations to establish that the AH-64 will not only survive on the modern battlefield, but also will prove to be an essential aerial weapon system for NATO commanders.

TAC EVAL I. Attack helicopter tactics evaluation (TAC EVAL) I, conducted by TRADOC in Nevada from 6 to 17 June 1977 was designed to evaluate current attack helicopter tactics and doctrine in a high threat environment and to verify or refine tactics and techniques that enhance attack helicopter effectiveness and survivability. This 9-day evaluation was played in a desert environment against the best available representative air defense threat.

Various mixes of attack and scout helicopters were played. The exercise vividly demonstrated the inadequacies of our current scout helicopter. Normal attack helicopter NOE tactics were employed and verified. The loss ratios, helicopters versus armored vehicles, the number of successful attack helicopter engagements, and the number of engagements completed without acquisition by the air defense force were extremely encouraging. These favorable results further emphasize the value of our current tactical flying techniques and tactics.

Figure 4



JAWS I AND II. The Joint Attack Weapons Systems (JAWS) Tactics Development and Evaluation was conducted in two phases, JAWS I and II. This joint U.S. Air Force Tactical Air Command (TAC)/TRADOC effort was designed to develop joint tactics which would contribute to the overall effectiveness of the joint air attack team of Air Force fixed wing A-10s and Army AH-1S Cobra attack helicopters. Phase I was conducted at Ft. Benning, GA from 9 to 23 September 1977 primarily to develop joint tactics for later employment against a sophisticated threat force in Phase II. The Phase II evaluation was conducted at Ft. Hunter-Liggett, CA from 7 to 18 November 1977 with the attack helicopter team of five AH-1S Cobras and three OH-58 Kiowas employed jointly with four A-10s and an Air Force fixed wing OV-10.

Results of JAWS verified our exchange ratios and indicated that both the attack helicopters and A-10s improved their overall effectiveness by working together and employing complimentary tactics. Our lack of a decent scout helicopter was again obvious. Attack techniques, such as the ground forward air controllers (FACs) use of an Army scout helicopter, attack helicopter suppression of air defense, air space sharing (attack helicopters below the trees and A-10s above) were developed.

TASVAL—the OSD directed joint test and evaluation of tactical aircraft effectiveness and survivability in close air support antiarmor operations—is scheduled to be conducted in the spring of 1979 and should make a substantial contribution to the body of knowledge required to make decisions on effectiveness of not only attack helicopters but also fixed wing attack aircraft. This joint test will pit both Army and Marine attack helicopters and Air Force and Marine fixed wing attack aircraft against a representative threat force in both offensive and defensive scenarios. TASVAL data will be evaluated by the Institute for Defense Analysis (IDA) for OSD and by each of the participating Services. The final test report will be provided by the Joint Test Director to OSD upon completion.

ACE TDE. The Air Combat Engagement (ACE) Tactics Development and Evaluations (TDE) is a four phased effort that includes the evaluation of tactics and weapons required to counter the threat, the development of an attack helicopter counter air training program, and the publication of a "Helicopter Aerial Tactics" manual. Phase I was completed at Ft. Rucker, AL in late 1976, while the second through fourth phases have been infused into a joint Army/AF evaluation known as J. CATCH.

ARMY AVIATION READINESS

Although simplified, figure 4 depicts the story I have endeavored to explain to you. Regarding aviators, as you recall earlier in this article, I discussed our forecast commissioned aviator shortages. To be more precise, if we continue the training rates projected for the next 5 years, by September 1984 we will be short at least 875 commissioned aviators in the grades of lieutenant and captain. This shortage equates to 31 percent of our peacetime requirement for these grades, and certainly the wartime shortage would be significantly greater. The 13 percent cut in our FY 78 flying hour program equates to 130,000 flying hours. Obviously, cuts of this nature do not enhance our readiness effort.

The appropriate type and quantity of tactical aircraft systems are essential to ensure our readiness. Based on the current number of our attack assets capable of killing armored vehicles, we cannot allow any slippage in our ongoing and programed attack helicopter programs.

It is essential therefore, that we have the proper number and mix of qualified aviators, sufficient flying hours, and the required tactical aircraft systems to ensure Army aviation is ready. Our readiness goal is quite obviously a goal that each of us must share and pursue if we are to succeed. The capacity by which we participate is not the critical issue, it is our knowledge, our skill and effectiveness that counts.

The contents of this article—and more—were recently presented to the U.S. Senate Subcommittee on Tactical Air of the Armed Services Committee. That, plus much more, is my job. The articulation of our needs as well as our capabilities must, however, be accomplished equally as well at all levels of the Army. Our armor and mechanized battalion commanders must be convinced that the attack helicopters, for example, provide an essential antiarmor system. They must not only believe it, they must demand their presence during all tactical training and exercises, and then use them skillfully. We must ensure these commanders are equipped, knowledge wise, to do so.

Likewise, the correct replacement of a forward upper dual boost actuator; the well planned, reconnoitered, and conducted NOE course; the day-in, day-out timely and successful accomplishment of countless missions are representative of the actions we must continue to accomplish to ensure the attainment of our Army aviation total readiness goal. We're not there, but we're "Getting Ready."

CREW REST IN RESERVE/GUARD COMPONENTS

Continued from page 11

fatigue-causing factors found in the aviation environment. Table 1 shows 20 of these factors listed in order of importance. Take a close look at this table. Reserve/Guard components, because of their unique situation of night and weekend flying requirements, become involved with at least 8 of the top 12 factors.

All Reserve/Guard components are involved in basically the same aviation program depending, of course, upon the mission and aircraft assigned. In considering the Reserve/Guard aviation program, the number 1 fatigue-producing factor is instrument flying. Be it flying with the hood or actual instruments, it flat takes it out of you. Reserve/Guard aviators must stay instrument current and are compelled to do so in the limited training time available between other military duties, civilian jobs, and home and family obligations.

Let's take a look at a typical Reserve/Guard drill weekend and the fatigue factors involved. The crewmember usually arrives Friday night to participate in an Additional Flight Training Period (AFTP), after an 8-hour day on his civilian job and several hours of driving. He must participate for a minimum of 4 hours with 1½ hours of flying (factor 5) which probably includes night flying (factor 12) in a helicopter (factor 10) or in a fixed wing (factor 6) or possibly in the back of a UH-1 or OH-58 (factor 7). After completing the AFTP around 2300 hours, the aviator goes to bed. Right? Wrong! He generally goes out with unit buddies to socialize, drink and tell war stories, and does not get to bed until very late (factor 4).

Saturday morning formation is at 0800 hours and crewmembers still have flying requirements to meet. Reserve/Guard units meet for 2 days and paperwork has been accumulating for 30 days. So most of Saturday is spent behind the desk doing the paperwork (factors 6, 7 and 8). With Saturday's drill over, he catches up on his sleep. Right? Wrong again! He only sees his buddies once a month so he may be out again, partying with gusto.

At Sunday morning formation, fatigue factors are as follows:

Factor 2—"I'm not sure how the fight started, but I'm sure I was there."

Factor 3—"I can't seem to see through this (self-imposed) haze this morning."

Factor 4—"I knew there was something I forgot to do last night . . . sleep."

Factor 5—"Just 8 more hours until I can go home and recuperate."

Factor 7—"What do you mean, take the general to Tallahassee in an OH-58! That's 2½ hours ONE WAY!"

Factor 8—"They changed the regulation since last drill? I'm not spending all of Sunday rewriting that whole SOP. Yes, sir. Sorry, sir. I don't know what came over me. I'll get started right away, sir."

Factor 9—"Daily rest is something I get between drill weekends."

Of course, this "typical" Reserve/Guard drill weekend is a gross exaggeration. However, it does portray a situation that can exist if not properly monitored and policed.

The best solution to the fatigue problem is to establish a sensible crew rest SOP and then actively emphasize and enforce it. It must be supported by each individual in the chain of command. Individual crewmembers must understand their personal responsibility to maintain physical and mental fitness at all times. It is the moral and military responsibility of an individual crewmember not to engage in off-duty activities which prevent him from reporting for duty fully rested. It is extremely difficult for commanders and supervisors to remain constantly aware of the status of each individual crewmember.

An evaluative tool is needed for determining crewmembers' psychological and physiological conditions, because in the Reserve/Guard the supervisor does not see each individual on a daily basis as in the Active Army. The following is offered as a guide for developing just such an evaluative tool. The crew rest questionnaire can be condensed or expanded to suit the needs of each individual Reserve/Guard component.

CREW REST QUESTIONNAIRE

The information gained from this questionnaire will enable crewmembers, commanders, and ASOs to develop an idea of the rest normally needed by each individual in the unit. Questions should include such information as:

1. How many hours of sleep per 24-hour period do you get on an average?
2. How many hours of sleep do you normally get before a Friday night AFTP?
3. Is most or all of your normal sleep period at night?
4. Is your sleep period through a 24-hour day broken into segments or is it uninterrupted?
5. On a scheduled Friday night AFTP, how many hours of wakefulness (without sleep) have you had before regular departure time?
6. Give an estimate in minutes or hours of the time spent during your normal work day that you take breaks, lunch, etc.
7. Do you consider the noise level in your place of work (circle one) noisy? medium? quiet?
8. Do you consider the noise level in your car (circle one) loud? medium? quiet?
9. What is the mileage driven to and from work daily?
10. What is the mileage driven to the aviation support facility on AFTP nights and drill weekends?
11. Do you ride with someone or drive your own car to the flight facility?

TABLE 1

Factors contributing to fatigue	Order of importance
Instrument flying	1
Exposure to hostile action	2
Limited visibility	3
Sleep	4
Duration of flying duty day	5
Monotony of mission	6
Seating comfort	7
Additional duties unrelated to flying	8
Daily rest	9
Aircraft vibration	10
Low-level flying	11
Night flying	12
Aircraft noise	13
Hunger and thirst	13
Command relationships	15
Adequacy of ground support	16
Morale	17
Dawn or dusk flying	18
Type of terrain	19
Glare	20

12. If you ride with someone, does their driving make you tense or nervous?

13. Do you fly a plane to the aviation support facility for Friday night AFTPs or drill weekends?

14. If you fly a plane, how much en route time does it take to arrive at the flight facility?

15. Do you in your civilian occupation fly aircraft? If so, how many hours a month on an average?

16. Circle the meals you normally eat every day, Monday through Friday. Breakfast Lunch Supper

17. Do you feel like you have a dependence on coffee to wake up in the morning?

18. Do you feel like you drink too much coffee?

19. Do you smoke cigarettes?

20. Do you smoke cigars or pipes? If so, do you inhale the smoke?

21. Does tobacco smoke another person is producing have any of the following effects on you? (Circle items)

a. Nausea b. Dizziness c. Burning eyes d. Dry nose and throat e. Tightness in chest or lungs f. Headache

22. After a night AFTP, how many beers or alcoholic drinks do you average?

23. How late do you stay up on an AFTP night or drill night?

24. Do you have frequent headaches? If so, are they mild or intense?

25. Do you rarely have headaches? If so, are they mild or intense?

26. Have you had a REAL vacation in the past year (not including summer camp)?

27. Does it appear likely you will be able to take a vacation in the near future if you haven't already had one?

28. Do you have a civilian job?

29. Do you like your civilian employment?

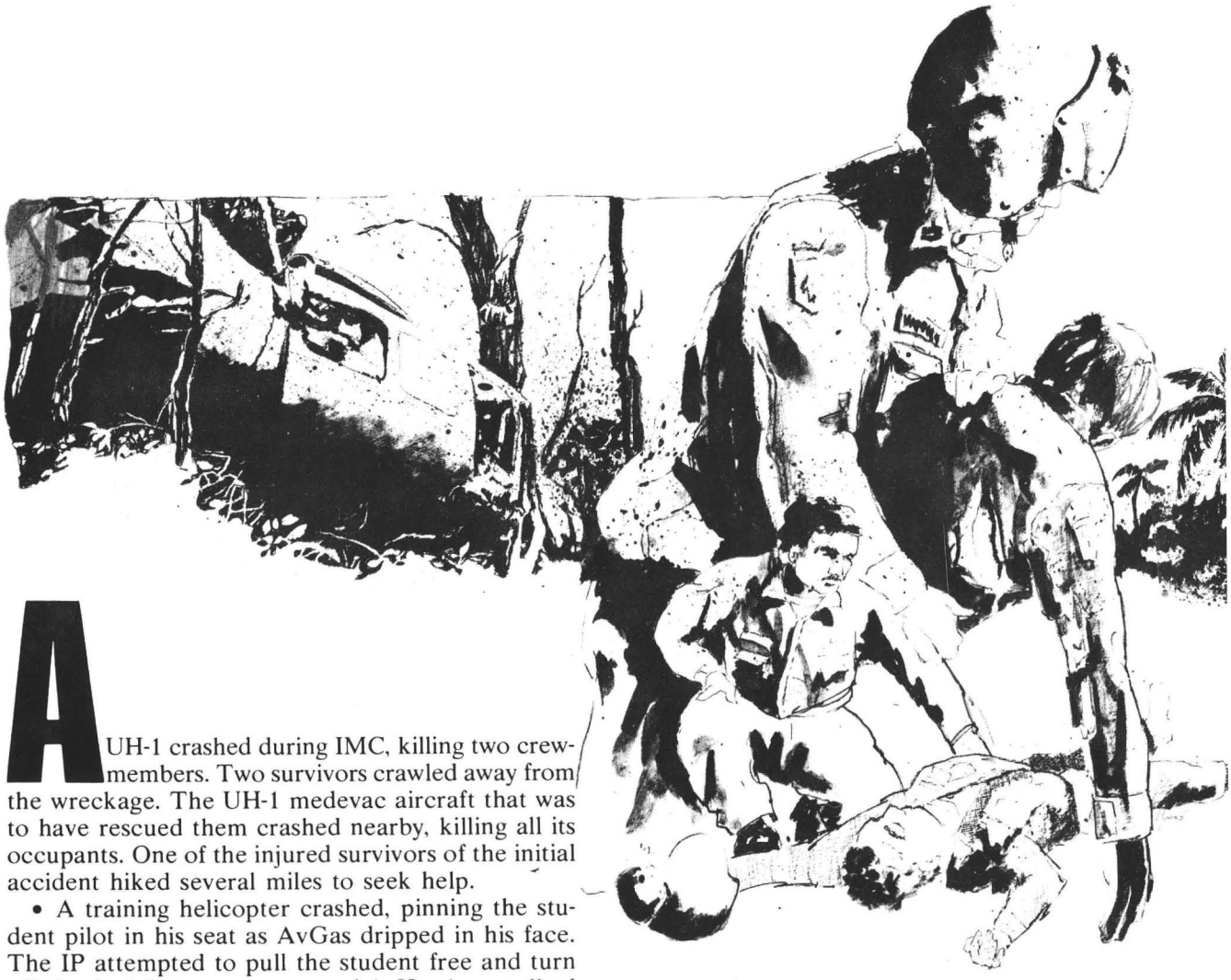
30. If you are not currently employed, does that fact ever cause you to worry?

31. From the following list of words or sentence fragments, circle one or more items that will describe your present feelings about your civilian job.

a. Dull
b. Monotonous
c. Demanding
d. Exciting
e. Long days
f. Frustrating
g. Stupid
h. Unrewarding
i. Rat race
j. Fulfilling
k. Satisfying
l. Prestigious
m. Illegal
n. Fraudulent
o. Seasonal
p. Unnecessary
q. Precarious
r. Position being eliminated
s. Chance to advance nil
t. Temporary

The crew rest questionnaire should be developed with the unit's mission in mind. Establishing a point value for the fatigue factors stressed in your questionnaire could be a useful means of evaluating the psychological/physiological state of the individual. By identifying those individuals with a higher than average point value, aircrew duties could be assigned accordingly. The ASO or CO sitting down with each of the high point individuals and informing them that they scored higher than others would promote crew rest awareness and allow the individuals to seek solutions to their own problems or situations. Information in the questionnaire should be limited to use by the ASO, CO and the individual and should be updated on a timely basis to be a useful tool.

The crew rest questionnaire and SOP are two ways of monitoring aircrew fatigue, but more important is the need to establish an awareness in crewmembers as well as supervisors. Fatigue is an insidious hazard. Therefore, crewmembers must exercise good personal judgment before as well as during missions. Supervisors must consider crew rest/fatigue in mission planning and crew assignments. That "all important mission" might be otherwise accomplished or not really that important when weighed against the loss of the crew, aircraft, and all aboard.



A UH-1 crashed during IMC, killing two crewmembers. Two survivors crawled away from the wreckage. The UH-1 medevac aircraft that was to have rescued them crashed nearby, killing all its occupants. One of the injured survivors of the initial accident hiked several miles to seek help.

- A training helicopter crashed, pinning the student pilot in his seat as AvGas dripped in his face. The IP attempted to pull the student free and turn off the fuel but was unsuccessful. He then walked more than a mile with an injured leg, flagged down a civilian vehicle, and was driven to a phone. During this time the trapped student was subjected to leaking fuel which burned his head and shoulder.
- A UH-1 crashed during a training flight, killing seven people. The sole survivor, whose back was broken, was forced to hike several miles for help.
- A light observation aircraft crashed and went undiscovered for 53 days. One victim had spread photos of his family around him before he died, while the other had vainly attempted to make a crutch and to build a signal fire. The wreckage was found less than 100 yards from a highway.

It is time for us to pull our heads out of the sand concerning postcrash and forced landing survival in peacetime as well as wartime environments. Aviation personnel tend to approach the possibility of "going down" as something that happens to "the other guy."

Only limited importance has been placed on survival training for Army aviation crewmembers. Think about it. When was the last time you received **any** formal survival training? Only on rare occasions and in selected units have most of us been fortunate enough to receive additional training. Yet our assignments have varied from Iran to Hawaii, Alaska to Panama, Alabama to Idaho.

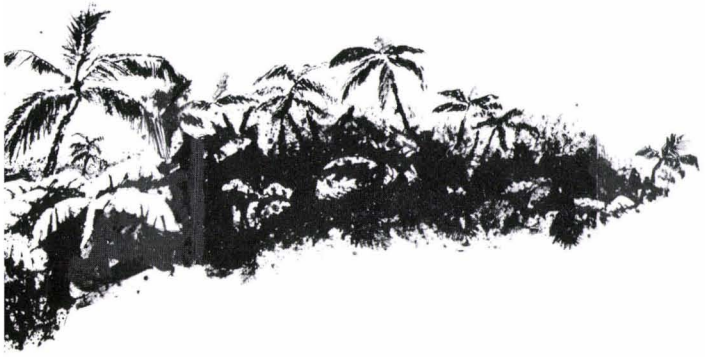
PEACETIME SURVIVAL

Although search flights are initiated immediately upon notification of a downed aircraft or as soon as weather conditions permit, these two factors take **time,** and that's what kills unprepared people. We must realize that we are products of the twentieth century and are not prepared to **instinctively** cope with the hazards of living in the woods. We must **learn** to survive **before** we're thrust into a survival situation. We must be prepared to deal with such dangers as:

- Extreme cold or hot weather conditions.
- Lack of safe drinking water.
- Lack of food.

ANNUAL AWARD
Monthly Winner
CONTEST

USAAAVS Captain Charles F. Nowlin



Think about the unthinkable

• Identification of poisonous snakes, plants, and insects.

• Lack of shelter.

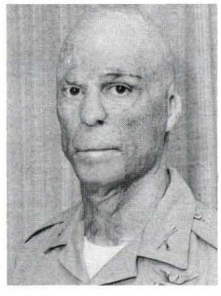
• Insects or animals drawn to a crash site by the scent of man or blood.

We must learn what to do for broken bones, open wounds, and shock. We must learn how to signal for help in spite of a lack of equipment or malfunction of equipment. We must be ready to handle the psychological fear of coping with the postcrash environment and the possibility of dealing with deceased or badly mutilated individuals. These are only a few of the very real possibilities faced by each of us **regardless** of the flying area or aircraft we are assigned.

There is usually plenty of food, water, and shelter to be found **if** one is trained to identify them. Every aviation commander and aviation safety officer must be charged with the responsibility for training **every** member of his command in survival techniques applicable to his particular environment. Yes, **every** aviation team member, because we cannot select who will be injured in an accident and who will not be. That PFC may well be a crew's walking, talking life insurance policy, but only if he is **trained.** He might well be the only conscious and capable individual to survive the crash and, therefore, must know how to render first aid, signal for help, or travel (to a **known** point, marking his trail) for assistance. This is not to say that there are not a number of highly skilled professional heliforce members who carry their own survival equipment in addition to the limited amounts issued today, but even they admit they would be hard pressed to handle the needs of one other individual, much less the needs of twelve other passengers and crewmen.

Until commanders begin to think about—and prepare for—the unthinkable, we will continue to lose valuable human assets to exposure, shock, minor injuries, and the inability to function in the alien

CPT Charles F. Nowlin sustained third-degree burns to 35 percent of his body when his OH-6 helicopter was downed by enemy fire in Vietnam in December 1970. He underwent 3 years of plastic surgery at Brooke General Hospital, Ft. Sam Houston, TX. CPT Nowlin returned to full flying status in July 1973. His expertise and dedicated work in the field of aviation safety and life support equipment earned him Fifth Army's Aviator of the Year Award and Fifth Army's Aviation Safety Award in 1973, the McClellan Aviation Safety Award in 1974, and the SAFE Meritorious Service Award in 1975. He holds a Masters Degree in Aviation Safety and has completed the Infantry Officers Advanced Course. CPT Nowlin is currently assigned to the Education and Evaluation Division, Directorate for Plans, Operations, and Education, U.S. Army Agency for Aviation Safety, Ft. Rucker, AL.



postcrash environment. It is the commander's responsibility to establish unit survival training programs. His responsibility for the welfare of his troops does not end when the aircraft goes down. When aircrews have not had the benefit of survival training, their failure to survive then becomes a command failure.

SURVIVAL IN A WAR ZONE

Let's consider the problems of a war zone, mid-intensity or otherwise. Not only are all of the peacetime problems still valid, but the probability of being picked up is greatly reduced. In the battle area, medevac aircraft are going to be up to their tail rotors in calls while all other aircraft are going to be mission assigned. The guard channel will be cluttered with calls for assistance, so the availability of search and rescue aircraft will not be a luxury we can depend on as in the past.

In addition to the problem of simple survival, we must consider the possibility of capture and the resulting treatment. Again, let's think about the unthinkable and face the truth. On a highly mobile battle front we cannot be guaranteed "humane" treatment in POW compounds by enemy forces due to the hassles involved in prisoner movement and care. The enemy may not be interested in wasting valuable manpower, food, and medical supplies on prisoners of war.

What are you going to do, Mr. Aviator, with the copilot with the broken leg, the crew chief with the abdominal injury, the infantryman who is alive but conscious, and the other seven banged-up but relatively healthy survivors of a fighting infantry squad? Surrender? Shoot the injured? Go off and leave them (including your stick buddy from flight school)? But you're only a WO1 or a CW2—you don't have to make decisions like that, do you? Like hell you don't.

Survival and command decisions are now your problem, Chief Warrant Officer or Spec Five, for you are the ranking man in charge and the remainder of the group is looking to you to make the decisions to **keep them alive.** Now you don't have TIME to read the book, even if you are lucky enough to have one, or TIME to jog and get physically fit to function for hours of walking or running to outdistance the enemy or lead your band of survivors to safety. Battle lines will be fluid as highly mobile forces travel at 40 to 60 mph to claim strategic landpoints and attempt to strike into each other's supply lines. In other words, aviation crewman, you may well find yourself the combat leader of a highly trained, semi-well-equipped fighting force with all the problems faced by an infantry platoon or company commander —logistics, tactics, enemy situation, location of friendly troops, first aid, etc.

If properly trained to live off the land and conduct guerrilla warfare, downed aviation personnel can survive plus wreak havoc in an enemy area. Understand that you will not be able to drop into the local enemy supply center and draw those needed medical supplies or ammunition, but through guerrilla warfare they can be obtained. By remaining in small, lightly equipped groups, enemy communication lines can be destroyed, railroads incapacitated, and sentries eliminated, causing the enemy to tie up valuable manpower on patrols and additional sentry duty in what have been considered "secured areas." Supplies can be stolen and destroyed, POL depots damaged, airfields torched along with aircraft stolen or wrecked (if we can learn more about their helicopters, another overlooked need), vehicle travel endangered by barricades or ambush, etc.

Granted, all survival techniques, leadership problems, and tactical possibilities cannot be addressed in one short article. But if an **awareness** can be created and aviation commanders begin to approach these problems, perhaps, just perhaps, we will get our heads out of the sand and start addressing these real-world peacetime flying problems and possible wartime needs. There will not be TIME to solve problems after we go down or after the balloon goes up, for it will then be too late to learn the rules and consider the alternatives. We had all better start analyzing some of these situations now while we have the time and the light to toss around the possibilities.

There is a dire need for:

1. Advanced first aid training for every aviation crewmember.

2. Survival training for every unit using available survival equipment supplemented for each geographical area in the world.

3. Guerrilla warfare training.

4. Constant physical fitness training.

Commanders must realize that lack of survival training is a problem that only they can correct. Perhaps someday more formal training will be available, but the survival problem cannot wait until tomorrow to be resolved. Unit survival training must be given the attention it deserves . . . and the time to begin is now.

"Unit survival training must include consideration for geography, climate, terrain, type of mission, and the probable attitude of native people with whom downed aviators may come in contact. The desire to survive may be instilled and strengthened through survival training and increased confidence."

AR 95-5, par. 5-6f

In setting up unit survival training, capitalize on the knowledge and resources of:

- Aviation Safety Officers
- Hospital paramedics
- Local survival experts (forest rangers, game wardens, university biologists, etc.)
- Local dieticians (found at hospitals)
- Local joggers (information concerning types of shoes,programs of conditioning and physical fitness)
- Flight surgeons (many have had extensive survival training and can provide meaningful information on conducting survival training programs, as well as give advice about nonprescription medications and bandages that could be obtained and used in survival environments)
- Special Forces or Ranger units (training and survival in guerrilla warfare)
- Local infantry commanders (small unit command tactics and terrain warfare)

Survival information can be obtained from the following publications:

FM 21-76	Survival Manual
FM 31-16	Counter-Guerrilla Activities
TM 10-1670-1	Survival Use of the Parachute
TM 55-1500-328-25	First Aid Kit, Airplane
TM 55-1680-316-10	Operator's Manual for Rigid Seat Survival Kit, OV-1 Airplane
TM 55-8465-206-23	Army Aviation Survival Kits
TM 55-8465-212-10	Operator's Manual, Cold Climate (STD) Survival Kit, Individual
TM 55-8465-213-10	Operator's Manual, Hot Climate (STD) Survival Kit, Individual
TM 55-8465-214-10	Operator's Manual, Overwater (STD) Survival Kit, Individual
TM 55-8465-215-10	Operator's Manual, Survival Vest, SRU-21/P
TM 750-244-1-2	Destruction of Life Support Equipment to Prevent Enemy Use
TO 1451-3-51 (USAF)	Survival Kits, Use, Maintenance, Inspection Records

Additional information for survival classes can be obtained by contacting:

(Tactics and Guerrilla Warfare)
Command and Tactics Department
U.S. Army Infantry School
ATTN: ATSM-B
Fort Benning, GA 31905
AUTOVON 835-1488/7076

(Medical Training)
Essential Medical Training for AMED Aviators (MSC/WO)
Academy of Health Sciences
ATTN: MSA-ITO
Fort Sam Houston, TX 78234

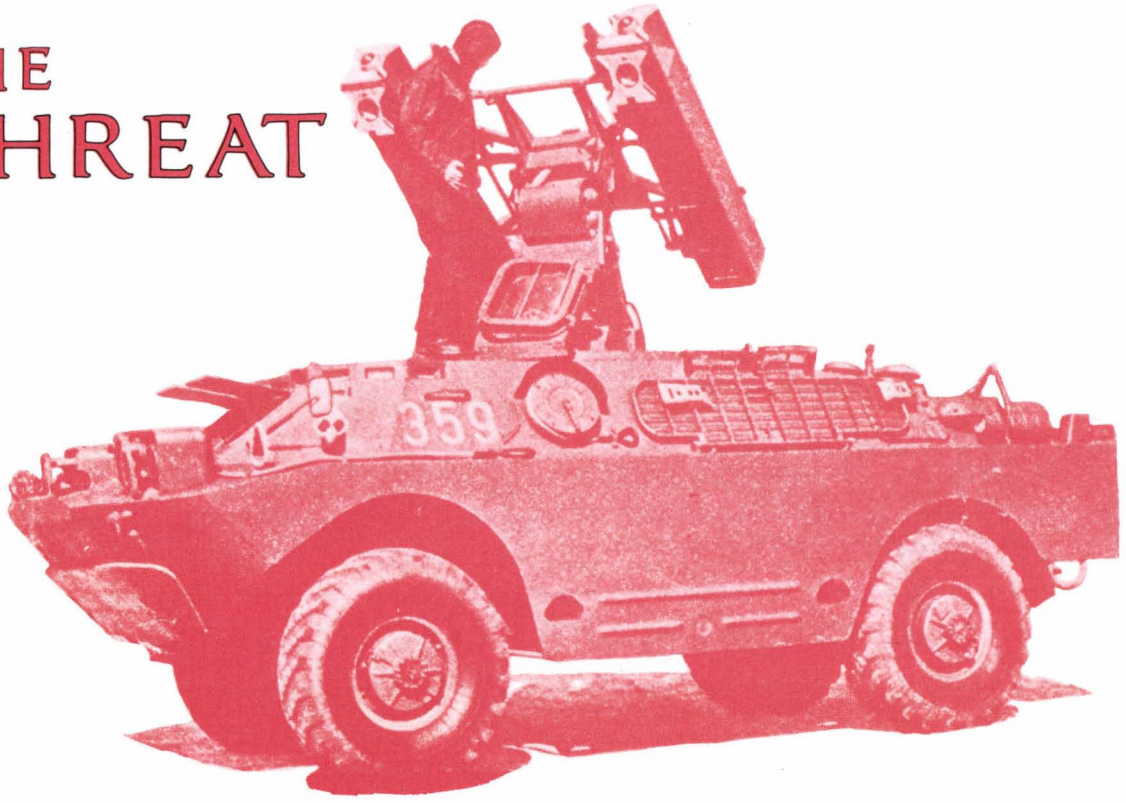
(Army Life Support Equipment)
Mr. A.B.C. Davis
DARCOM
P.O. Box 209
St. Louis, MO 63166
AUTOVON 698-3241/3291

(Air Force Life Support Equipment)
Commander
3334th Life Support System Branch
Chanute AFB, IL 68168
AUTOVON 862-3320

Suggested Unit Training Exercise:

Surprise! At the conclusion of a flying day the UH-1 is shut down and the crew receives a "going down" notice. The company commander and the unit aviation safety officer pick up the crew and take them to a distant wooded hill to spend the night. They will have to depend on the items in their survival vests, plus the lessons they have learned from previous survival classes. The ASO will ensure that the "downed crew" has a working survival radio so if an actual emergency does arise the crew can receive quick assistance. In essence, this type of actual survival training will bring home the point that we can never pick the time or place of an engine failure, but we can provide the training and supplies if we choose to do so. Living off the land is possible, but practice is required in order to successfully complete an "evening in the woods." Many of the fears and anxieties of survival can be relieved by actually using the equipment available, practicing learned skills, and developing confidence in one's own abilities.

THE THREAT



The SA-9 Gaskin

THE SA-9 GASKIN, fully integrated into the Soviet Union and Poland in 1974, is mounted on the BRDM-2A Amphibious Scout Car. Employed in conjunction with the Quad 23mm Self-Propelled Automatic Antiaircraft Gun (ZSU-23-4) in the antiaircraft battery of the tank and motorized rifle regiment, it has the following characteristics:

- Length: 1.7m
- Diameter: .11m
- Span: .3m
- Launch WT: 30kg
- Range (Horz): 7000m
- Range (Vert): 20-5000m
- Range (Eff): 4km
- Speed: Mach 2
- Guidance: Passive IR

Regimental air defense is characterized by both point and zone protection. Zone coverage is provided by the SAM systems while point protection is provided by regimental light air defense weapons. During the planning phase, regimental commanders personally direct the deployment of the air defense weapons to support their mission, lay down coordination lines and establish priorities and procedures for supply and technical support. The regimental air defense commanders plan deployment of their assets based on the regiment commander's instructions, the air situation, communications and control. The regimental commander defines precisely the tasks of regimental air defense units on the enemy air situation.

Regimental air defense weapons of the future will probably continue to be mobile automatic gun and low altitude SAM systems.

THIS MONTH Ft. Rucker Commander Major General James C. Smith continues his response to the "You Wanna Hear From Me?" comments (see the *Digest,* page 48, November 1977).

Dear General Smith:
I feel that the amount of training given to personnel during the course of "Flight School" is adequate for the basic skills required for new pilots. However, as you know, all of aviation in the Army is constantly under severe fund constraints. When new aviators are assigned to an active aviation unit, they often do not have the correct aircraft qualifications upon arrival, causing many training hours to be expended from allocated flying hours. Not that the units do not need training, they most certainly do, but the hours allocated should be used for unit mission training, and the basic aircraft qualification should be initiated at the Center and not in the unit. I recommend that all aviators undergoing training at USAAVNC undergo the OH-58 qualification course in addition to the training already being administered. This will allow the gaining unit to acquire an individual with the two most common aircraft qualifications, and after minimum mission training, enable the unit to utilize his talents at an earlier date in his tour of duty.

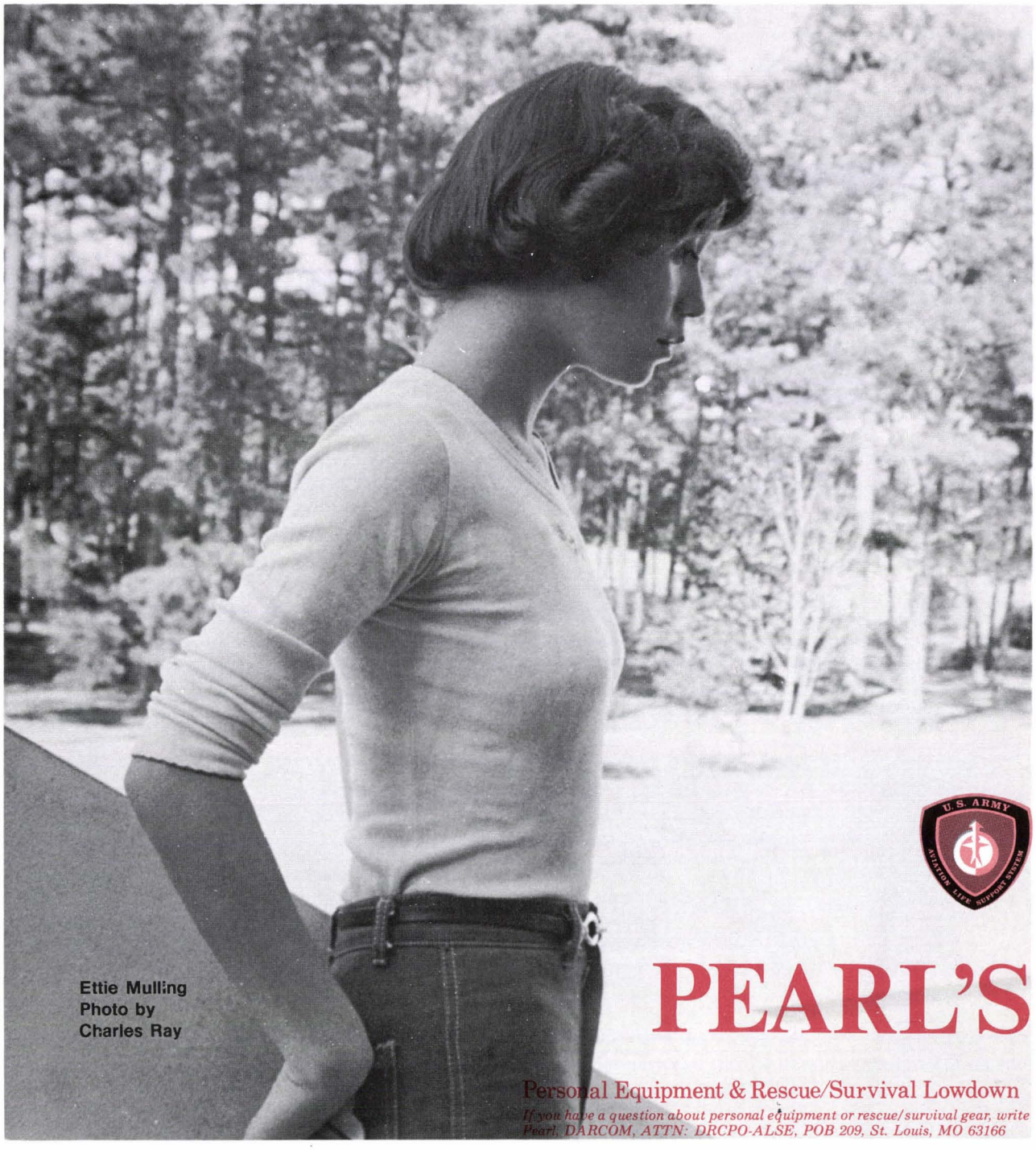
• **Currently the Aviation Center is moving in a direction opposite to that suggested. Recognizing that sophisticated weapons systems and complex technology will require even more aviator specialization in the future, the Aviation Center is recommending to TRADOC and DA that a multitrack initial entry course be taught at Ft. Rucker. This multitrack course would conceivably qualify an aviator in one of four helicopters and related mission areas. These would be Cargo (CH-47), Aeroscout (OH-58), Attack (AH-1) or Utility (UH-1). The obvious problem with the system is that aviators qualified in one system must be assigned to a unit where these newly acquired skills can be utilized. A close look at assignment policies and officer management is needed here, but this is what the Aviation Center feels will be necessary to maintain aviation battlefield effectiveness in the future.**

Thank you for responding,
General Smith

Dear General Smith:
I believe that emphasis should be placed on complete emergency panel operations for IFR. While in flight school, class 76-44, I received one hour in the SFTS of emergency panel. Since that time I have failed 2 instrument checkrides on my inability to fly without the attitude indicator and the RMI. The IFEs have expressed some concern when learning that I have not had much training for emergency panel.

• **The instrument flight phase of the Initial Entry Rotary Wing Course calls for four flight periods to be flown on emergency partial panel. The end of phase evaluation also requires that proficiency in emergency/partial panel be demonstrated. However, the Initial Entry Course is based on phases proficiency progression. This is when students are allowed to progress at their own speeds within any one particular phase. Accordingly a slow student does not receive as much practice as a quicker student in some maneuvers. This is why the amount of time spent on any one maneuver by a student will vary dependent upon the individual's proficiency.**

Thank you for responding,
General Smith



Ettie Mulling
Photo by
Charles Ray

PEARL'S

Personal Equipment & Rescue/Survival Lowdown

If you have a question about personal equipment or rescue/survival gear, write Pearl, DARCOM, ATTN: DRCPO-ALSE, POB 209, St. Louis, MO 63166

Fowl Weather

Today may be the most beautiful and perfect day for flying during your entire flying career—but everyday is fowl weather. Some missions or flights may seem routine, but there is nothing routine about ingesting a large fowl into your engine, or having a pair of crow wings plastered onto your chest, after crashing through your windscreen or canopy.

Fowl strikes may be more numerous at low altitudes, but are not uncommon at above 10,000 feet. For you who operate aircraft near established fowl migratory routes, you should be extremely watchful for fowl during the spring and fall migrations. Remember, the only thing you have in common with an eagle

or any bird in flight is "eagle eyes." Keep an eagle eye out, don't let a fowl foil your flight.

SOS

Are you about to send out an SOS regarding how or where to find items of aviation life support equipment (ALSE)? If so, the **S**ource **O**f **S**upply, along with other valuable information can be found in the Army Master Data File (AMDF).

The AMDF is a set of microfilm that lists almost all equipment or items used by the Army. USACDA Instruction Pamphlet 18-1 comes with the set of microfilm. The national stock numbers (NSNs) are listed by national item identification number (NIIN) sequence. For example, Kit, Survival, Cold Climate NSN 1680-00-973-1862, the NIIN of this NSN is 973. Therefore, look for the microfilm card with -00-973-1862 on it. Scan the card for 973, then for 1862. Now you will find the complete number listed to be 1680-00-973-1862.

Once you have found the complete NSN, other valuable information is listed, such as, shelf life code (SLC), cost, where to requisition, etc.

Shelf life of food and drugs is a major concern to users of ALSE. TM 743-200, "Storage and Materiel Handling" will give you storage tables for food items. However, if you have doubt about your survival food, get your post verterinarian to check it out. SB 8-75-3, "Medical Department Supply Information" lists drugs which should no longer be used.

An updated ALSE Pamphlet (May 1978) also is available (supersedes March 1977 issue). These pamphlets have been mailed. So, if you did not get your pamphlet, write PEARL, DARCOM, ATTN: DRCPO-ALSE, PO Box 209, St. Louis, MO 63166, or call AUTOVON 698-3241/3291.

The Size Of It

The next time you visit supply to be fitted with the latest in NOMEX flight clothing, you may find that your body does not fit the clothing that is in stock. It is possible that your size can be requisitioned directly from depot stock. *Do not* accept ill fitted clothing. Clothing that is too tight causes heat to transfer to your body very quickly in the event of a fire. Clothing that is too loose may get snagged easily, or not seal properly around your neck or arms in the event of a fire.

Special size clothing can be requisitioned. To do this, use your regular requisition form,plus DD Form 358 (Special Measurements Form) which is covered by AR 32-4. The completed forms should be mailed (off-line) to: Commander, Defense Personnel Support Center, ATTN: DPSC-MC, 2800 South 20th Street, Philadelphia, PA 19101.

That's about "the size of it."

What's AR 40-61?

Diphenoxylate Hydrochloride and Atropine Sulfate Tablets (NSN 6505-00-118-1914) could really save your day if you ever find yourself in a survival situation. Well, I guess we have kept you in suspense long enough, because these tablets are more commonly known as antidiarrhea tablets, but I guess all of you knew that anyway.

The tablets are part of your Survival Kit, Individual Tropical (NSN 6545-00-782-6412). This is the first aid kit which is a component of your Survival Kit, Individual, SRU-21/P, Vest Type (NSN 8465-00-177-4819).

A problem arises because the antidiarrhea tablets are a controlled drug, and is not issued as part of your SRU-21/P Survival Vest. Great difficulty usually is experienced obtaining these tablets from your medical support facilities.

You are authorized to have the antidiarrhea tablets, and they should be part of your SRU-21/P Survival Vest on every flight that you make. Many of you have found that surviving a bout with diarrhea is easier than obtaining the antidiarrhea tablets.

So what's AR 40-61, "Medical Logistics Policies and Procedures"? This is the regulation that you should take to your medical support facility when you attempt to obtain your antidiarrhea tablets. Page 3-28, paragraph 7(a) reads as follows:

> (a) DEA designated controlled substances will be issued to the pharmacy of the hospital for dispensing to patients, wards, clinics and other using agencies of the hospital. These items will be issued to other on-post and off-post activities only when authorized by the medical facility commander, based on proper medical staffing and demonstrated need for these items. Records will be maintained at using activities in accordance with AR 40-2.

(P.S. Our thanks to CW3 Harold D. Hintze.)

Hail Yes

Your PEARL editor was returning to St. Louis by private vehicle after a trip. Approaching the St. Louis area from the east, the sky to the west was dark and ominous. A local radio station gave a weather advisory, warning of hail. But we all know how often the weather forecast never materializes.

Well, I continued driving for about another two miles, and before I realized it hail, larger than golf balls, was falling. The hail caused a considerable amount of damage to my vehicle before I was able to pull off the road and stop. But for you, the guy flying in the sky, if you ignore the weather forecast, you won't be able to pull over and stop. The lesson was learned; the weather can be your worst enemy. Before every flight get an up-to-date weather advisory, study it and heed it. I can tell you for sure that "Hail—yes" the forecast are sometimes right.

ATC ACTION LINE

UNITED STATES ARMY AIR TRAFFIC CONTROL ACTIVITY

I UNDERSTAND that a new policy prevails for the Army concerning its navigational aid (NAVAID) preventive maintenance schedule. Can I be assured of being notified when the NAVAID is not available to assure effective flight planning?

The new policy has been spelled out and disseminated to all responsible operations and air traffic control (ATC) technical personnel as follows: Policy has been established and new procedures developed that obviate the requirement to publish Army No-NOTAM (notice to airmen) Preventive Maintenance (PM) Schedules in Department of Defense (DOD) flight information publications (FLIP). The new No-NOTAM policy has been disseminated to United States Army Communications Command elements in Continental United States by 7th Signal Headquarters.

The new policy provides flexibility for personnel in accomplishing required maintenance. It also results in appreciable cost and space savings in the instrument flight rules (IFR) supplement by eliminating the need to publish each No-NOTAM schedule for each NAVAID at each airfield.

No-NOTAM procedures are as follows:

Scheduled Outages. No-NOTAM action is required when routine preventive maintenance is performed on an electronic navigational aid facility provided the following conditions are satisfied:

- Time periods do not exceed 2 hours.
- Five hours prior notice is given to Federal Aviation Administration flight service facilities and each concerned ATC facility.
- Weather conditions are at and are forecast to remain equal to or better than the following:

✓Airfields with two or more electronic navigational aids: Ceiling 3,000 feet, visibility 5 statute miles (SM).

✓Airfields with single electronic navigation aids: Sky condition scattered, visibility 5 SM.

NOTE: A more restricted weather minima may be imposed at an isolated aviation facility for unique climatology history or for other safety considerations.

- Extension of the 2-hour period is not authorized and a NOTAM must be initiated at or before the end of the 2-hour period.

Unscheduled Outages. Transmission of NOTAM concerning malfunctions of navigational aids may be delayed 1 hour to allow for rapid repair when conditions are the same as stated for airfields with single electronic navigational aids.

Weather Deterioration or Maintenance Delay. If the weather deterioriates to below the minima stated for conditions at and forecast to remain equal to or better than listed above or the facility is not returned to service during the applicable time period, a NOTAM will be initiated immediately. Extension of the 1-hour emergency maintenance period is not authorized. Complete details are scheduled to be published in DOD FLIP IFR Supplement.

Readers are encouraged to send questions to:

Director
USAATCA Aeronautical Services Office
Cameron Station, Alexandria, VA 22314

NIGHT VISION GOGGLES AND ARMY AVIATION

ON 11 JULY 78 a meeting was held at Ft. Rucker, AL concerning the topic of "Night Vision Goggles and Army Aviation," with the intent being the exchange of pertinent information regarding night vision goggles (NVG). The meeting was held under the auspices of the Army Helicopter Research Coordinating Panel (HRCP).

Presentations and discussions centered on a wide range of NVG topics to include the materiel program, physiological considerations, aviator performance, safety, training and training development, training research issues and crew station compatibility. Also the "new" aviation goggle and aviation night vision imaging system (ANVIS) was discussed.

A summary of the meeting is being compiled and will be published in the *Digest* in the near future. (From Dr. Mark Hofman, Human Engineering Laboratory, Ft. Rucker, AL.)

M49C Refueling Tanker On Fire

The attached story is a true, first person account of a recent incident. The story has been published in the USAREUR Aviation Safety Officer's Kit. The *Digest* thanks CW3 David W. Bales, aviation safety officer of the Support Troop (Air), 2nd Armored Cavalry Regiment, for sending in the article

AT ABOUT 0945 one morning I was asked by the unit petroleum, oils and lubricants (POL) officer to walk with him to the POL vehicle parking area, and "look" at one of our M49C refueling tankers. He didn't say why, but assured me that I would be interested. I must admit, when asked in this manner to "look" at something I feel a certain amount of apprehension. I believe many aviation safety officers (ASOs) feel this way.

I grabbed my polaroid and left Operations for the POL vehicle parking area. About half way there, I could see that one of our tankers was stopped in the middle of the driveway that connects the POL area with the main aircraft parking ramp. That wouldn't have necessarily aroused my curiosity except that one of the airfield fire trucks was also standing close by. Some of the firemen were manning the hoses while others were examining the fuel tanker. Foam from the fire truck was all over the ground.

Fire is one of the foremost thoughts or fears in the mind of anyone who works with POL products. It should be anyway. The fire was out, no one had been injured and miraculously the tanker did not show any signs of damage; not even bubbled paint. Oh yes, there had definitely been a fire on the vehicle; foam all over the ground, two expended 15-pound fire extinguishers laying on the ground and the distinctive odor of a recent fire lingered in the air. How could this happen? All of our POL handlers/drivers are thoroughly trained in all POL operations. They have all attended formal classes, participated in extensive "hands on" training programs and attended frequent safety classes. They even have the appropriate MOS. I have complete confidence in their ability and knowledge of POL and refueling operations.

Just 20 minutes before my arrival the tanker had been parked in the POL area while the driver was completing the daily and preoperational checks. The fuel was circulated and tested. All operational requirements had been accomplished. At the same time the POL officer was in the area observing operations and discussing priorities for the day with the NCOIC (noncommissioned officer in charge). As the tanker proceeded toward the flight line, the POL officer noticed a small flame and a large column of smoke rising from the tanker. The base of the fire appeared to be in the area between the cab of the truck and the tank. The driver of another truck also had seen the smoke and was approaching the tanker from the opposite direction with his horn blasting in an attempt to stop the smoking vehicle.

The POL officer was alongside the tanker as soon as it was stopped. He instructed the driver to alert the fire station (about 60 meters away) as he grabbed the 15-pound CO2 fire extinguisher that was mounted on the front, right side of the vehicle. After completely expending the CO2 extinguisher without success, he used the 15-pound dry chemical extinguisher that had been mounted on the left, rear of the tanker. About half of the dry chemical extinguisher was expended when the fire truck arrived to completely put the fire out. The time between stopping the tanker and arrival of the firetruck could not have been more than a couple of minutes.

It was determined that the fuel for the fire was built-up grease and oil around the parking brake housing. By driving the tanker less than 100 meters with the *parking brake locked,* enough heat was generated to ignite the grease and oil.

Of course, all POL handlers/drivers were briefed about this incident and hopefully it won't happen again. The tanker was back in operation the same day. Think about it . . . who hasn't attempted to drive or actually driven a vehicle at one time or another with the parking brake locked.

(From *USAREUR Aviation Safety Officer's Kit*)

Second Air-To-Air Symposium

PLANS ARE underway for the 2nd Annual Air-To-Air Symposium to be held 31 October to 2 November 1978 at Ft. Rucker, AL. During October 1977 Ft. Rucker hosted the first Triservice Air-To-Air Symposium with more than 200 people representing all branches of the Armed Forces attending.

As a result of the symposium, considerable interest was generated and the Army now is involved in evaluating attack helicopters in aerial engagements. Whereas the first symposium was limited to military attendance and briefings, this year's format will be expanded to allow industry attendance. It is anticipated that the majority of the planned presentations will be from industry, but military briefings will be scheduled to cover upcoming and ongoing evaluations pertaining to aerial engagements.