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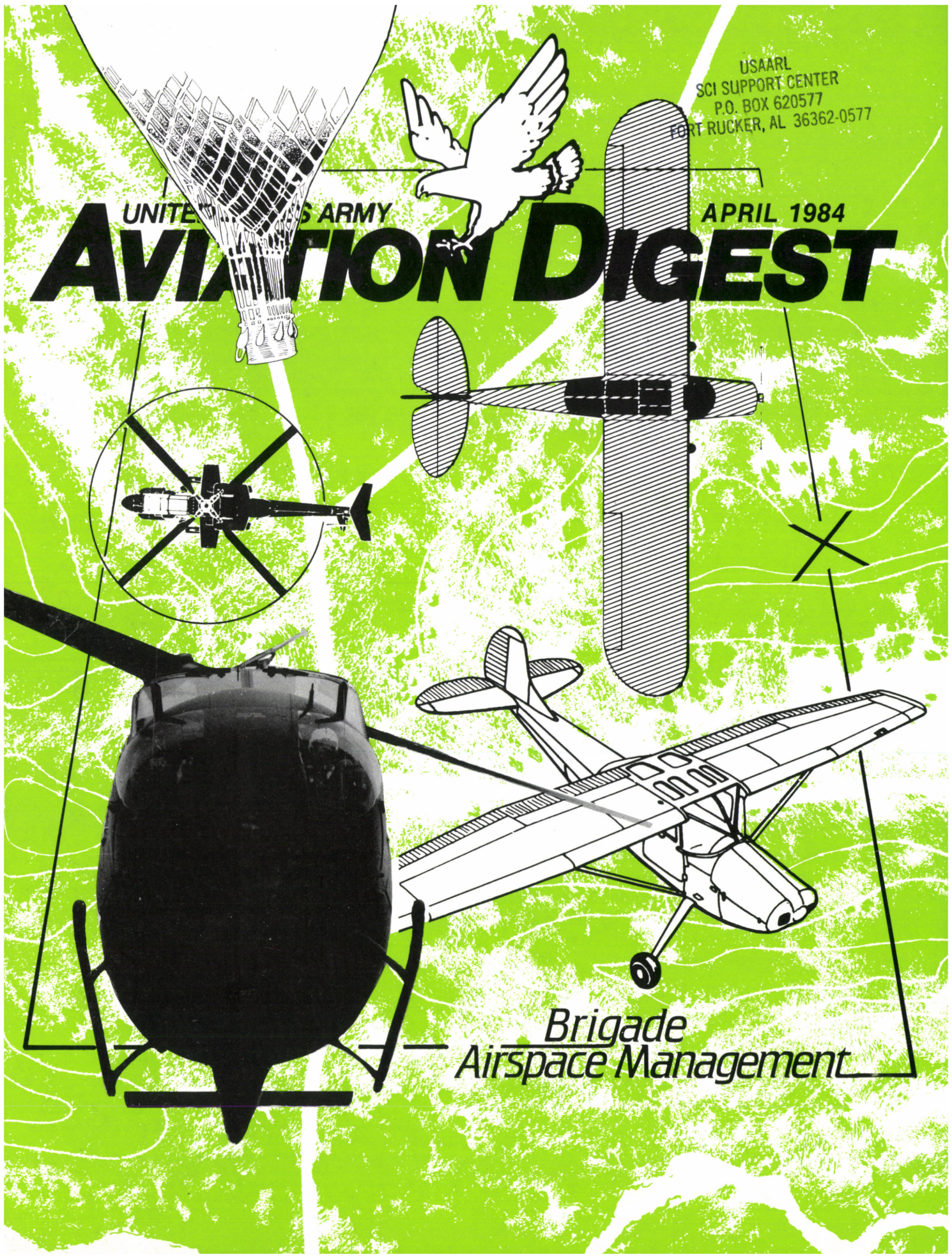

Brigade Airspace Management

APRIL 1984 • VOLUME 30 • NUMBER 4

★
Brigadier General Wayne C. Knudson
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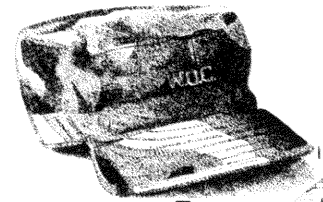

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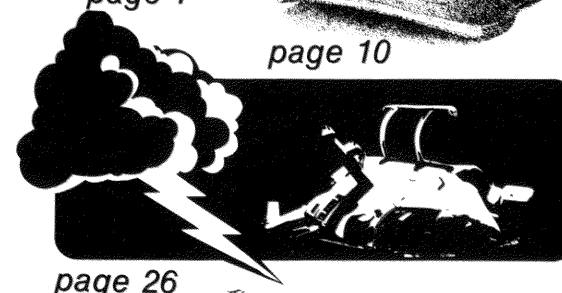

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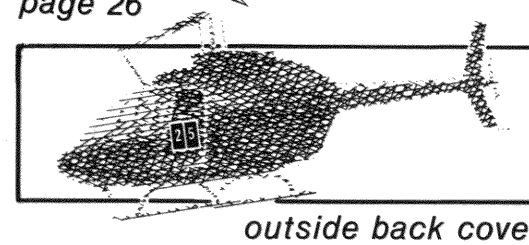

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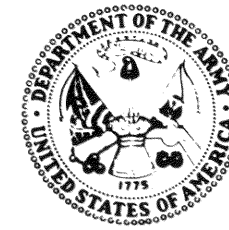

Richard K. Tierney
Editor

Honorable John O. Marsh Jr.
Secretary of the Army

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

The *Digest* is an official Department of the Army periodical published monthly under the supervision of the Commanding General, U.S. Army Aviation Center. Views expressed herein are not necessarily those of the Department of the Army nor the U.S. Army Aviation Center. Photos are U.S. Army unless otherwise specified. Use of the masculine pronoun is intended to include both genders unless otherwise stated. Material may be reprinted provided credit is given to the *Digest* and to the author unless otherwise indicated.

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

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ONE YEAR AGO this month, on 12 April 1983, the Secretary of the Army approved Aviation as a basic branch of the Army. In the August issue of the *Aviation Digest* we presented you the "Aviation Branch Implementation Plan" and later, articles about "School Model '83," the "Aviation Proponency Office" and last month "Training The Aviation Warrant and Commissioned Officers." These articles, two in this issue and those in the future, are intended to let you know how the home of the Army Aviation Branch has centralized Aviation proponency and training.

The lead article "Brigade Airspace Management, Part I," by Major William Coleman, reviews historically the use of airspace over the battlefield. He notes that in World War II during the invasion of Sicily, friendly antiaircraft guns downed several Allied aircraft; considering the high threat environment's density of aircraft, routine users of airspace—Air Defense, Field Artillery and Army Aviation—must integrate their efforts to avoid repeating the tragedy in Sicily and the users need to know the ground commander's battle plan to optimize their combined combat power.

One of the branch stories this month is by CW3 Robert Mitchell who describes the new 6-week branch immaterial "Warrant Officer Candidate Military Development Course." It is designed to teach acceptance of individual responsibility; to provide a foundation in military subjects; and to develop leadership, will, stamina and potential to perform as a warrant officer. The goal of the course is to produce highly qualified, system oriented warrant officers for the Army.

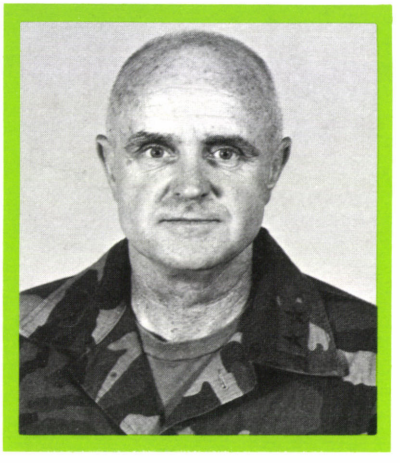
The other branch story, "The Aviation Officer Basic Course," by Mr. Ronald Fry explains that the course will fill the void that existed with no central agency for the dissemination of Aviation doctrine, operational concepts or tactics. The lieutenants' course will provide a foundation in combined arms subjects, NBC, weapons, map reading, communications/electronics and logistics.

The Army Safety Center's contribution to this issue, "Aftermath," is based on the experience of Sandy Purl, a flight attendant—survivor of a commercial airline crash in which 70 people died. She reveals her own psychological and emotional problems subsequent to the crash, how even rescuers, ATC personnel and others are affected following disasters; she outlines specific measures to help survivors and their families.

The "Report To The Field" by Colonel Jim Lloyd, director, Directorate of Evaluation and Standardization, explains the philosophy that has changed our Aircrew Training Program and what to expect in the future. Subjects emphasized are: tactical orientation; individual professionalism; unit readiness; and genuine care of Army aircraft because "...they're all we're going to have" if we go to war tomorrow.

Lieutenant William Hall, USAF, warns that "Spring Could Be Your Kiss of Death." The author, a weather officer, provides a concise guide to flight hazards to watch for right now and procedures to use when no other course is available if you must enter a thunderstorm.

This issue of the *Aviation Digest* contains concepts, factual material and other thought provoking information that is closely related to your profession—Army Aviation. You'll enjoy reading it and I'm sure you'll grow professionally by it.



Major General Bobby J. Maddox
Commander, U. S. Army Aviation Center
Fort Rucker, AL

PART I: Historical Background

Brigade Airspace Management

Major William E. Coleman
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U.S. Army Aviation Center
Fort Rucker, AL

The views expressed in this article are the author's and do not necessarily reflect those of any Department of Defense agency.

THIS MONTH THE *Aviation Digest* begins a series of four articles that will tell you how you might manage airspace in the brigade area. Air Defense, Army Aviation, Field Artillery and U.S. Air Force assets are routine users of the airspace above the brigade and battalion boundaries. Their employment must be integrated in the battle plan to ensure that they don't interfere with each other in the performance of their missions. A firm understanding of the ground commander's battle plan by the airspace users will directly affect mission accomplishment.

This series of articles will not discuss corps or division airspace management procedures, nor will they directly state how to conduct JAAT (joint air attack team) or J-SEAD (joint suppression of enemy air defense) operations. All of these procedures and operations are dependent on assets not under the operational control of either the brigade or battalion commanders. Due to technological improvements, today's Army Air Defense and Aviation weapon systems possess a greater acquisition and targeting capability than ever before. With the increased first-round hit probability of these systems, they could, if not managed properly, pose a significant threat to friendly aircraft operations.

The problem of destroying friendly aircraft by friendly ground weapon systems is not new. During the Allied invasion of Sicily in 1943, friendly antiaircraft guns shot down several Allied aircraft. Today's high threat environment will put more aircraft in less airspace than any war ever fought in history.

During the Civil War, Artillery units fired at observation balloons with no reported damage. However, the Field Artillery firing at the balloons was a significant enough threat to the observer and signaler to make them return to earth, often before their mission was completed.

During World War I, aircraft were initially used for aerial observations; then they began shooting down enemy aircraft and dropping bombs on ground forces. With this added threat to the battlefield, an air defense system was needed. The British set up an inner artillery zone around London as a means of separating the friendly and enemy aircraft. Friendly aircraft would either fly above the upper limits or around the area to avoid being shot down by their own air defense system. When enemy aircraft entered the inner artillery zone they were visually acquired, tracked and engaged by the ground weapon systems. This primitive air defense system was not very effective.

Enemy aircraft altitude and speed was difficult to determine, causing the gunners to fire numerous rounds in the vicinity they thought the aircraft would penetrate. On 19 May 1918, the enemy launched 43 aircraft to attack London. A total of 126 antiaircraft sites fired more than 30,000 rounds to shoot down only three of the attacking aircraft.

During World War II, aircraft flew higher and faster with bigger bomb loads and fired more bullets, which were an even greater threat to the ground forces. The need for a more sophisticated airspace management system was essential. The British successfully developed a radar that provided acquisition and tracking information to the air defense gunners and fighter aircraft. American and British scientists worked together to develop a radar system that proved to be far superior to the German radars. Not all units had radars, so aircraft sightings by ground and air observers were also very important.

Radios and telephones were used to pass aircraft sightings to a central operations center. The operations center would plot the information on a situation board while relaying the track data to air defense units along the flight path of the enemy aircraft. This system had its problems, especially during an enemy offensive air operation. Hundreds of aircraft sightings would be called in to the central operations center, which saturated the reporting system to a point that it caused the information not to be passed to the firing units in time.

Brigade Airspace Management

In North Africa, more than 6,000 enemy sightings were made with more than a third of them not being engaged by air defense units. Even visual acquisition was a problem, especially at night. During an Allied night operation, on 11 July 1943 in support of the Sicily invasion, Allied aircraft were engaged by our air defense system. Troop-filled C-47 transport airplanes and gliders arrived over our fleet when one gun opened fire. This set off a chain reaction that caused both Navy and Army antiaircraft positions to destroy or damage friendly aircraft. Out of the 144 aircraft, only 84 made it to their destination. There were 137 people killed and 162 wounded during this one joint operation. Shortly after World War II, while the nation was rebuilding the industrial base for commercial enterprise, the Korean War started.

In Korea, the majority of the air defense artillery weapon systems were left over from World War II. The quad .50 machineguns and the 40 mm (Dusters) were not used in the conventional air defense artillery role; instead, they were used to attack ground point targets. Air battles between U.S. Air Force and North Korean aircraft were so intense that very few enemy aircraft came in range of our air defense systems. The enemy however, was able to stage limited, infrequent air attacks on our air bases. These attacks were normally flown at low level and at night, in an attempt to reduce the effectiveness of our interdiction aircraft. Our aircraft would often fly deep interdiction missions through the enemy's air defense artillery systems. Their radar-controlled 12.7 mm and 37 mm guns accounted for nearly one-third of the 3,200 aircraft we lost during this 2½-year war. Helicopter operations proved to be a valuable asset as a result of this war, and, therefore, when the Vietnam War broke out the helicopter became a common instrument of war.

In Vietnam, the airspace management task of sorting the friendly aircraft from enemy aircraft was not a problem. The Air Force totally ruled the skies, and Army aviators generally flew their helicopters anywhere they wanted without fear of being engaged by friendly air defense artillery systems. However, when you don't rule the air, as was the case in the early part of the 1973 Mideast War, effective airspace management is essential.

During this Israeli and Arab war, which lasted only 18 days, Israel lost 90 aircraft. Most of these were downed by batteries of Russian-supported surface-to-air missiles. This was the first time the accurate and mobile SA-6 had been used in war. More than 2,600 missiles (SA-2, SA-3 and SA-6) were launched to down the Israeli jets. This mass of missiles fired at highspeed aircraft was not without error. There were 45 Egyptian and Syrian aircraft destroyed by their own air defense systems.

Israel was concerned about the number of surface-to-air missiles being fired at its aircraft. When they invaded Lebanon in 1982, the Israelis knocked out all 19 of Syria's Soviet-made, surface-to-air missile sites in Lebanon's Bekaa Valley. The lessons learned from the 1973 war proved to be effective in 1982.

During the battle over the Falkland Islands in May and June of 1982, the British also learned about the effectiveness of surface-to-air missiles as a valuable air defense system. One of the key lessons learned was about the capability of modern antiaircraft missiles to shoot down high-performance Argentinian aircraft. The Rapier missile was credited with nine aircraft kills. Also of interest is the fact that small arms fire accounted for six more. Indeed, history has shown the need for airspace management on the future battlefield.

The ground and air elements within the brigade area must be orchestrated in a single source document. An airspace management plan integrated into the brigade and battalion standard operating procedure (SOP) is the document that provides the essential information to manage the airspace. The plan causes both Army Aviation and Air

Defense Artillery (ADA) to be considered as a mutually supporting and reinforcing force of the combined arms team. It provides the routine procedures which will minimize the risk of accidental engagements of friendly aircraft, by either small arms fire or ADA units. The plan also allows for early planning considerations because it is written collectively by the ground, air and ADA units. The plan states the commanders' priority for ADA protection, the general location of the Aviation forward arming and refueling points, command, control and communications (C^3) available.

In major wars of the future, the enemy will outnumber us in armor, artillery and aircraft. Their high performance aircraft and attack helicopters will try to neutralize our air defense systems to gain freedom of movement over the ground forces. When the enemy attacks, the brigade and battalion commanders will have attack helicopters and ADA assets supporting their ground forces. The effective use of these systems through an airspace management plan will optimize their offensive combat power without destroying the friendly aircraft. Other articles in this series will describe how to manage the airspace. The ground and air doctrine battle will be presented in June, then the command, control and communications requirements. Following C^3, the training requirements that will provide cohesive integration of air and land forces will be presented along with a sample of an airspace management SOP covering the key air-land topics that should be considered before employing combat forces into battle.

Cape Canaveral, FL, 11 February 1984

Secretary of the Army John O. Marsh Jr. (left), congratulates then Lieutenant Colonel Robert L. Stewart, the first Army astronaut, upon the successful landing of his space shuttle flight Challenger at the Kennedy Space Center. On hand also to greet LTC Stewart, one of the first two astronauts to walk untethered in space, was Lieutenant General Arthur E. Brown Jr., director of the Army Staff in Washington.

photo by F.W. Smullen

PEARL'S

Personal Equipment And Rescue/survival Lowdown

Kelley Coles photo by Reflections Studio

We are looking for models who would like to pose for our PEARL'S photos. If you are interested and live in the Ft. Rucker area, contact us at 255-3619/6680.

Multiplace Liferaft (LRU-1P)

Aviation units requiring multiplace liferafts may now procure a seven-place liferaft under national stock number (NSN) 4220-00-071-1889. The following three items must also be procured to complete the major end item:

- Carrying case, NSN 4220-00-689-8173, which may be ordered from S9C Defense Construction Supply Center (DCSC), Columbus, OH.
- Accessory equipment container (empty), NSN 4220-00-289-4326, ordered from FPZ, Kelly Air Force Base.
- CO^2 bottle/inflation valve assembly, NSN 4220-00-535-7231, also ordered from Kelly Air Force Base. TM 55-4220-202-14 is the supporting manual for the LRU-1P liferaft assembly. AVSCOM item manager is Margaret LaRue. AUTOVON 693-3808/3809.

Nonstandard SPH-4 Flyers Protective Helmets

The following is a reprinted ALSE maintenance advisory message (84-1) 312000Z Jan 84, Subject: Nonstandard SPH-4 flyers protective helmets, regular and X-large, purchased under Contract DLA 100-83-C-4592, Gentex Corporation, Part Number 0104-0350, issued under NSN 8415-00-144-4981, regular and NSN 8415-00-144-4985, X-large.

Subject part numbered helmets are being issued with earcup retention assembly and chinstrap assembly not conforming to current Natick Research and Development Center specifications.

Earcup retention assembly nonconformities are as follows:

- The attachment clips differ from current issue.
- The earcup retainer assembly does not contain a grommet to facilitate the connection of the standard chin strap post and screw.
- Earcup retainer contains a Velcro overlap in addition to the nape strap.

The chin strap assembly attaches with double dot fasteners on both ends and contains a chin pad. The standard chin strap assembly has double dot fasteners on one end and secures to the other end with post and screw.

Stocking of parts for helmets purchased under this contract is not authorized due to nonstandard retention and chin strap assemblies and those parts not authorized for Army use. No spare parts were procured with these nonstandard part numbered helmets.

Helmets can be used as issued; however, when the chin strap *or* earcup retainer assembly must be replaced you must also replace the other. To say it another way, both assemblies must be replaced with standard assemblies when one or the other is replaced.

Maintenance point of contact for this action is Mr. James Angelos, DRSAV-MCAPS, AUTOVON 693-3880/3889.

CW3 Robert L. Mitchell

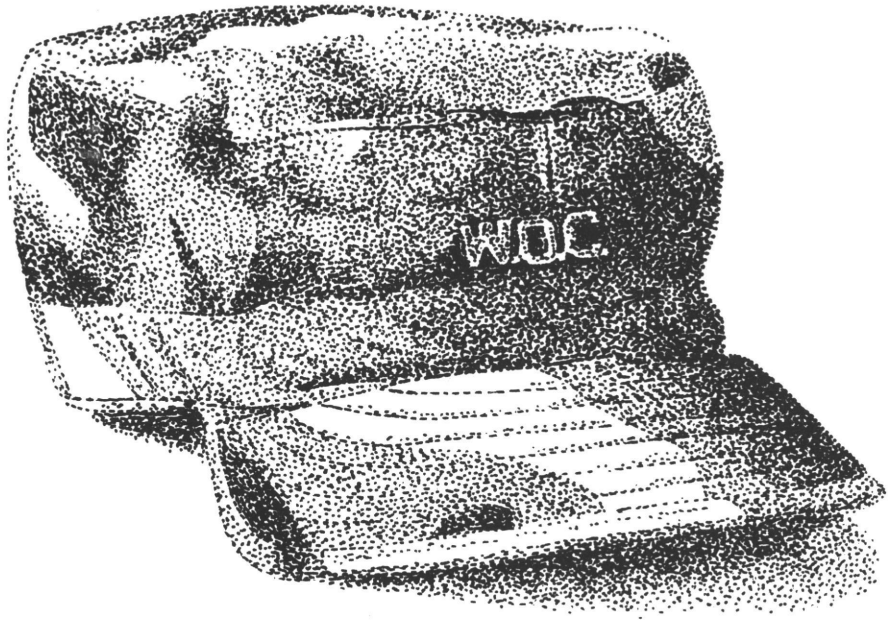


illustration by Paul Fretts

Warrant Officer Candidate Military Development Course

Last month Aviation Digest carried the article "Training The Aviation Warrant and Commissioned Officers." It provided an overview of the new training plan for Aviation officers, both commissioned and warrant, that has been developed since Army Aviation became a branch. This month the Aviation Digest takes a detailed look at the "Aviation Officer Basic Course" and the "Warrant Officer Candidate Military Development Course."

THE WARRANT OFFICER Candidate Military Development Course (WOCMDC) is the cornerstone course in the Warrant Officer Education System. It is a branch immaterial 6-week course which emphasizes personal and professional development. It molds people of varying backgrounds into potential U.S. Army warrant officers.

Prior to August 1977, WOCs underwent candidate training concurrently with flight training. The pressures of performing officer development tasks in the company and balancing the load of both the classroom and flight line resulted in a task overload for the candidates. It became apparent that it was not cost effective to schedule flight training resources only to have WOCs self-eliminate because of stress. Relief from the overload required a separation of the military development from the flight training. A command decision was needed to implement such a WOC Military Development Course.

In a Memorandum for Record, 3 June 1976, BG Robert Holloman, then deputy commanding general, Ft. Rucker, AL, noted, "The 6-week WOCMDC should reduce WOC attrition related to Self-Initiated Elimination currently experienced during the flight phase of training." General Holloman directed a 6-week course designed to train leadership, measure ability to cope under stress, develop a strong will to achieve, plus build and improve physical and mental

stamina *prior to* flight training. The program also facilitated the identification and elimination of those not having the potential nor ability necessary to become a warrant officer. Basic skills as an officer and leader also had to be assessed before more than $100,000 in aviation technical training were invested. From this aviation oriented beginning, August 1977, the WOCMDC developed into what is now a branch immaterial course.

The purpose of the current WOCMDC is to:

- Teach acceptance of individual responsibility.
- Provide knowledge of military subjects essential to performance as a warrant officer in the U.S. Army.
- Develop leadership, will, stamina, physical conditioning and potential as a future warrant officer.
- Eliminate those individuals who do not demonstrate the motivation, ability, stamina and leadership necessary to become a warrant officer.

The course consists of 29 hours of administrative time and 212 hours of academic instruction designed to develop the WOC mentally and physically. The candidates study communicative arts such as the preparation and presentation of military briefings and receive instruction in military correspondence, staff studies and other written forms of communication.

The WOCs study the military personnel management system; a highlight during one of the blocks of instruction is the group discussion between the candidates and a panel of senior warrant officers. The classroom instruction combined with the group discussion aids the candidates in identifying and defining their future roles as U.S. Army warrant officers.

The development of the candidates as leaders is emphasized through the block of instruction known as warrant officer development. During this block, the WOCs undergo continuous leadership performance evaluation and counseling. They also complete a leadership reaction course. Company activities and classes presented by the training, advising and counseling (TAC) officers reinforce the development of leadership traits. Other subjects covered during this block of instruction are unit administration, history of the warrant officer and map reading. Additionally, prior to completing this block, candidates participate in day and night land navigation exercises through the forests of Ft. Rucker.

The 6-week program is intense and being ready to go on the first day is a must. Prior to training day 1, unit and post in-processing must be completed. This requires about 4 full duty days. Allowing time for in-processing, settling the family and making last minute preparations require reporting 5 to 8 duty days before the start date of the class. MILPERCEN (Military Personnel Center) is aware of this need and a candidate's orders should reflect an early arrival. Once training begins, each minute is used from wake up at 0500 until lights out at 2200.

The WOCMDC may be viewed as consisting of three phases with each phase being 2 weeks long. In training weeks 1 and 2 (phase I) the WOCs are introduced to a highly regimented routine. They learn that there are required standards of performance that must be met. Failure to meet the standards brings prompt and specific attention from the candidates' TAC officer.

Training weeks 1 and 2 are considered to be the hardest. Two lessons WOCs must learn are time management and teamwork. In an effort to become organized, WOCs often spin their wheels by using their time ineffectively and develop the impression that they are being tasked to perform more than can fit into 1 day. Individual stress can seem overwhelming, but through teamwork and peer support the demands of the course become livable. During this period TACs are seen as being intimidating, overdemanding and out to make the entire 6 weeks miserable. Recent comments from candidates in this phase of training reflected the following thoughts:

- Shock, fear, depression and confused.
- Could not believe I volunteered for WOCMDC.
- Extreme regimentation, but I can make it.

Training weeks 3 and 4 (phase II) emphasize "attention to detail." Inspections of the candidates' living areas (cubical inspections) often result in the assessment of demerits. An ailment known as "inspection sickness" begins to appear. The maintenance of high standards requires that each new demand be countered by the candidates' will to achieve.

For those interested in applying for training as an Aviation Warrant Officer:

- ☐ Eligibility requirements and course prerequisites are stated in DA Pamphlet 95-1, The Warrant Officer Candidate Flight Training Program, 15 Nov 1983.
- ☐ Application and selection procedures for Warrant Officer training are specified in AR 611-85 and DA Pamphlet 95-1.

A new dimension of stress, the academic exam, enters the picture during week 3. Teamwork combined with efficient time management begins to reduce the time expended on routine details. This in turn makes more time available for study.

Also, during this phase the candidates realize the esprit de corps being developed through teamwork. This esprit de corps is shared by most of the class, but a few candidates still unfortunately cling to an "every man for himself" attitude. By week 4, the WOCs notice the increased officer skills being acquired. Student comments about this phase of training reflect a change in attitude and perception from those expressed during weeks 1 and 2.

- Encouraged by self-improvement—higher morale.
- Easier even though demands and responsibilities become greater.
- Almost everybody learns to be a team member.

Training weeks 5 and 6 (phase III) bring within view the light at the end of the tunnel. Class togetherness and esprit de corps are now well developed. Leadership positions have been rotated weekly and the candidates have learned to appreciate the responsibility of command and the importance of following orders. Much of the management of the class has in fact been turned over to the candidate chain of command. The candidate commanding officer, executive officer and first sergeant, under cadre supervision, ensure that all scheduled training is accomplished.

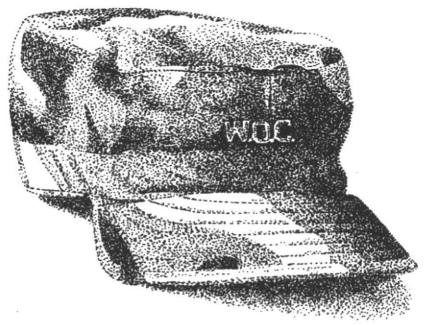
The WOCs are still working hard during this phase, but they are working with much greater efficiency than during phases I and II. Because of this, the candidates often find time to execute some morale boosting pranks. The class, even the entire WOC company, realizes a greater esprit de corps as a result.

The candidates' view of their TAC officers has also changed by the end of phase III. The TACs are now seen as being not as overdemanding as in earlier phases. Instead they are viewed as examples to strive to equal, and recognized as builders of future warrant officers. Student comments in this final phase of training reflected these thoughts:

- WOCMDC has a lot of stress, but no abuse.
- TACs do not ask the impossible—most of the time.
- Everything done here has a meaning, if you look for it.

Efforts are already underway to improve training for future warrant officer candidates. The Field Artillery School at Ft Sill, OK, is developing and validating a new warrant officer entry course (WOEC). The WOEC will provide common entry level training to all WOCs regardless of projected military occupational specialty (MOS). The WOEC will be followed by technical training in the individual's warrant MOS. It is expected that the WOEC will be implemented at Ft. Rucker on 1 October 1984. The implementation of the WOEC will require a modification in current academic content and WOC company operations.

The goal of the existing WOCMDC and the follow-on WOEC is to produce highly qualified, system oriented warrant officers for the Army. The course at Ft. Rucker has, and will continue to train Aviation warrant officers who are "Above the Best."



ABOUT THE AUTHOR

CW3 Robert Mitchell, Aviation, is serving as an instruction methods developer, Course Development Division, in the Directorate of Training and Doctrine, Fort Rucker, AL. His last 21 months as a developer have involved managing the WOCMDC program of instruction and assisting to bring the WOEC to Fort Rucker in October 1984. He had previously served 19 months as a TAC officer and understands the mission of training WOCs from the first line supervisor point of view.

MONTHLY WRITING AWARD

Mr. Ronald G. Fry

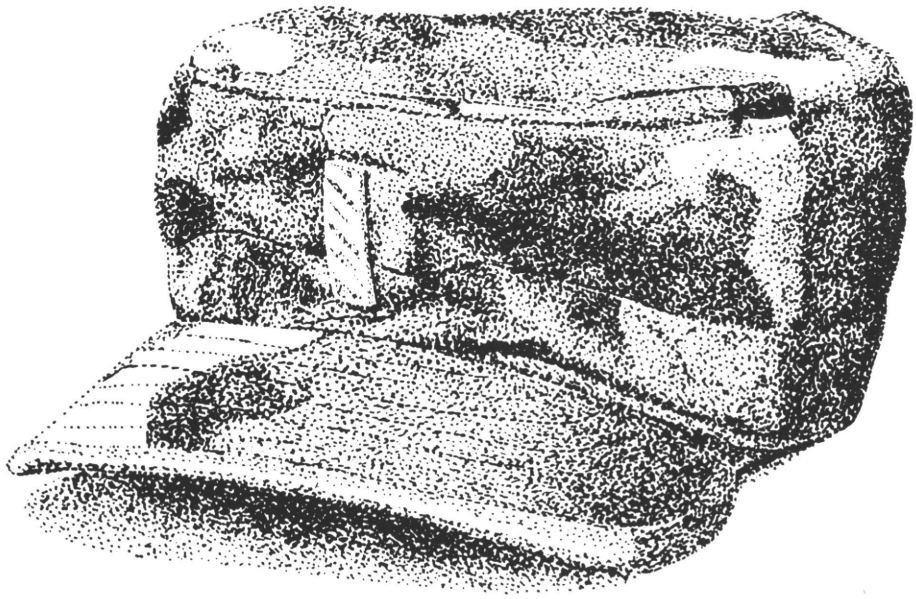


illustration by Paul Fretts

The Aviation Officer Basic Course

UNTIL AVIATION was designated a branch, officers were not accessed directly into Specialty Code 15 (SC 15), Aviation. Rather, Aviation commissioned officers (ACO) belonged to one of the branches of the Army which were authorized to have aviators. Correspondingly they received their officer basic course training through their assigned branch school, i.e., Infantry, Armor, Artillery, etc. Only after volunteering for and completing flight training were they awarded Aviation.

Now that Aviation is a branch in its own right, officers will be accessed directly into Aviation, just as they are into the other branches. The first step in qualifying newly commissioned lieutenants in Aviation will be their successful completion of the Aviation Officer Basic Course (AVNOBC) at the Aviation Center, Ft. Rucker, AL.

Training presented to students during the basic course will be a continuation of the officer education system which began during the precommissioning years in Officer Candidate School, Reserve Officer Training Corps and the U.S. Military Academy. During the precommissioning period the prospective officer received instruction at the Military Qualification Standards I (MQS I) level. Emphasis was placed on basic military skills and professional knowledge which provide the foundation upon which to build a professional Army officer.

The MQS II level of training addresses the first 3 years of commissioned service, the years normally served as lieutenant. Much of the training is branch oriented and

designed to prepare the lieutenant to function effectively at the platoon or equivalent level.

The basic course is the initial phase of the ACO's MQS II education. It provides newly commissioned Aviation officers with professional military training to develop them as soldiers, leaders, trainers and officers. Newly commissioned lieutenants of the Active Army or Reserve Components who have been designated Aviation, are eligible to attend the course. They must meet the prerequisites established by AR 611-110, "Selection and Training of Army Aviation Officers."

Officers incur a 4-year service obligation upon completion of flight training. Very little of the instruction in the basic course is Aviation specific. The basic course will train the officer in those basic military skills required of all officers, regardless of branch. The Aviation peculiar, technical and flying skills required of the ACO will be acquired after completion of AVNOBC while attending flight school and various other technical, functional and skill progression courses.

During the basic course the lieutenants will be exposed to a broad range of subject matter designed to provide them with the professional development skills and knowledge required to be effective leaders at the Aviation section and platoon level. The basic course students will study selected military history to increase their understanding of the operational aspects of past military actions and to provide them with a method for the systematic study of this subject. They will receive extensive instruction in principles of leadership, management, counseling techniques and equal opportunity. This will give them a firm foundation upon which to build and refine their leadership skills throughout their careers.

The Combined Arms Subjects block of instruction will introduce the lieutenants to the way the Army fights its battles and campaigns. It will include instruction concerning tactics, procedures, organizations, support and training required to fight, survive and win on the modern battlefield. They will be introduced to the concept of the combined arms team—where and how each type of unit contributes to the accomplishment of the overall mission and how they and their organization fit into the picture. A discussion of Threat forces, organization and tactics also will be conducted during this phase of instruction.

The nuclear, biological and chemical (NBC) block of instruction will provide the students with some of the knowledge necessary to operate and survive in an NBC environment. The block will include instruction in chemical agents and NBC protective equipment. Additional in-depth NBC instruction will be presented to the students during the flight training phase of their SC 15 qualification.

Since Aviation units will have to be able to defend themselves in a combat environment, an extensive block of instruction about weapons will be presented to AVNOBC students. They will be taught to set up small arms ranges and to conduct marksmanship training. They will qualify with the M-16 rifle and fire other individual and crew-served weapons for familiarization. Weapons the lieutenants will receive training on include: the M-203 grenade launcher; M-60 machinegun; M-72A2 light antitank weapon; M-2, 50 caliber machinegun; and the TOW (tube-launched, optically-tracked, wire-guided missile) and Dragon weapon systems. They also will be introduced to the MILES (Multiple Integrated Laser Engagement System) and how it is used to enhance Aviation officers' training.

Map reading skills will be sharpened through in-depth classroom instruction and practical exercises in the field using 1:50,000 scale maps, coordinate square, protractor and compass. The students will be taught basic map reading, topographic and military symbols, map orientation, terrain association, route reconnaissance, overlay techniques and cross-country land navigation using map and compass. They will be required to demonstrate these skills during both a day and a night land navigation course exercise through the swamps and forests of Ft. Rucker. They will receive additional map reading and navigation instruction when introduced to the various Aviation maps and charts during flight school.

Communications/electronics instruction will train the students to operate and maintain tactical communications equipment. Students will learn to operate equipment such as the AN/VRC-12 series radios, TA-312, and TA-1 telephone sets and to erect various types of antennas. They will be taught radio net structure, radio telephone procedures, communications security, proper use of the communications-electronics operations instructions, and operations codes and ciphers. Electronic warfare and electronic countermeasures instruction will be integrated throughout this block of instruction. Communications/electronics instruction also will be reinforced and expanded during flight school.

Of course, no officer training program would be complete without a discussion of logistics. The AVNOBC will include instruction in management and supervision of maintenance and supply operations at the unit level. Included is instruction about the Army maintenance system, maintenance records and reports, repair parts supply, preventive maintenance, driver's training and unit supply procedures.

The Aviation Officer Basic Course

A model motor pool is being prepared to give the students some hands-on maintenance training. Much of the maintenance training will be conducted here. Under the supervision of qualified instructors, students will assist in performing preventive maintenance checks and services, periodic services and quarterly services on wheeled vehicles, gas powered generators, communications equipment and Herman Nelson heaters. They will learn how to establish and maintain a prescribed load list and equipment records and to complete a materiel readiness report. Between the book work and the greasy fingers work the lieutenants will gain a good working knowledge of the Army maintenance system.

The AVNOBC culminates in a 5-day field training exercise (FTX). During this FTX the students will be placed in a simulated tactical environment and through role playing exercises, apply the skills and knowledge learned in the basic course to perform typical unit tasks. This will allow the students to participate in the planning and coordination required to accomplish the command mission and encourages the students to use their initiative when faced with problems for which there are no "school solutions."

As was stated earlier, the basic course is only the first step in qualifying lieutenants as officers of the Aviation branch. Shortly after graduating from the basic course, the students will start the second phase of their Aviation training. This training is presented during the Officer/Warrant Rotary Wing Aviator Course. It is during this phase of training that the lieutenants will acquire their flying skills.

The basic course is scheduled for a course length of 8 weeks and 3 days. During the time that the basic course is being brought on line, the majority of ACOs will continue to receive their basic course training at the various branch schools. They will then receive their flight training at Ft. Rucker. Some lieutenants will be selected to participate in the basic course validation to be conducted during the summer of 1984. These officers will receive all of their training at Ft. Rucker.

The first of three validation classes will report on 2 July 1984, with the second class reporting on 31 July 1984, and the last of the validation classes reporting on 28 August 1984. Based on observations of the validation classes and comments of these students, any shortcomings will be identified. The curriculum will then be revised to eliminate the shortcomings and more adequately meet the training needs of future students. During the time that these revisions are being made to the course, Aviation lieutenants will attend other branch basic courses before coming to Ft. Rucker for flight training. The AVNOBC is scheduled to resume at Ft. Rucker in January 1985, with a projected student input for fiscal year 1985 of about 700 students.

The Aviation Officer Basic Course will fill a void which has long been recognized. In the past, there was no central agency for the dissemination of Aviation doctrine, operational concepts or Aviation tactics. With the designation of Aviation as a separate and distinct combat arms branch, proponency for Aviation employment doctrine and tactics has been centralized at Ft. Rucker. This proponency coupled with the establishment of a progressive, career-oriented education system for Army aviators will provide the vehicle to rapidly field the latest Aviation employment concepts. In addition to supplying the Army with a highly trained Aviation officer, it will also furnish ground commanders with the expertise they need to fully exploit the Aviation resources available to them. It is this combination of air and ground forces, acting in concert, which will prove to be decisive in the successful execution of offensive actions on the extended battlefield as we fight the AirLand Battle.

ABOUT THE AUTHOR

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Coming Next Month

The next article of this series will address the second step to be taken in the qualification of commissioned officers, warrant officers and warrant officer candidates as Army aviators. The Officer/Warrant Officer Rotary Wing Aviator Course, commonly referred to as "flight school," provides training in basic combat flying skills and in Aviation employment doctrine to the Army's future aviators.

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AVIATION PERSONNEL NOTES

New Flying Evaluation Board Procedures

THE FLYING EVALUATION Board (FEB) is the procedure available for use by the commander to evaluate the professional attributes of Army aviators. When an individual's ability to pilot an Army aircraft is placed in doubt, the FEB is the administrative procedure used to examine that officer's qualifications and potential for continued Aviation service. The recommendations of the FEB are advisory and are only the first step in the process of removing or restoring an individual to Aviation service.

A Flying Evaluation Board may be convened when an aviator demonstrates a lack of proficiency, undesirable habits or traits, insufficient motivation, fails to complete a graduate flight training course or violates flying regulations. Additionally, an FEB may be convened at the request of the aviator for voluntary disqualification or at the direction of Headquarters, Department of the Army (HQDA) or Chief, National Guard Bureau (NGB). It is important to also remember that disqualification from Aviation service will never be used as a punitive measure or a substitute for proceedings under UCMJ (Uniform Code of Military Justice).

Effective 1 January 1984, there is a new AR 600-105 on the street. Chapter 4 of this regulation and AR 15-6 determine the authority for the conduct of an FEB. The new regulation changes the approval authority for FEB proceedings effective 1 January 84. This means that for FEBs initiated (temporary suspension by the unit commander) prior to 1 January 1984, the final approving authority remains HQDA (DAPC-OPA-V) or Chief, NGB (NGB-AVN-OC). FEBs initiated after that date will be approved by the lowest level authority exercising general court-martial (GCM) jurisdiction. As an exception to this rule, the Chief of NGB will continue to approve all FEBs for Army National Guard aviators.

If the GCM authority approves the disqualification or requalification of the aviator, the FEB documentation will be forwarded to HQDA (DAPC-OPA-V) to be filed permanently in the aviator's official military personnel file. Additionally, this action will cause MILPERCEN (Military Personnel Center) officials to remove or reinstate the officer's Aviation specialty code, cut appropriate orders and change the officer's pilot status code (PSC). If the officer is disqualified, his entitlement to Aviation Career Incentive Pay is terminated effective the date of his temporary suspension.

If all these terms sound strange to you, better read the new AR 600-105. The Flying Evaluation Board is the qualitative management tool of the Aviation community. Those of us who fly need to trust in the competence of our fellow aviator. The FEB assists us to police our own.

The AH-64 Apache Branch was officially designated on 20 January at Hanchey Army Airfield, Ft. Rucker, AL. It is named for the new advanced attack helicopter that is in production and scheduled to be at Ft. Rucker this year.

The AH-64 can respond to the ground commander's scheme of maneuver, totally independent of ambient (environmental) lighting. It also can operate in a variety of adverse weather conditions.

The newly commissioned branch, commanded by Captain Thomas G. Wills, will continue conducting aviator qualifications in the Pilot Night Vision Sensor (PNVS), one of the major integrated subsystems of the Apache.

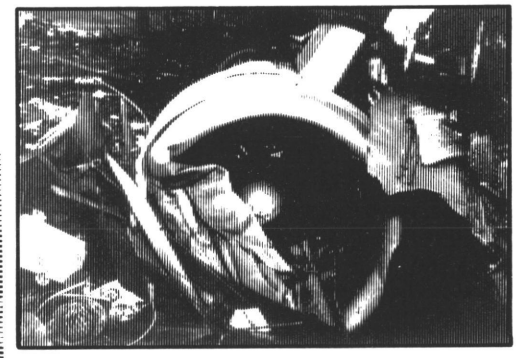
CPT Wills said, "By the end of this year, the AH-64 Apache Branch will have completed PNVS qualification of 46 aviators and instructor pilots." He added, "The formal Apache aviator qualification course will begin at Ft. Rucker on 14 January 1985."

The new branch begins with six instructor pilots and one

photo by PV2 Shawn Hawkins

PNVS surrogate trainer aircraft. Above: Chief Warrant Officer, CW4, Michael L. Talton prepares for takeoff in the modified AH-1S Cobra helicopter. The branch will eventually grow to 41 AH-64A, 10 AH-1S PNVS surrogate trainer aircraft and 96 assigned instructor pilots.

Aftermath



What happens to accident survivors and other people who are involved in disasters after everyone else has begun to go on with their lives? This article is based on the experiences of one such person—it is her hope that it will help someone else who survives to find their way back.

GENERALLY SPEAKING, not very much is written about what happens to accident victims after the immediate rescue and lifesaving operations have ended. One of the reasons for that is that we human beings simply do not want to think about such things—but where does that leave the victim who survives?

According to Sandy Purl, herself one of the survivors of an airline crash in which 70 people died, it leaves you very much alone. The trauma she faced after the accident contributed to the breakup of her marriage, and at one time she was convinced had cost her her sanity.

It was a stormy spring afternoon in April 1977 when the

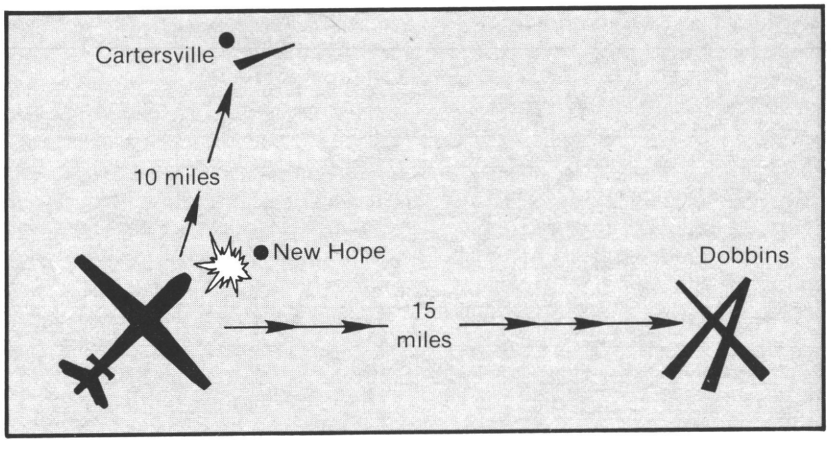
DC-9 with a crew of 4 and 81 passengers, most of them businessmen, left Huntsville, AL, en route to Atlanta, GA. The crew, who had flown in bad weather all day the day before had had about six hours of sleep and were on the eleventh leg of their second day of flight. Approximately 20 minutes after take-off the aircraft encountered severe turbulence at 14,000 feet. Heavy rain and hail the size of softballs battered the airliner, shattering the outside panel of the pilot's windshield and cracking the inner panel. Shortly after entering the storm, power to both engines was lost and the electrical system failed with loss of lights, radios, and recorders. As the aircraft glided down in a circular or S-turn pattern to approximately 7,000 feet, communications were regained and the flight was to be vectored to Dobbins Air Force Base, GA, approximately 20 miles away. When the crew saw it was impossible to make Dobbins, flight was vectored to a small airport located 10 miles north at Cartersville, GA. As it became apparent that neither airport was reachable, the last transmission on the cockpit voice recorder is that of the Captain saying, "We're putting it down on the highway—we're down to nothing."

As the pilots attempted to land on a two-lane highway with gear and flaps fully extended, the aircraft struck trees, poles, cars, and a small combination grocery store and gas station. Fuel exploded and the aircraft broke up. Sixty-two people on board the DC-9, including both pilots, and eight townspeople in the vicinity of the store died. Twenty-two others on the aircraft and one person on the ground were seriously injured. The remaining person on the plane was slightly injured.

In the few minutes encompassing the emergency, the flight attendants waited for instructions from the Captain to prepare the passengers for landing. As the aircraft was buffeted about in the severe turbulence and pounded by hail, the cabin lights went out. Sandy Purl, one of two flight attendants on board, was in the jump seat located between the restrooms and the engines. When no word came from the flight deck, she and the other flight attendant began briefing passengers on seatbelts and emergency procedures. Passengers were told how to locate and open emergency exits and were asked to remove their shoes (a procedure since modified but thought necessary at the time to prevent high-heeled shoes from rupturing emergency exit chutes). The passengers, who were remarkably calm, repeated their instructions. The attendants were going through the emergency procedures in which they had been trained, but as Sandy Purl stated later, nothing in their school training had prepared them for the realities of the fiery crash that was only seconds away.

The two attendants were so occupied with instructing passengers and securing loose objects that Sandy said she didn't know where they were but she thought they were coming in for a landing. Just before impact, she saw tops of trees from the window and realized they were not landing at any kind of airport. She yelled to the passengers to grab their ankles. The aircraft touched down, rose up over a car, and slammed into the highway.

Fire from exploding fuel tanks swept through the cabin, setting clothes and hair afire. Finding the emergency exit door jammed, and realizing there were only seconds before toxic fumes would asphyxiate passengers, she started toward the tail cone exit. As she stepped through a wall of fire, she found herself on the ground. The tail section had broken off.



There were two explosions behind her and she hit the ground then jumped up and ran to the highway where she flagged a truck to send for help. She was told later by the fire chief, who was driving the truck, that she was carrying a man under each arm. Sandy Purl, who is a slightly-built young woman, has no recollection of rescuing the men.

The aircraft had gone down in a semirural area but as fortune would have it, the small town of New Hope, GA, had only the week before completed a disaster exercise involving volunteer fire and rescue units and the county hospital. Response to the crash was both rapid and well-organized. The crash was only two and one-half miles from the fire station.

As help arrived, Sandy located and covered the body of the Captain. She found the first officer alive, still strapped in his seat which had broken free. (He died in a helicopter en route to the hospital). She thought the other flight attendant, who had been seated just aft of the cockpit, was dead until she heard her voice calling "Sandy" when she arrived at the hospital. The aircraft had broken apart just behind the cockpit and the other attendant had climbed out and down one of the trees which had been struck. She was virtually uninjured.

Sandy Purl began flying again three years ago and she flies regularly between Atlanta, GA, and Dothan, AL, with Republic Airlines. That is how she met Colonel Joseph R. Koehler, Commander of the Army Safety Center at Ft. Rucker, AL. As she described to him the psychological and emotional problems she encountered following the crash, he saw some possible parallels in her experiences to those of military pilots. At his invitation, she came to the Army Safety Center in February 1984 where she talked to a class of aviation safety officers, accident investigators and other Safety Center personnel.

There was tense silence in the room as Sandy described the last moments of Flight 242. But for her, the trauma only began with the crash—it would not begin to heal until a year and a half later. It was these experiences that she had come to the Safety Center to share. As she explained, not only accident victims but fire and rescue personnel, hospital workers, air traffic controllers, investigators and other people who deal with disasters are affected by such experiences.

Sandy stayed at the crash scene for more than an hour until "I just couldn't look any more," she said. After she reached the hospital she found she still couldn't let go, "I had to take care of things, I had to take care of my company." When an airline representative arrived to take over, the shock and pain finally hit her. She would remain in an Atlanta hospital for three weeks and then in a hospital in New Orleans for two more weeks. Most of the survivors were in critical condition, many badly burned. While most of her hair, eyebrows and lashes were burned off and her feet badly cut, the most serious injuries were to her neck and back, requiring her to wear a brace for two and one-half years.

Sandy's physical injuries were minor compared to the emotional and psychological pain she would suffer. She said that she felt that if she had had a disfiguring injury, or had lost an arm or leg, people would have understood how much she hurt; but because she looked all right, they thought she must be all right, and they told her how lucky she was; she was young and she was alive.

Sandy Purl didn't feel so lucky—the emotional and mental pain that was to ultimately lead her to think she was insane began at once. She was 24 years old and had been married for a year at the time of the crash—within the next year she was divorced and had lived in six states. When she was released from the hospital, she found that she could not stand to be alone and she returned to Atlanta where her family lives. Shortly before the National Transportation Safety Board hearings she tried seeing a therapist, but she was unfortunate enough to choose someone who was himself committed shortly thereafter for psychiatric treatment. She began to feel that she could trust no one and that somehow she was responsible for his illness, that she was still hurting people. She refused to see another therapist and she began trying to run away from the pain.

Sandy was already suffering from overwhelming guilt because she was alive while others had died. She felt responsible for her passengers and felt that there must have been something she should have done that she didn't do or she must have done something that she shouldn't have.

A year and a half passed, she weighed 89 pounds, had been crying for a month and was having frequent hallucinations where she would suddenly see the dead Captain's face. One day, she found herself in Salt Lake City, UT, with no memory of how she got there. That is when she walked into a hospital emergency room in a state of hysteria and asked for help, and for the first time, she found someone who understood. "You really do feel that bad, it really hurts that much and I'm not

going to tell you it's all right because it isn't, it stinks, and it's not going to be all right—but you're going to be fine," she was told by a psychiatrist. He also said that until she could release all of the feelings and emotions she had bottled up, things would not get better. She was advised to go home, settle down, and find a therapist to help her.

Up to this point, people had wanted to protect her. She felt they were trying to cover up what had happened to her so that it would go away. She said, "They don't know what to do so they help condone your state of mind and help you stay where you are because it's more comfortable for them. The fact that they do this out of compassion, not animosity, doesn't make it any better—you're caught in a cycle of 'forget it and go on.'"

Sandy drove back to Atlanta and remained in therapy for two and one-half years. Her recovery was difficult, "I realized finally that this experience will never leave me, I will never forget it. The thing was, how could I make the transition back into the real world. If it's going to be there, how could I use it as a positive experience and help other people to know what to do?" she said. One of the ways she has found is to tell others some of the things she had to face. She is one of more than 100 flight attendants and other survivors of aircraft accidents, who with the assistance of psychologists, have identified some of the things in their experiences that can help people identify symptoms in individuals who are suffering from such trauma. Generally there are four types of reaction: psychological/emotional, cognitive, physical and behavioral.

Psychological/emotional

"Initially there is psychic numbing; you don't hurt, you don't feel anything at all," she said. Then you feel guilty that you couldn't or didn't do something about what happened. There are all kinds of fear involved. Sandy had a phobia about smoke. Helicopters or sirens would trigger something in her subconscious and she would be huddled against a building without realizing what she was doing until she became aware that people were staring at her. She experienced wide mood swings; from laughter at one minute to hysteria the next. She had a low tolerance to insensitivity. People might say something that struck a deep vein, without ever realizing what they had done, and she would find herself "flying off the handle," sometimes in a roomful of strangers. There were feelings of anxiety, depression, grief and great sadness. Sandy emphasized that crying can actually be a relief. The person needs to cry but often when other people see someone crying they think that it is a person totally out of control.

She stressed that all of these emotions have to be materialized before the survivor can go on with life. If they are not, they can cause problems later on, even after the person seems to have recovered and may have gone back to work.

Cognitive

When people have survived such disasters, their thought processes are less precise, there is mental confusion, and they may have trouble setting priorities and making judgments. She found decisions, even about whether to stay up or go to bed, to eat or not eat, could be overwhelming. People have trouble concentrating and memory is impaired. Sandy said that when the time came for the National Transportation Safety Board hearing she was not consciously aware that any children had been killed. She knew there were none on the airplane. When she realized that there were children killed she went through another psychological trauma. She felt people had tried to protect her by withholding information about her experience that she had a right to know. But the fact was, she had known about the children; she had talked about it in the hospital. She simply couldn't remember it. She also warned that medication and drugs given to such victims distort and cloud their perception and memory of what happened.

Physical

Sandy found that her speech was affected and she stuttered for a while. The interaction between mind and body also causes ailments such as gastrointestinal problems, insomnia, skin rashes, hyperventilation, headaches and muscle spasms. Symptoms can sometimes resemble those of a heart attack. "You may be told these conditions don't exist, that they're brought about by the mental anxiety; but you don't feel good, they're real symptoms," she emphasized.

Behavioral

The way people act is a manifestation of their ability to cope with their psychological, emotional and cognitive state. They should be given whatever information they need (but no more than they ask for) in order for them to integrate the experience. Some people may show a tendency to try to protect themselves from everything.

In maladaptive behavior people may set themselves on a totally self-destructive course. They feel all the emotions but believe no one understands and they won't stand still long enough for anyone to help them. Sandy said,

"Living in six states in one year is a good example of that kind of behavior." People can easily get into a cycle of alcohol abuse and drug use in order to escape. Others fall into a pattern of hyperactivity in order not to face their inner feelings. Victims should be made aware of the importance of sleep, good nutrition and exercise.

Sandy had a problem with displacing. The person who does this destroys relationships by provoking negative interactions with other people. She says she now knows that's what she did with her husband. When he tried to tell her about his negotiations with management on her rights and benefits she swore he was making things up. The way she saw it, she'd been with the company longer than she'd been with him and in her way of thinking he became the adversary. Things he tried to do to be helpful she saw as something entirely different. Communication became almost impossible.

There is a tendency to withdraw into isolation. During the two and one-half years she was under treatment in Atlanta, Sandy lived with her twin sister's family. She said that her sister, Candy, could not leave a room without Sandy following her. She was insecure and phobic to the extent that she wouldn't go outside and would not establish relationships outside of her sister's family. Candy became the mother figure and the only person who could cope with her sister. However, she also became a victim since the pressures of Sandy's mood swings and anxieties and trying to integrate this into her own family caused her to require psychotherapy in order to cope.

Sandy outlined some of the things that can be done to help disaster victims.*

- Get to them as soon as possible. The sooner you go to people to start helping, the sooner they can begin to recover. It is important for them to have someone who is a contemporary. Authority figures such as management may appear to be a threat to them at this early stage. Let them decide when they're ready to deal with management.
- Reassure them that you are there to help them and that you will be available at any time.
- Provide them with information they need and be sure it is accurate.
- Be able to listen and encourage emotional expressions. Don't be afraid of what your response is. Your reaction and emotion may be what is needed—it helps to have someone to cry with.
- Help communicate with the family; let them know how the victim is and the extent of injury. Coordinate getting a family to the victim or the victim to the family.
- Assist them in getting the psychological help they need. Again, the sooner they get this kind of help the less chance there is of a long-term disability.
- Get them into the hands of the people who will take over when they go back home and then, let go.

If you are a person who may deal with survivors, try to evaluate the impact of the event on the individual.

- What was the severity and nature of the disaster?
- Was the person conscious throughout?
- How many people died and what is the extent of injuries to survivors?
- How long was it before help arrived?
- What was their physical and psychological proximity to the event?
- Where is this person at this point in their life?
- How have they dealt with previous crises in their lives?

Unresolved emotions and anxieties that remain from other experiences, even long past, will affect their ability to deal with and recover from this one. They were already under stress and they have been put into another stressful situation. That doesn't mean that you say, "No wonder they're acting that way, they were screwed up already," it only means that this person's situation is worse.

Not all survivors are direct participants in an accident. Rescue teams, medical personnel, people whose jobs are to put things back together to determine what happened, others who do similar work, or support personnel like maintenance employees or air traffic controllers may be considered survivors. These people may also suffer post-accident psychological/emotional trauma and other symptoms.

People involved in accidents/disasters react in many different ways. Some deny their reactions or have a delayed reaction which can prove overwhelming. The air traffic controller who handled this flight, a few years later, went home from work one day and shot his wife 24 times. The words "Flight 242" came up repeatedly during the trial. He subsequently attempted suicide. This man was in no way responsible for the accident. He had done all that he could. In fact, the information he gave

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**Army regulations govern notification of families and, for a short time, provide much of this assistance, but there is still a need for the long-term human touch.*

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about the airport at Cartersville was outside of the area he was required to know about. But he was the last human being to hear the voice of the pilot on the radio and he helplessly watched the aircraft as it disappeared off his radar screen. He had taken one month off from work, then returned and worked through the stressful period of the air traffic controller strike. There is no way to determine how much of an effect the crash of Flight 242 had on his later actions.

Other people show some type of amnesia about what happened. Whenever Sandy Purl meets the other flight attendant who survived the crash, that woman gives no indication that she even knows Sandy. She said that at first she wondered, "What does she know that I don't know, what did I do that I shouldn't have done, or what should I have done that I didn't do?" Sandy now knows that this kind of behavior is sometimes what the other person has to do in order for them to make a painful experience acceptable in their lives so that they can go on. This woman had taken three months off and then returned to her flying duties.

In the seven years since this accident there have been some changes. Airline training in emergency procedures for flight attendants has been made more realistic. There are some support networks now so that when an accident happens, a person in a similar job, for example a flight attendant for a flight attendant, goes immediately to the individual involved. Since these are people who have had similar experiences they can empathize with the feelings the other person is having as well as tell them some of the long-term effects they might expect. Knowing what may happen prevents the feeling of isolation which Sandy Purl described. Having no one who understood how she felt had led her to the brink of a total mental breakdown.

People like Sandy Purl are doing their part to help. After accidents such as the Air Florida crash into the 14th Street Bridge in Washington, DC, in January of 1981, she corresponded with the flight attendant who had been pulled from the icy Potomac River only to have the passenger who helped in her rescue drown before help could reach him. She understands only too well what that flight attendant/survivor went through.

Two years after the crash of Flight 242, Sandy Purl returned to New Hope, GA. The official reason for her visit was dedication of a hospital room to the pilots who were killed. While it was an emotional experience for her to see other survivors and people who had participated in the rescue efforts, she found some consolation in visiting the scene where new grass was beginning to cover the scarred earth. "It really is gone—it did happen, but I can go on," she said.

Sandy Purl has returned to flying. She is there because she chooses to be. She won't ever be the same person she was before the crash and now she doesn't expect to be. She has remarried and she has found ways to do something positive with what happened on that day in 1977. One of the things she does is what someone finally did for her long ago—hold out a hand to a survivor and say, "I understand."

Sandy Purl is the youngest of eight children. She was born in West Palm Beach, FL, to Air Force parents. She graduated from Jonesboro High School and attended Clayton Junior College in the Atlanta, GA, area.

Sandy had been working as a flight attendant with Southern Airways for four years when Flight 242 flew into severe turbulence, heavy rain and hail a few minutes short of its destination in Atlanta. Sixty-two people on the plane and eight townspeople in the vicinity died when the aircraft crashlanded on a two-lane highway, broke up and burst into flames. Sandy Purl was one of 23 people aboard the DC-9 who survived.

Sandy speaks freely and candidly about her battle to overcome the psychological and emotional effects of the crash and of her efforts since then to use what happened to her to help other disaster victims. She does not see herself as any kind of heroine—but she is a survivor in the truest sense of the word.

Three years ago, Sandy Purl returned to flying with Republic Airlines. She is married to Robert C. McAfee who is a first officer with Republic and a commander in the U.S. Navy Reserve. They live at 155 Englwood Drive, Fayetteville, GA 30214, near Atlanta. She has asked that we publish her home address so that people who wish to contact her may be able to do so.

A Look Back

THIS WILL BE my final opportunity to communicate with the Aviation community as the Director of Evaluation and Standardization (DES). Rather than just fading into the shadows, I want to explain to you some of the rationale and philosophy behind the major changes which have been made in our Aircrew Training Program and to tell you what to expect in the near future.

We guys with the obnoxious orange patches have been trying to focus attention on the need for good, solid combined arms tactical training. Our evaluations, for several years, have been conducted with a major emphasis on tactical tasks. Additionally, we support the Army's total dedication to accident prevention and continue to insist that realistic, combat oriented Aviation training can be done safely. We know this to be true because the good, well led units we see are doing it that way.

Tactical Orientation

With that philosophy, it should seem apparent why many of the maneuvers we used to think were sacred had to go. Tactical orientation, safety, systems reliability and a constrained flying hour program simply dictated that antitorques, touchdown autorotations, hydraulic off landings, NVG (night vision goggles) low level autorotations, etc., could no longer be afforded nor made sense. There was some legitimate personal and professional opposition to the decision to terminate those maneuvers. Both sides were heard. The decision was made and I'm happy to report that the vast majority of our force has understood and accepted the decision. Time and money formerly spent in the traffic pattern has now been shifted to the tactical training area. My perception is that we are already better prepared to go to war as individual aviators, Aviation units and as the newest member of the combined arms team than we were just 6 months ago.

Aircrew Training Manual (ATM) Changes and Individual Professionalism

In addition to a genuine desire to improve readiness through training initiatives, we in DES have also taken a relook at the entire ATM program. The result of that relook has been to decentralize whenever and wherever possible. Training of individuals and units is commander business. It was my view that the ATM requirements in some ways actually limited commander involvement with training and certainly stifled commander/leader initiative. That position, coupled with a very objective study conducted by the Army Research Institute, Ft. Rucker Field Unit, led to changing the ATM training cycle from 6 months to 1 year.

The next version of the ATMs will be called Field Circulars. In each there will be a list of core tasks which every aviator must perform at least once annually. The thrust here is to give the ATM back to the commanders. We expect the commander's task list to occupy a position of extreme importance. Hopefully we would no longer see task lists which are simply reprints of the FAC 1/FAC 2 task lists. The new core task list will be maneuvers, by type aircraft, which are applicable to any aviator regardless of unit, mission, experience, etc.

Mission tasks, tasks applicable to particular geographic locations and tasks associated with various aviator experience levels must be added by the commander if the decentralization effort is to be a success. We expect to see iteration requirements from the core and commander selected tasks to vary from individual to individual and unit to unit. A brand new aviator needs more repetition than a veteran with 5,000 hours.

We've also eliminated the tracking sheet as an area in the individual's ATM records which is subject to DES inspection. It is my view that successful completion of all of the AAPART (annual aviator proficiency and readiness test) requirements signifies that the aviator performed the tasks and iterations he was expected to perform during his or her training year. We are involved in a very serious, high risk business and only the most mature and trustworthy can participate. I believe if we treat our aviators like the grown men and women that they are, they will respond in a mature, responsible manner.

Unit Tactical Readiness and Battle Drill

In addition to those changes in the ATM, you should be alert to another action which will soon be in the field for coordination. For too long we have had a void between individual proficiency or ATM and full unit proficiency or ARTEP (Army Training and Evaluation Program). There has been no standardized or well described program to tell us how to get from individual readiness to unit readiness. We are going to call that area, between ATM and ARTEP, battle drill. With help from various departments at Ft. Rucker and with your assistance, we in DES are writing the conditions and standards associated with various battle drills for our tactical systems and units.

There has never been a serious effort to standardize the manner in which like units perform their missions. Tactical employment techniques vary, even within units. Some variation is necessary but some standardization is now called for. Standardized execution of tactical tasks being accomplished by more than one crew should allow us to train faster, avoid relearning when we transfer from one unit to another like unit, reduce radio communications, speed reaction time and coordinate more efficiently with the other members of the combined arms team. We will publish the battle drill tasks, conditions and standards as a separate chapter of the ATM with instructions as to how they should be used in the Commander's Guide. Logically, it follows that within a reasonable period of time, the DES evaluations will focus on individual and unit battle drill proficiency.

Publication Changes—Dash 10s and CLs (Check Lists)

As a result of policy board action and personal interest from MG Robert F. Molinelli, the former HQDA Aviation Officer, DES has worked diligently with the Publications Branch of AVSCOM (Aviation Systems Command) to figure out a way to improve the operator's manuals and checklists. Those efforts have resulted in giving DES a louder voice as the user representative. We now host all revision conferences at Ft. Rucker and are responsible for total content of dash 10s and CLs.

Our goal is to reduce the number of changes through publishing material correctly the first time. As desirable as that goal obviously is, change due to modification of equipment, engineering updates, revision of employment concepts and other factors is inevitable. That being the case, we seek to make the changes timely and effectively. Editorial changes and changes which do not directly impact on safety or operational parameters will be held for publication during the next revision cycle. In the future, when you get a change to a dash 10 and CL, you can rest assured that it is a necesary one and hopefully a correct one. New dash 10s and CLs for the UH-1H/V Huey are about to be shipped to the field. You'll see simplified preflight, run-up and emergency procedure descriptions. That's the wave of the future—an orientation toward combat operations without degradation of safety. You will see more of this as the fixed wing procedures are simplified and made more realistic.

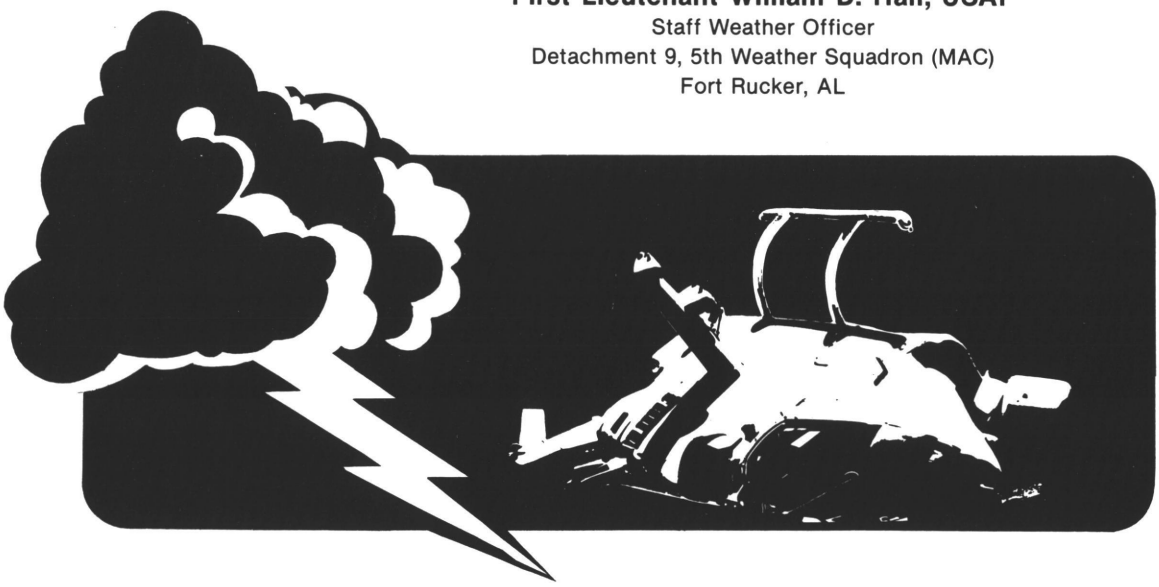
Last But Not Least

Final words from this DES—if there were one thing I could do for each of us and for the Army, it would be to create a mindset which would cause us to treat our aircraft as if we owned them. When I review the dumb accidents in which, for example, two brand new WO1s are sent out on a high risk mission while experienced crews drank coffee at the snack bar, I have to wonder how much real command involvement is being exercised. I wonder if that same crew, young and inexperienced, would have been sent on that mission if it were to be flown in the commander's personal civilian aircraft. I wonder, when aviators violate known safety restrictions and aircraft limitations if they would fly their personal civilian aircraft in such a reckless and destructive manner. If we have to go to war tomorrow, we'll go in the aircraft we have today. We've got to learn to treat them as if they were our own, because they are and they're all we're going to have.

James W. Lloyd
Colonel, Aviation

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

First Lieutenant William D. Hall, USAF
Staff Weather Officer
Detachment 9, 5th Weather Squadron (MAC)
Fort Rucker, AL



If you enjoy sunny days, beautiful flowers, green grass and pleasant temperatures then spring is your favorite time of year; but for aviators it often presents thunderstorms as well as severe weather conditions. Beware aviators...

...Spring could be your Kiss of Death

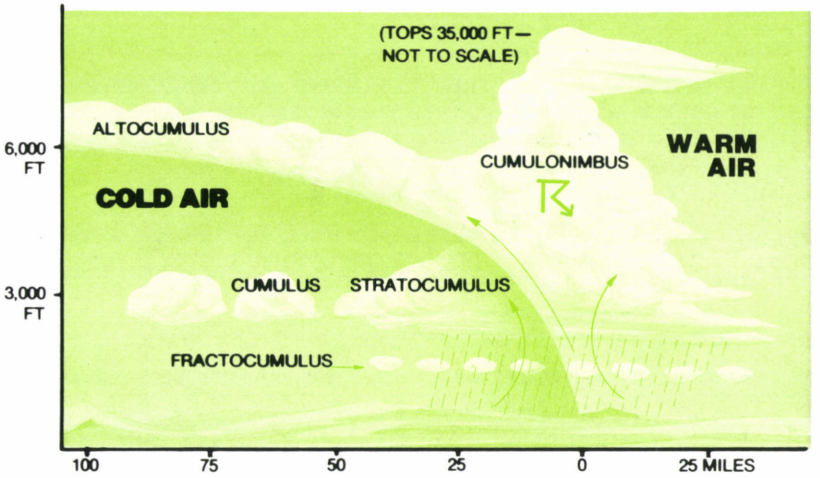
TO MOST OF us springtime brings to mind thoughts of flowers, sunshine and romance. However, there is another side of spring that is a major concern to aviators and weathermen alike: severe weather. While summer is the season with the most frequent occurrence of thunderstorms, spring gives us our most severe weather. This is due to the changing of cold continental air to a more warm maritime tropical airmass over the United States. This discontinuity between two airmasses spawns some of the most severe thunderstorms known to man. They are accompanied by strong wind gusts, severe turbulence, lightning, heavy rainshowers and severe icing. Also hail is not uncommon and tornadoes are possible.

THUNDERSTORMS

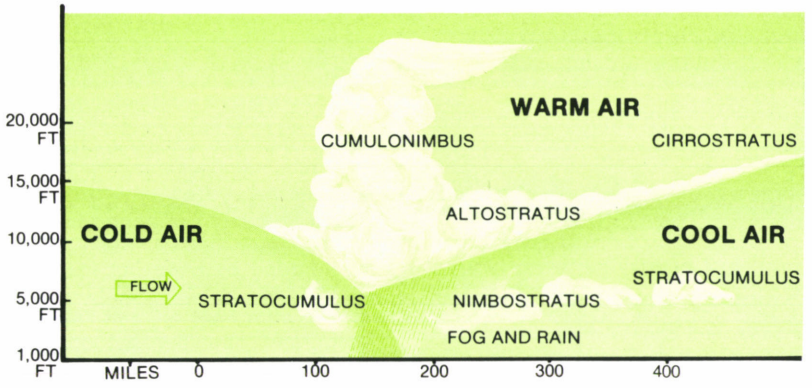
The life cycle of thunderstorms is made up of three stages—cumulus (growth), mature and dissipating. Differentiating between each stage is very hard. Also, the thunderstorm may consist of cells in each of the varying stages of development. Normally the life cycle of the thunderstorm is from 20 minutes to 3 hours depending on the number of cells contained and the thunderstorm's stage of development.

Several types of thunderstorms exist: frontal, squall line and airmass. Airmass types are more of a summertime phenomenon so the primary emphasis here will be on frontal and squall line.

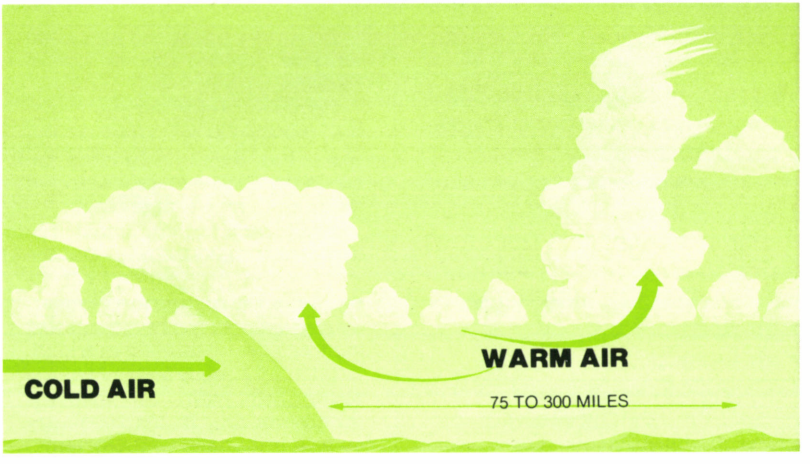
Thunderstorms may occur within the cloud system of any front—warm, cold, stationary and occluded. These storms are produced by the lifting of warm, moist, unstable air over the frontal surface. Due to their shallow slope, warm frontal thunderstorms are usually the least severe of all frontal thunderstorms. Cold frontal thunderstorms are normally the most severe found anywhere except in squall lines. They usually form in a continuous line and are easy to recognize. These thunderstorms are usually the most active in the afternoon. Thunderstorms associated with stationary fronts are usually widely scattered and have characteristics similar to warm frontal storms. Particularly dangerous to aircrews are occluded frontal thunderstorms because they are not only well developed, but they are also embedded in stratiform clouds and difficult to see.



Typical cold front cloud formation.



Cold front occlusion with associated weather.



Prefrontal squall line.

The squall line is a nonfrontal, narrow band of active thunderstorms. Often it develops 50 to 300 miles ahead of a rapidly moving cold front in moist unstable air; but the existence of a front is not a prerequisite. They may also be produced by surface pressure troughs (areas of lower pressure) or upper air disturbances. They are normally the most severe weather producing thunderstorms. Such conditions as large hail, destructive winds and tornadoes are generally associated with squall line thunderstorms. In addition, they may be too long to detour or too wide to penetrate.

As mentioned earlier several flight hazards can be encountered with thunderstorms. The most dangerous is the tornado: A violent, rotating column of air and debris (vortex) extending from the base of the thunderstorm to the earth's surface. If the vortex does not touch the earth, it is called a funnel cloud; if it touches water, it is called a water spout. A tornado vortex is normally several hundred yards wide and can attain wind speeds up to 300 miles per hour (mph). Their movement can vary from stationary up to 40 mph.

Waterspout.

TORNADOS

Tornadoes may occur with isolated thunderstorms, but are more apt to be found in thunderstorms associated with fast moving cold fronts and squall lines. Families of tornadoes have been observed as appendages to the main cloud, extending outward 20 miles from the area of lightning and precipitation. They usually occur in the southern or southwestern quadrant of the storm with a life cycle of a few minutes to several hours.

HAIL

Hail is also a severe hazard to Aviation. It usually occurs in the mature stage of thunderstorms having a strong updraft. As a rule, the larger the storm, the more likely it contains hail. Hail may be encountered as high as 45,000 feet in completely clear air and may be carried up to 10 miles downwind from the storm core. Aircrews should anticipate hail with any thunderstorm especially beneath the anvil of a large storm.

TURBULENCE

Hazardous turbulence is present in all thunderstorms. In a severe thunderstorm it can cause serious injury to passengers and crew plus inflict damage to the airframe. The strongest turbulence usually occurs with shear between updrafts and downdrafts. Outside the clouds, turbulence can occur several thousand feet above and 20 miles laterally from a severe storm. Remember, *the storm cloud is only the visible portion* of a turbulent system whose updrafts and downdrafts often extend outside of the storm itself in the clear air. A low level turbulent area also exists in the shear zone between the cold air downdraft and the surrounding air. This may occur as far as 10 to 15 miles ahead of a mature storm and is called a gust front. The gust front may produce abrupt changes in wind speed and direction. Wind directions may vary as much as 40 percent and speeds may increase 50 percent between the surface and 1,500 feet. Thus, the surface weather observation may not give a true estimate of the actual wind just above the surface.

ICING

Icing is a hazard that greatly inhibits the performance of aircraft. It occurs when the free air temperature and/or airframe temperature is below freezing and moisture is encountered. Normally icing occurs with a temperature of 0 degrees C to -20 degrees C with the most severe icing occurring between 0 degrees C and -10 degrees C. Just above the freezing level is the most hazardous area since this is the zone where heavy precipitation and turbulence most frequently occur, thus producing the heaviest icing conditions.

LIGHTNING

Lightning is another associated hazard that occurs in all levels of a thunderstorm. The majority of lightning never strikes the ground but occurs between clouds or within the cloud itself. Another problem is electrostatic discharge which results from an aircraft attaining a charge by flying through clouds and precipitation. All aircraft are susceptible to lightning strikes and electrostatic discharges. Aircraft have been struck by lightning or experienced electrostatic discharges at altitudes ranging from the surface up to 43,000 feet. Most lightning strikes occur in the following conditions:

- Within 8 degrees Centigrade of the freezing level.
- Within about 5,000 feet of the freezing level.
- In precipitation, including snow.
- In clouds.
- In turbulence.

(NOTE: All conditions do not have to be present for lightning strikes or electrostatic discharge to occur.)

There are no hard and fast rules governing all flights influenced by thunderstorms and its associated weather hazards. The best policy is to **Avoid All Thunderstorms.** In cases when flights occur in thunderstorm areas, the general procedures below may aid you. For specific flight procedures consult the flight manual for your particular aircraft.

In summary, Aviation operations are confronted by a multitude of severe weather hazards during the spring. Be careful, use common sense and consult your local weather forecaster to help ensure your springtime is a safe time.

Flight procedures when no other course is available and you must enter thunderstorms:

If you are in a helicopter, land.

Before penetration use your airborne radar and/or call the nearest pilot-to-metro service (PMSV) with weather radar. They can give you storm intensity and echo tops.

Get your aircraft ready for penetration by checking instrument and cockpit lights full bright; pitot heat on, and safety belts and shoulder harnesses tightened and locked.

Maintain a constant attitude. Do not chase the altimeter. Trying to maintain a constant altitude during storm updrafts and downdrafts increases stress on the aircraft.

Do not fly under the cirrus anvil. Hail damage can be severe here.

Do not penetrate the storm near the freezing level. Most of the worst thunderstorm hazards occur in the temperature range of -8 degrees C to +8 degrees C.

After penetration, avoid unnecessary maneuvering. Do not turn around. Attempting to do so will keep you in the storm longer, increase stress on the aircraft and increase the possibility of a stall.

Do not fly below lines of clouds extending from an intense thunderstorm. If inadvertently caught under one of these lines, watch for dust-swirls and avoid overflying them as you quickly exit the area.

U.S. Army Communications Command
ATC ACTION LINE

Vertical Helicopter (IFR) Recovery Procedures (VHIRP)

Mr. Jesse M. Burch Jr.
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Aeronautical Services Office
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RECENTLY THE Aeronautical Services Office sent a letter to the various major commands and other Army activities soliciting their views on the following questions:

- Does a VHIRP fill a valid Army requirement?
- Does a VHIRP encourage commanders and aviators to exercise poor judgment and fly missions when weather conditions are such that they should not?
- Should the requirement for a VHIRP be eliminated?

In asking for a response to the above questions the following background information was provided:

- Two accidents occurred during one weekend in 1977 in which more than 25 people were killed. *Both accidents were attributed to inadvertent IMC; both were administrative flights.* As a result of these accidents the Army Aviation Officer directed that an operational procedure be devised to reduce the potential for such occurrences in the future. The initial procedure developed was generally known as the inadvertent IMC recovery procedure.
- Conceptually, the inadvertent IMC recovery procedure was intended to provide a standard reaction to instrument conditions encountered unexpectedly. It also provided instructions for the pilot on how to maintain control of the aircraft and what to do after control was established. Unfortunately, the latter instructions constituted an ATC clearance that had not been approved by FAA. Implementation of these procedures could have had disastrous results since the aircraft involved would be climbing, unknown to ATC and other IFR aircraft, into controlled airspace.
- The current VHIRP has been coordinated with, and agreed to by FAA. It responds to the Army's requirement to provide safe recovery of helicopters encountering unexpected IMC while conducting *tactical flight training in designated tactical flight training areas* and to the FAA's concerns regarding non-interference with legitimate IFR traffic. When established, it is designed to get the aircraft from the point of encountering IMC to a place where a safe landing may be made and the pilot will not be cited for violating the FARs. Each procedure is designed on a case-by-case basis to accommodate the unique conditions at each location and is approved by FAA. In some locations lack of airspace, density of air traffic, or incompatibility with national airspace requirements preclude FAA approval and establishment of a VHIRP. When this occurs, the requirement for a VHIRP is waived.
- The significant differences between the inadvertent IFR recovery procedure and VHIRP are as follows:

VHIRP	IFR Recovery Procedure
(1) FAA coordinated	No FAA coordination/ approval
(2) Airspace sterilized at recovery fix	No airspace/traffic separation provided
(3) Constitutes ATC clearance	No approved ATC clearance
(4) No violation	Possible violation
(5) Backup recovery procedure tactical flights only	Emergency procedure to be used by civil and military pilots alike

The overwhelming response to the Aeronautical Services Office letter was in favor of retaining the VHIRP requirement.

For information pertaining to VHIRP refer to AR 95-1, paragraph 1-16; AR 95-50, paragraph 1-8, 1-25 and 4-5. For assistance call your DARR or USAATCA-ASO.

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

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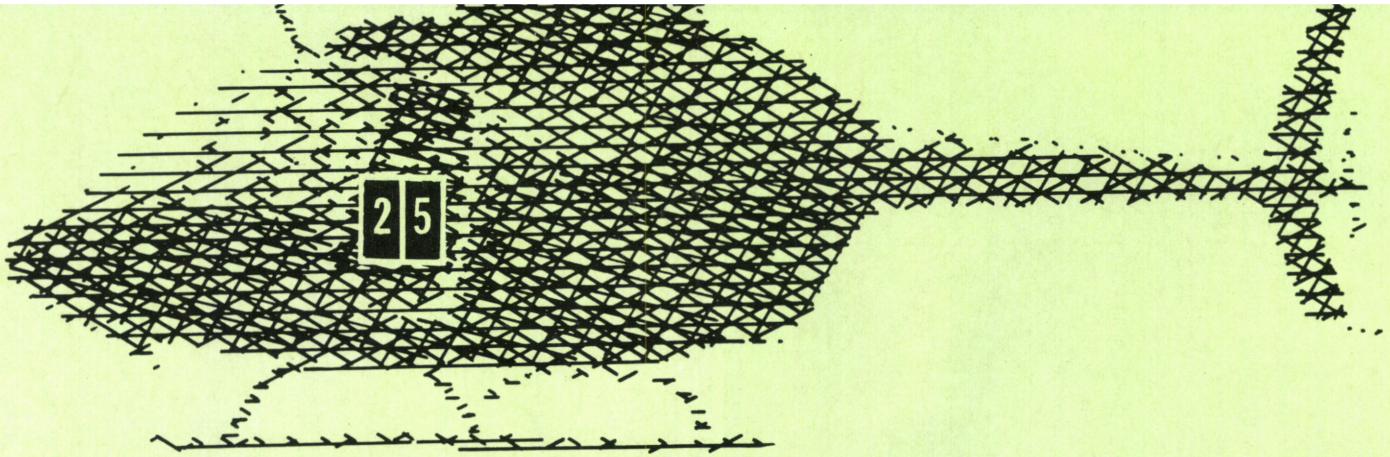
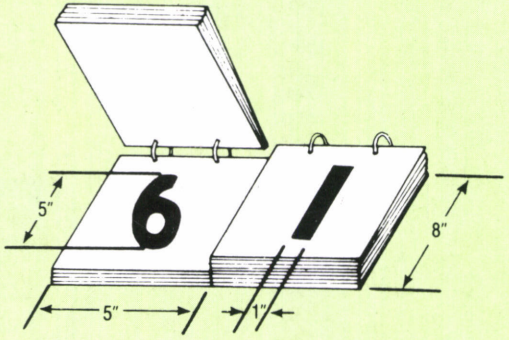


NON-ELECTRIC COMMUNICATIONS



Mr. Rush Wicker
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AUTOVON 558-3489

AVIATORS WHO have been around a few years recognize the term Send-A-Message (SAM). New aviators may have some question as to what SAM is or how it affects them. Numerous articles on the subject have appeared in the *Aviation Digest* which address the procedure for using the SAM system, and why aircrews should have the capability to communicate without transmitting a detectable electronic signal.

FM 1-101, "Aircraft Battlefield Countermeasures and Survivability," FM 1-400, "Aviator's Handbook," FM 17-35, "Aeroscout Procedures" and FM 17-40, "Helicopter Gunnery," identify the use of the SAM cards as a countermeasure against jamming and radio intercept. Our NATO allies are considering the SAM system for use in multination aviation operations. Most units have experimented with some sort of visual communication system. These initiatives were generated because nothing was available and a standardized system had not been developed.

To rectify this void, an initiative was generated at the Aviation Center to produce the SAM system for worldwide distribution. These devices are available through the Training and Audio Visual Support Center serving your organization. The nonelectronic communication system (SAM) cards will be listed in the next change to DA Pamphlet 108-1, "Index of Army Motion Pictures and Related Audio Visual Aids," and may be requisitioned by asking for "Nonelectronic Communication System (SAM)," GTA Number 1-4-2.