



UNITED STATES ARMY

FEBRUARY 1982

AVIATION DIGEST



The Wishing Well



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Department of the Army



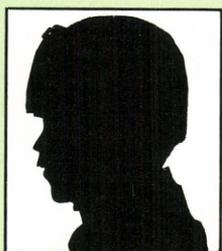
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page 6



page 15



page 29

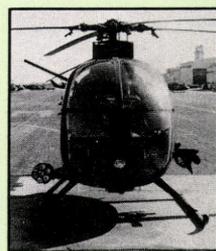


- 2 **The Wishing Well**, GEN Hamilton H. Howze (Retired)
- 6 **Who's Going To Teach Aviators How To Fight?** LTC (P) James W. Lloyd
- 10 **Views From Readers**
- 11 **Aviation Personnel Notes: Additional Specialty Designations Underway For Year Group 1975**
- 12 **150th Air Traffic Control Platoon**, CW2 Frederick W. Stetson
- 14 **Hangar Talk: FM 1-30, Meteorology For Aviators**, CW2 Gary R. Weiland
- 15 **The Personality Disordered Individual in Aviation Units**, LTC Brian H. Chermol
- 18 **If The Shoe Fits**, CW3 John E. Cattilini
- 20 **PEARL's**
- 23 **Threat Branch**, MAJ William F. Voth
- 27 **DES Report To The Field: The Army Standardization Program**
- 29 **Homecoming Mission For the 6th Cav**, CPT LeRoy K. Neel
- 30 **Reporting Final**
- 33 **How To Get The *Aviation Digest***
- 34 **Total Electrical Failure In A UH-1 — Then What?** Roger F. McPheeters
- 36 **Training — The Key Ingredient**, MAJ Harold J. Brecher and CW3 Robert E. Browning
- 38 **An Alternate AH-1 TOW Training System**, CPT Bruce Coons
- 42 **Prepared To Survive**, SFC (P) W. Dave Goldie and Mr. Colin Hale
- 45 **Arming The Aeroscout**, Col Robert S. Fairweather Jr.
- 48 **ATC Action Line: AR 95-10! What Is It?** Mr. Carl Gray

Inside Back Cover: ETM Catalogs
Cover: Crew with CH-47 Chinook, part of the Army Aviation's contribution to the combination of firepower with mobility that General Howze wishes will be present—the top priority for success in combat.



page 36



page 45



Honorable John A. Marsh Jr.
Secretary of the Army

Richard K. Tierney
Editor

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

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.

This publication has been approved by The Adjutant General Headquarters Department of the Army 14 October 1981, in accordance with Army Regulation 310-1.

Active Army units receive distribution under the pinpoint distribution system as outlined in AR 310-1. Complete DA Form 12-5 and send directly to CDR, AG Publications Center, 2800 Eastern Boulevard, Baltimore, MD 21220. For any change in distribution requirements, initiate a revised DA Form 12-5.

National Guard and Army Reserve units under pinpoint distribution also should submit DA Form 12-5. Other National Guard units should submit requests through their state adjutant general.

Those not eligible for official distribution or who desire personal copies of the *Digest* can order the magazine from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Annual subscription rates are \$22.00 domestic and \$27.50 overseas.

IT IS ONLY FITTING that this issue of the **Aviation Digest** begin with a tribute from the entire Army Aviation community to one of our most senior aviators, General Robert M. Shoemaker, who retired this month.

General Shoemaker, commander of the U.S. Army Forces Command since 1978, has rendered distinguished and valuable service to the Army and the Nation for 36 years. Army Aviation was indeed fortunate to number him among our ranks. His contributions to aviation have been many—beginning with his assignment to Combat Developments at the Aviation School upon graduation from flight training in 1960 and continuing through a long series of assignments of greatly increased responsibility—almost all of which touched directly on the readiness of Army Aviation.

From the very inception of the airmobile concept wherein he was the G3 of the 11th Air Assault Division through the combat fielding of the 1st Cavalry Division (Airmobile) in Vietnam, General Shoemaker played a crucial role in aviation employment. Within the 1st Cavalry, he served as the commander of the 1st Battalion, 12th Cavalry; commander, 1st Squadron, 9th Cavalry (then the only air cavalry squadron in the Army); assistant division commander and finally division commander. These assignments ably prepared him for the even greater responsibilities to follow as commanding general, III Corps and Fort Hood, deputy CG, FORSCOM and ultimately, commander of FORSCOM, the Army's largest field command today.

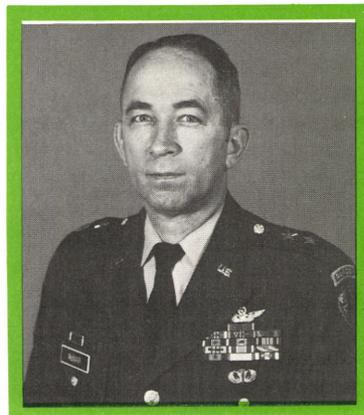
But in addition to these key commands, his service was also interspersed with other challenges equally important to the future of Army Aviation. As chief of the Plans and Programs Division in the Office of the Director of Army Aviation, he was deeply involved in developing the future structure for the aviation force. As the deputy commanding general of MASSTER at Fort Hood, he directed the study and test of Army Aviation applications in a high threat air defense environment on a mid-intensity battlefield—paving the way for the tactical applications we know so well today.

Through it all, he has set a dynamic pace toward which each of us might aspire, focusing our orientation on our mission and training to perform that mission. Army Aviation is a far stronger and more viable fighting force today for the contributions of General Shoemaker. And although now retired, we look forward to hearing more from him in a future issue of the **Digest** as he reflects on Army Aviation—then and now.

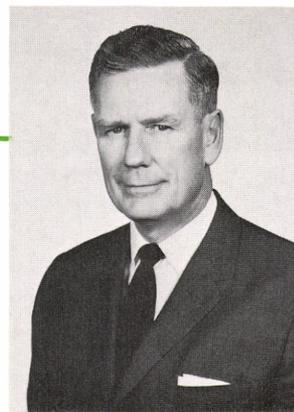
Another of our very distinguished retired general officers comes to print in this issue. General Hamilton H. Howze, the chairman of the Army Tactical Mobility Requirements (Howze) Board that spawned the airmobile division, makes some very salient points on soldiering and leadership in "The Wishing Well (Or What I Hope Is Going On In Army Aviation)." This is a very thought-provoking piece in the inimitable style of one of Army Aviation's early pioneers—a must for all to read and heed.

For both Generals Shoemaker and Howze, training was the name of the game. So it is appropriate that this issue should feature some other articles that stress the need for different kinds of training. There's "If The Shoe Fits . . .?" by CW3 John E. Cattilini which cuts deeply—if the shoe fits. A bit lighter but still most informative is "Prepare to Survive" by SFC W. Dave Goldie and Colin Hale. Then LTC (P) James W. Lloyd asks a stimulating question, "Who's Going to Teach Aviators How to Fight?" LTC Lloyd's thoughts are echoed by many and some significant training changes are in the offing as a result of just such concerns in the field and in the "schoolhouse."

These are but samples of the good reading offered for you this month. Remember, this is your magazine, so keep your articles and suggestions coming. We welcome input from you on all matters affecting our aviation program—training, safety, maintenance, operations—so that others in the Army Aviation community will be better informed and accomplishment of our total mission will be enhanced.



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



General Hamilton H. Howze
United States Army, Retired

The Wishing Well

Or what I hope is going on in Army Aviation

I WAS ASKED BY Major General Carl McNair (commander of the Aviation Center at Ft. Rucker, AL) to write this article. Otherwise, it would not have been written, for I am pretty remote now from the Army and no longer have a burning desire to fix anything. But this is not to say that I wish the Army and its aviation anything but the very best, nor does it mean that I have lost any faith in what light aircraft and their crews and support people can do, if they are properly trained and motivated, on the battlefield.

If I were still in active service I'd devote much study and thought to the increased lethality of modern weapons. Weapons effectiveness, of course, works both ways—it sometimes serves to prolong the life of a weapon's operator. The ability of the attack helo, for example, to detect and quickly kill the enemy tank or gun contributes to its own survivability, but the accuracy and lethality of the enemy weapon obviously is an opposing factor. Lethality, moreover, has a major effect on tactics, an effect which must be determined as accurately as possible, not simply for the north European plain but also for mountainous areas and, especially, for open country and the desert.

Tactics that would have worked 10 years ago may not work now; tactics impractical 10 years ago may now be the way to go. Some things (certain varieties of information, for example) that once required great effort, often at great hazard to get, are now mechanically achieved.

In this era of change, however, I would guess that two prime tactical precepts would still hold true:

- However strong firepower may be or become, the combination of that firepower with mobility is still the *number one* prerequisite of success in combat. The best definition of mobility that I know of comes from a pre-World War II lecture by a German Captain—Anton Frhr. von Bectolsheim—at Ft. Sill, OK: "*Mobility means quick decisions, quick movements, surprise attacks with concentrated force; to do always what the enemy does not expect, and to constantly change both the means and the methods and to do the most improbable things whenever the situation permits; it means to be free of all set rules and preconceived ideas. We believe that no leader who thinks or acts by stereotyped rules can ever do anything great, because he is bound by such rules. War is not normal. It*

cannot therefore be won by rules which apply in peacetime.”

That is the thought of genius. If the French had read and believed it they would not have been surprised by the Blitzkrieg of 1939. Any American combat arms officer—including of course the aviator—who reads it and understands and abides by it in training and battle will be far more effective than he would otherwise be.

It may be said that the prime source of mobility is the mind of the commander. But a primary means of mobility on the modern battlefield is Army Aviation. A commander's use of mobile forces, ground and air, must be conditioned by an acute understanding on his part of the realities of the battlefield—including an appreciation of the accuracy and killing power of present day armaments, his—and the enemy's.

By reason of its speed, its flexibility, its relative immunity to what has been called the “tyranny of the terrain” and its own lethal capacity, Army Aviation will be a vital tool of the successful commander. It follows, obviously, that every combat commander should become adept in its use. And that means practice.

- Coordination of effort also grows in importance. As long as I was in the Army I felt that we were derelict, at all levels of command, in the pursuit of combined arms training. Although I cannot base an opinion on personal observation, I suspect it is true now. If it is true, it is equivalent to putting a football team into a game with separately trained linemen and line backers and pass receivers and running backs, but with little or no practice scrimmage. During World War II, many a commander fought his battle without the benefit of some of the forces under his command supporting him. He forgot them, for lack of practice in the coordinated use of the several varieties of combat power.

Once during that war I was part of an exploiting tank force supposed to go through a bridgehead to be established by infantry (of another division) on the far side of a narrow but swift river. The infantry got across the assault bridges in fair shape, but German defenders, dug into small hills a hundred yards or so on the far side of the river, mowed our people down, terribly, and captured many of the survivors. That afternoon I talked to two of the assault battalion commanders, back in their original assembly areas, who reported that their line companies counted only about twenty effectives each. I asked what the artillery plan had been, resulting in a dialogue approximately as follows:

“Well, it fired in front of us for awhile, and then it lifted.”

“Is that all you know about the artillery fire plan?”

“Yes, that's all.”



A CH-47 viewed through a fish-eye lens

What's more, during the attack the complete divisional tank battalion sat idle in reserve, whereas there were numerous spots, sheltered by a 4-foot-high dike on the near side of the river, from which the tanks could have provided extremely effective direct fire support on the enemy machinegun bunkers. So, a miserably failed attack and lots of dead American Soldiers. The point is that combat is hectic, frightening and therefore mind-numbing, and unless leaders are thoroughly conditioned by training in the use of all means available, they *won't* use them.

Because they operate in a different medium, tactical aviation units are prone to look on their activities as being relatively independent of ground operations. Nothing, I suspect, could be further from the truth. It isn't simply a matter of scout and assault and attack helicopters helping the ground forces, it is a matter of each element, ground and air, helping the other. Teamwork, with the emphasis on “Team.” As a single example, the attack by attack ships on an enemy tank force should *habitually* be protected not only by anti-helicopter helicopters but also by tank and artillery fire, perhaps including the use of smoke. Some care must be taken not to obscure the target of helicopter attack, of course, but some obscurity is better than allowing the tanks and their accompanying ack-ack to devote their full attention to shooting down helicopters. And it might be said that dust and smoke close by the tanks will affect the accuracy of their fire much more than it affects the fire of the distant helos. When both helos and tanks are equipped with the sort of sight that penetrates smoke and dust, obscurity will be less of a factor, but the enemy tanks and guns will still suffer from our supporting fire, one important effect of which will be distraction. It is hard to concentrate on one enemy when three of them are shooting at you.

Maybe that last paragraph amounts to preaching to the choir. I'll withdraw the sermon and apologize for

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... combat is hectic, frightening and mind-numbing and unless leaders are thoroughly conditioned by training in the use of all means available, they *won't* use them.

J

if I should learn that every Army command containing attack helicopters puts its ground force and aviation units through such a drill (it need not always involve live fire) at least once monthly. Otherwise I'll not believe they know how to do it.

And, of course, that is just one of many combined arms operations that need practice, lots of practice. The single problem of who and where the commander of the combined effort should be requires resolution, by practice.

For years the Army has suppressed its premonition that air-to-air conflict between helicopters would ultimately become a part of warfare. Now that a heavy production of Soviet armed helicopters—faster and more heavily armed than ours—is a reality we had better get the matter out on the table. How to cope with the Russian Hind and Hip will require lots of thought and ultimately practice and the development of doctrine. Simulators also are required to help teach our pilots how to do the job. An encouraging start in this general regard is the first six articles, each extraordinarily well written, in the October 1981 issue of this magazine. That issue merits reading by every combat professional, ground or air (copies are available by writing to Editor, *Aviation Digest*, P.O. Drawer P, Ft. Rucker, AL 36362).

Though tactical training, including combined arms training, is an obvious requirement for the battlefield success, there are others: discipline, proficiency in arms, physical conditioning, maintenance and the conservation of supplies—particularly ammunition. I'll skip all those and talk a bit about the moral preparation of the individual for the exigencies of battle.

Napoleon said that the moral is to the physical as three is to one. I take that to mean that the commitment of the Soldier to his task is three times as important as his arms and equipment.

The point is worth remembering. It accounts for the countless instances in which a physically weaker force has run a stronger opponent right off the battlefield. It is one of the reasons why the Soviet Union, the Communist Chinese and even the Taiwan Chinese put political officers—commissars—in the combat units. Anathema to us, but it works for them.

In our country the commitment of the individual Soldier is developed in many ways. We can save lots of time and space by saying that it is largely the product of leadership.

I won't attempt here a discussion of the very broad subject of leadership, but confine myself to a relatively small aspect of it—the preparation of Soldiers in what might be called the character of battle. Green troops react to the shock of battle in extraordinary ways, some of them ludicrous, some of them absolutely disastrous. Army leadership and foresight should do all it can to cushion the shock. To quote Mr. Churchill, "In war, what you don't dislike is not usually what the enemy does."

Through no fault of its own, today's leadership has essentially no experience in three important aspects of combat against an enemy equipped about as well as ourselves, because the last such war, against the Germans and the Japanese, ended more than 36 years ago. Missing is the knowledge of how it feels to be shelled by heavy artillery or of being bombed or strafed, of the effect such unattractive propensities can have on our combat operations, and of how to deal with a number of the new, more lethal weapons.



Because the initial experience of air or artillery attack is a severe one, troops need to be told about it. This need led the British in the last great war to publish a pamphlet, "Learn To Be Bombed." It actually was quite reassuring in its statistics on casualties, and encouraged the British military to accept such a blow—not with great pleasure, but at least without panicking.

Some sort of preparation would help the uninitiated in dealing with many things: the effect of the new weapons, the confusion of battle (which too often leads to friendly troops shooting at each other and at their own aircraft), the immense friction that always accompanies combat operations, the necessity for simplicity and accurate wording in battle plans and instructions, the requirement for drive (perhaps I should write it DRIVE) in the commander; also, how to react to the unexpected (a frequent requirement), why some units fight better than others, why some junior commanders get so fond of their units that they are reluctant to commit them to a dangerous mission, and how to deal, even with the ridiculous. In the big war, this last took the form of enemy vehicles, confused and lost, happily joining our columns marching down the road, or by-passed enemy troops, in the late evening, getting into our chow lines.

In the next war these may not bother you but you may be entertained by a fully armed and pugnacious enemy attack helicopter landing on one of *your* pads. If he wakes up to his error before you do he may wipe out a half-dozen of your birds before anybody can stop him. If this seems far fetched, be advised that more than once, in the early 1940s, Japanese naval

aircraft tried to land on U.S. carriers; and on one occasion a German horse artillery battery trotted, unchallenged in the gathering dusk, through the scattered bivouac of one of the author's tank companies. The more fluid the situation, the more often these beguiling little events will occur.

In the last great war some American units landing (sometimes unopposed) on a foreign shore spent much of the first night shooting at the sound of land crabs scuttling through the grass. In the process they killed some of their officers and NCOs who were trying to make them quit shooting. They would not have done any of that had they been forewarned.

In a word, I'd hope that in our aviation platoons and troops and squadrons there would be a certain amount of directed war talk—what it's apt to be like and what to guard against. And perhaps higher headquarters should develop some lesson plans, much as I hate 'em.

One thing that senior aviation officers still in service know a great deal about is the heavy incidence of helicopter accidents in the Vietnam war. It is inevitable, I should think, that a good part of this came from pilots unused to the atmosphere of active combat operations. Perhaps our present young pilots need to be cautioned against the effect of strain on their flying techniques.

Of course war in fact is not all bad, though I don't know anyone who wasn't glad when the last big one ended. Troop morale can actually be very high during a war—but only in those units that have developed real competence in the art of fighting. Movies and ice cream have absolutely no bearing on the matter.

A squad of troops boards a UH-60A Black Hawk helicopter



**MONTHLY
WRITING
AWARD**

Lieutenant Colonel (P) James W. Lloyd

Deputy Director
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United States Army Aviation Center
Fort Rucker, AL

Who's going to teach aviators how to fight ?

THE AVIATION CENTER is chartered and resourced to conduct flight training. For 27 years, Army helicopter pilots have been trained at Ft. Rucker, AL. Hundreds of Air Force rotary wing pilots and Allied officers from more than 60 nations have received the finest "hands-and-feet" flight training in the world. The success of our World Championship Helicopter Team attests to the claim that our flight training is the best in the world. Thirty-nine thousand Army aviators have soloed, autorotated and graduated from the Initial Entry Rotary Wing (IERW) Course.

Over the years, the Program of Instruction (POI) has attempted to address tactical flight techniques. Some of us learned how to pick up messages with a string and plumb-bob dangling out the window of an O-1. We had a "tiger" course during the Vietnam era, and through it stressed tactical instruments. We even did some air assault training during the 1960s and early 1970s.

The Aviation Center now proposes to add 4 weeks to the IERW Course in an attempt to place greater emphasis on the combat skills needed by our aviators on the modern battlefield. In short, given the current Ft. Rucker mission and resources (people, dollars, aircraft and time), the Aviation Center is doing, or at least proposing to do, about all it can to develop the aviator's ability to fight and survive on the battlefield.

Still, there is, and will be (even with the improved/lengthened IERW Course), a huge void in aviation training. In fact, there are several voids. In 1980, almost 80 percent of the commissioned officer aviation students had served up to 60 months on a ground assignment prior to beginning their flight training. As a result of a 1979 Chief of Staff decision to make Aviation (SC-15) an accession specialty, the 1981 ratio of experienced versus inexperienced students flip-flopped; only 20 percent of those commissioned officers coming to Ft. Rucker had any previous Army experience, other than

a few months at a carrier branch basic course.

We need to do some serious soul searching as we think about what the reversal of these percentages means. The carrier branches have never taught, nor do they now, combined arms tactics for the SC-15 officers in their courses. That is not meant as a slam directed toward the Infantry, Armor, Artillery or Air Defense Schools: Those folks are in the business of developing company grade officers who are skilled and knowledgeable in the tactics and employment of weapons systems peculiar to the branch. It may be asking too much of a young Infantry lieutenant to expect him to understand the complex backward planning sequence of an air assault operation. Still, who is going to teach that and the myriad of other aviation tactical tasks to the aviator? And how will the Infantry lieutenant know how to lead his unit in order to have a proper tactical disposition when he lands in the objective area on an airmobile operation—if he is not exposed to such instruction in the basic course?

In years past, the Army aviator learned about the combined arms battle through a combination of branch schooling, ground assignments and aviation on-the-job training (OJT). The OJT was possible because the young aviator, prior to his first flight assignment, had spent up to 5 years as a combat arms platoon leader, assistant staff officer, company, battery or troop executive officer or possibly even commander. He may well have been a battalion S-3 or at least have had experience in the S-3 arena. He brought to his aviation assignment a good working knowledge of the AirLand Battlefield. He understood fire support planning and how it was devised to support the scheme of maneuver. He knew what was meant by key terrain, decisive objective and the many other terms through which operations orders are written and executed. Thus, yesterday's inex-

perienced aviator brought with him a base of knowledge upon which he could expand. He knew tactics up to battalion level, and OJT was an effective and practical way to learn the way brigades and divisions conducted combined arms operations—and he needed to know brigade and division operations. Remember, the aviator needs to understand the AirLand Battle up to two levels higher than his ground contemporary. Aviation companies support brigades; and to provide that support, the air mission commander (quite likely a captain) must understand the brigade scheme of maneuver and fire support plan *and* have a working awareness of the division's tactical plan.

So, the education, training, ground experience and aviation OJT *system* worked—yesterday. But yesterday is gone; and when the Army Chief of Staff (CSA) decreed that aviation would be an accession specialty, he also pronounced us to be a combat arm. That was more than 2 years ago. The personnel folks accepted the CSA decision, and now they provide 80 (plus) percent of our commissioned officer aviation students straight from the carrier basic course. These lieutenants are accessed as SC-15, not 11, 12, 13 or 14. While upon commissioning they pin on the insignia of a carrier branch, they are not, nor will they all likely ever be, qualified or assigned as Infantry, Armor, Artillery or Air Defense officers. The officer record brief and the Military Personnel Center (MILPERCEN) computer shows these lieutenants as 15s. It is very unlikely that many of them will serve in an additional ground assignment with a combat arm other than aviation—and why should they? Aviation is a *combat arm*. Artillery is a combat arm; Air Defense is a combat arm. Officers in those branches do not serve with Infantry, Armor or Aviation units. Yet, the Artillery and Air Defense officers are full members of the combined arms team. They are taught, in their basic

“We can learn to fly and shoot, but periods for teaching us how to integrate the mobility and firepower in combined arms operations are quite limited.”

and advanced courses, how to employ the weapons organic to their particular branch in support of the AirLand Battle. They learn more in their units and on staffs. If there are courses to teach the other combat arms' officers how to lead their troops and employ their weapons, should not we have a similar course for aviators?

The advanced attack helicopter (AH-64 Apache) may prove to be the single greatest force multiplier on the battlefield. The UH-60 Black Hawk and CH-47D Chinook provide giant leaps forward in terms of lift and mobility. Even the current AH-1S Cobra (fully modernized) significantly improves our total force antiarmor capability. Our aviators will be able to fly and fight those systems because they will be taught how to do that at the Aviation Center and in the units—so, what is wrong?

What is wrong is that an understanding of the dynamics of the AirLand Battle is not being taught—or at least not being taught enough. We can learn to fly and shoot, but periods for teaching us how to integrate the mobility and firepower in combined arms operations are quite limited. Just as bad, the ground commanders' formal instruction is similarly limited. Here we are, Army: the best trained helicopter pilots in the world, flying the best equipment our nation can afford to buy for us, and we are not training together, probably because no one has taught us how. Until we learn, we cannot expect the aviator to be able to truly maximize the combat power at his disposal. The aviator can kill

what he sees, but what he kills may not be a priority target because he does not fully understand the tactical concept. He can fly from A to B, but because of factors such as gun-target lines or positioning of air defense systems, which can sanitize airspace, the route from A to B might better have been planned and flown in a different manner.

What can we do about this void? Rather, what must we do? First, we have to understand and accept the Chief of Staff decision: the old days of extended ground duty tours in every grade with other combat branches are over. Two major factors influenced the 1979 decision, and they are even more valid today. First, the cost of aviator training, initial and advanced, is so high it almost dictates use of company grade aviators to fill cockpit positions. Second, systems' complexity and the tactical techniques (nap-of-the-earth (NOE) and tactical instruments, for example) demand almost full-time attention in order to maintain proficiency. We have to maximize our return on the functional training investment and use of these valuable aviation resources. You do not do that by waiting until an officer has 5 years' service to train him to fly. Additionally, you cannot sustain unit readiness by arbitrarily alternating the aviator back and forth between aviation and ground assignments. Remember, we do not rotate Artillery officers from batteries to Infantry units. Junior Artillery officers serve as liaison and forward observers with Infantry and Armor units, and aviators, although



“We need to ensure that our young aviators develop an appreciation for

not normally provided the TOE slots like their artillery counterparts, perform liaison duties also. This provides for the close integration of all elements of the combined arms team. So we have to believe what the Chief said: Aviation is an accession specialty and a combat arm.

The next thing we have to do is revamp the combat arms' basic and advanced courses in an effort to teach future ground commanders how to integrate aviation into their scheme of maneuver and fire support plans.

The Infantry and Armor officers learn mechanized/tank team and task force operations and then learn how to plan and use artillery. Does it not make sense that they should at least learn the basics of aviation employment? We do not have to make them experts, but they have to have a working knowledge of how this force multiplier (aviation) can be employed effectively, just as they now understand how to employ artillery. The billions of dollars invested in aviation dictate that the combat arms schools' POIs fully integrate aviation-related training.

Next, we need to address the void in aviation oriented AirLand Battle tactical training. In so doing, we will realize our training time and money are not efficiently applied through having SC-15 lieutenants learning tank maintenance and tank gunnery in the Armor officer's basic course. While some techniques and principles are similar, the systems are not. We will realize that learning tactics necessary to be a successful Infantry platoon leader will not necessarily satisfy the demands of an aviation platoon leader's job. In looking at what we are teaching SC-15 officers at carrier basic courses, we will discover that the leadership instruction is oriented on the relationship between the officer and enlisted without really addressing the warrant officer. Hopefully, we will understand that the commissioned aviator not only deals with enlisted personnel but interacts with and leads warrant officers and other commissioned officers. For ours is, by TOE, an officer intensive environment. Leading enlisted Soldiers is not, never has been, and never will be the same as leading chief warrant officers who have 18 years' service and 5,000 flying hours.

How are we then to correct this critical situation of carrier branch training? With an aviation branch? No! We already have that—in everything but name, training and insignia. The name and insignia raise so many emotions and so much passion that I prefer not to let the smoke screen caused by that emotion and passion cover the real requirement—training. In the working Army, we do not wear our green blouse enough to be concerned about what insignia is mounted below the US. The name tags on our flight suits do not indicate branch, so I contend that the question of insignia is relatively unimportant—relative to the big issue—training. We already have a branch personnel management system. Those folks at MILPERCEN believed the Chief of Staff, and aviators are now managed and assigned as aviators. The void is still in training.

I do not even care where the training is conducted. Ft. Knox or Ft. Benning could be resourced to develop and conduct a combined arms track, in their respective basic courses, for aviators; or, one of those schools could be resourced to establish an aviation basic course; or, we can give the Aviation Center the

resources and add an aviation basic course to the current "hands-and-feet" functional flight training POI. It just does not matter too much where it is done. It could be somewhere under a big oak tree! What matters is that we get on with it.

We need a program to teach the AirLand Battle. We need to ensure that our young aviators develop an appreciation for the complexity of combined arms operations. We must thoroughly prepare our aviators with the knowledge of tactical operations so that, upon learning to fly and shoot, they will be able to fully employ their aircraft and weapons systems as an integrated part of the scheme of maneuver and fire support plan. We have to give them some leadership training relative to that commissioned and warrant officer intensive environment that they are about to enter. In short, we have to carefully analyze the tasks which face today's company grade aviator, those tasks above the ones required to fly and shoot. Then we need to proceed to develop

some course, somewhere, to teach the things he will have to know to accomplish those tasks.

What we do not want to do is establish an isolated "pure" aviation course. We do not need to teach safety, maintenance and standardization per se. Those things are important, vitally important, but they are already taught in other functional courses. The danger is that aviation commanders are rated on their ability to prevent accidents, maintain Department of the Army standards of availability and pass standardization team evaluations. This fact reinforces the need to teach future brigade and division commanders what Army Aviation can do so that aviation units within the division will not spend all their time and energy on safety, maintenance and standardization.

Concurrent with all of the above changes, we need to force aviation and ground units to train together. The low level intensity of the early years of the war in Vietnam allowed us to learn how to work together—

on the battlefield—after the war started. That luxury will not likely be possible in the next conflict. We must learn how to fight together now. One of the ways we can force true combined arms training is to write Army Training and Evaluation Programs (ARTEPs) which require it. Integration of aviation is not simple, and few commanders will voluntarily try to do it on an ARTEP. If the ARTEP required a mechanized Infantry commander to plan for and utilize attack helicopters, he would learn to do so and the aviation leaders would learn how to maximize the effectiveness of their weapons systems. If Armor commanders were required to resupply fuel and ammunition with UH-60s or CH-47s, they would learn how to do so, and the aviators would learn how to fly, fully loaded, tactically.

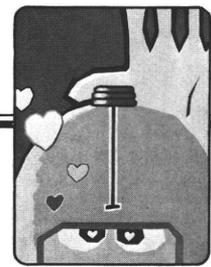
As it is, unfortunately, we are going our separate ways and not integrating our training nearly so much as we should. Ground units are maneuvering in two directions and planning for artillery support, while the aviators are doing auto-rotations in the traffic pattern at night and flying NOE on their approved training routes. How much longer can we afford to conduct such separate training? We must bring it together every day.

Who's going to train our aviators to fight? Here we are, Army Aviation—a full fledged member of the combined arms team, a combat arm with great lethality, mobility and potential—partially trained and underutilized. Our aircraft and weapons systems cost us too much of our annual budget to allow continuation of the present state of affairs. Accept the Chief of Staff decision, teach future ground commands how to employ aviation, teach us how to maximize our firepower and mobility through indepth understanding of the dynamic AirLand Battlefield and make us all train together so that we can get on with what a peacetime Army is supposed to be doing—preparing for war.

the complexity of combined arms operations.”



VIEWS FROM READERS



Editor:

I am stationed in Germany with the Second Detachment of SOTAS. I just got here and I am interested in reading some of the literature published on SOTAS. I would be happy if you could send me copies of articles published about SOTAS.

SP4 Gordon A. Blake
U.S. Army SOTAS, Det 2
APO New York 09326

Editor:

Within the military community, the question often arises as to whether or not the Army aviator is capable of meeting and defeating the threat on the mid-intensity battlefield of the future. Further, the very credibility of training at the Army Aviation Center is often challenged. As a former commander of the 6th Battalion (USAAVNC), where I dealt directly with the training of aspiring aviators, and currently as the ACofS, G1, 2d Infantry Division, Korea, where I have the opportunity to observe some of those same officers now serving as bona fide Army aviators in a tactical environment, I feel that I am in a strong position to render fair judgment on the quality of training offered at Fort Rucker and the quality of officers recently graduated from flight school.

It has been an especially gratifying experience to observe, over the past several months, the recently graduated Army aviator now assigned to the 2d Infantry Division's 4th Squadron, 7th Cavalry, or 2d Aviation Battalion (Combat). In each case I have witnessed a rapid transformation from inspired novice to capable, motivated professional. I have taken part in in-depth discussions with these officers, male and female alike, observed their activities on various types of missions and listened as unbiased judges with impressive military backgrounds praised the caliber of aviators within the 2d Infantry Division. Each case has added resolve to my belief that our Army is still producing that quality of individual capable of accepting and conquering the challenge of tomorrow through dedication and sacrifice today—in fact, better than ever before.

It is often overlooked, especially in the student environment, that there is

indeed an assignment that could place aviators in a day-to-day tactical environment—the 2d Infantry Division! Our aviators are confronted with a tense situation where we are face to face with the enemy 24 hours a day; and, the potentiality for conflict must be considered prior to preparing for each mission along the DMZ. Here in Korea, our aviators are daily flying in the face of an armed, aggressive and well trained enemy dedicated to our defeat. I do not know of a more effective proving ground for our young aviators than that which exists in the "Land of the Morning Calm."

The quality of our aviators? Perfect and improving! The quality of training at Fort Rucker? Impressive! I believe that it is time for the line units throughout the entire United States Army to stand up and render a hearty, "Thanks, Fort Rucker," for the caliber of officer produced by the Aviation Center. Moreover, it is essential that our line leaders fully manage these combat aviators as an integral part of our combined arms team—particularly in light of a personnel system for aviators which had been ill-defined and unforgiving over the past two decades.

LTC W.F. Reilly Jr.
ACofS, G1
2d Infantry Division
APO San Francisco 96224

Editor:

Our firm has been specializing for more than 10 years in military master planning, and we have been under contract with the U.S. Army Engineer Division, Europe, for the last 3 years to assist in updating numerous U.S. Army military community master plans in both Germany and Italy.

During our research and investigation into the Army Aviation assets, we have attempted to decipher the requirements associated with the ARCSA III program, and just recently were informed about the ACAB program. You published an article in the July 1980 issue of *Army Aviation Digest* explaining the details of this program, and we are wondering if we could get a copy of this and any other information which would assist us in the further development of aviation

facilities.

We anticipate subscribing to your *Digest* as it is a very informative publication.

James F. Bosick
Vice President
Robert G. Muir and Associates A.I.A.
Colorado Springs, CO 80903

Editor:

I sure enjoyed the October issue of the *Digest* (air-to-air combat). I am an IP in an attack company. Approximately 18 months ago, with the help of the U.S. Marine Corps, I set up an air-to-air combat training program. We have enjoyed great success since beginning this training. In the past year we have learned many lessons; for example: A trained air-to-air crew can evade or defeat any untrained crew, flying a superior aircraft, OH-58 vs AH-1/AH-1 vs A-10. I am currently compiling 13 months of experiences and lessons learned for an upcoming article. It is about time Army Aviation awoke to the air threat! If anyone wishes more information concerning helicopter air-to-air combat training contact:

CW3 Mike Hicks
D Co 82 CAB
Ft. Bragg, NC 28307
AUTOVON 236-2614

Editor:

I am an Army aviator (warrant officer) and have been collecting your magazine since 1977. Since graduating from flight school last November, I have missed numerous issues. Can you please send me any of the following? I really hate to break up my collection! (I use them constantly for reference): November, December 1980 and January 1981 until present.

Being in the "real Army," I've been too busy to collect them from work. (Also, by the time I do get an issue, it's usually too beat up for my collection).

I really love your magazine—it's the greatest: Keep up the outstanding coverage of "our profession!"

WO1 Anthony M. Pereira
5709 Friedman Street
Ft. Hood, TX 76544



AVIATION PERSONNEL NOTES

Additional Specialty Designations Underway for Year Group 1975

THE ADDITIONAL specialty designation process has begun for officers in year group (YG) 75. The process will culminate in June 1982, when these officers receive notification of their additional specialties.

Officers in YG 75 (84 to 95 months of Active Federal Commissioned Service as of 30 September 1982) will be receiving a preference form and instructions from their military personnel offices (MILPOs) in December. When completed and returned through the MILPO to MILPERCEN (Military Personnel Center), preferences will be reviewed as a part of each YG 75 officer's file evaluation.

The additional specialty designation process is more complex than most officers realize. Career managers must consider an officer's experience, assignment history, educational background and any unique

qualifications the officer may have. A decision must then be made based on these factors and Army requirements. In many cases these factors are compatible and the additional specialties received by the officers match their backgrounds and preferences as well as meeting the needs of the Army. Sometimes Army requirements do not coincide with the additional specialty preferred by the officer. At the end of the process, the Army must have the right number of officers in each specialty based on projected requirements.

Career managers may have to designate some officers from YG 75 into specialties in which Army requirements exceed the number of officers who have indicated a preference for those specialties. The goal is to minimize the number of captains who will be assigned specialties which they did not include as preferences while at the same time meeting Army requirements.



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CW2 Frederick W. Stetson
150th Air Traffic Control (ATC) Platoon
Vermont Army National Guard
Burlington, VT

150th Air Traffic Control Platoon

VERMONT NATIONAL Guardsmen have never been short on initiative and Yankee ingenuity. As early as 10 May 1775, a band of rugged mountaineers led by Ethan Allen staged a daring, surprise raid and captured Fort Ticonderoga from the British, an important Revolutionary War victory.

In a small but significant way that tradition continues. Faced with shortages of essential equipment, members of the state's 150th Air Traffic Control (ATC) Platoon went out and bought their own. Then they upgraded what they were able to buy or salvage; helped train teams of air traffic controllers; and developed an effective unit with 100 percent strength.

The result: Vermont's 31-member ATC platoon is considered one of the best trained and best prepared in the National Guard. Even though some of the equipment was unauthorized, Major General Reginald L. Cram, then the state's adjutant general, supported this unusual personal effort by the platoon's

officers and enlisted personnel. "That's initiative," General Cram said, "and we can't fight initiative."

Vermont's ATC platoon is assigned for training to the 50th Armored Division, a unit that includes aviation elements from Vermont and New Jersey. Most of the year, the platoon supports Company A (-), 150th Aviation Battalion based in Burlington, VT, a city of 50,000 only 90 miles south of Montreal.

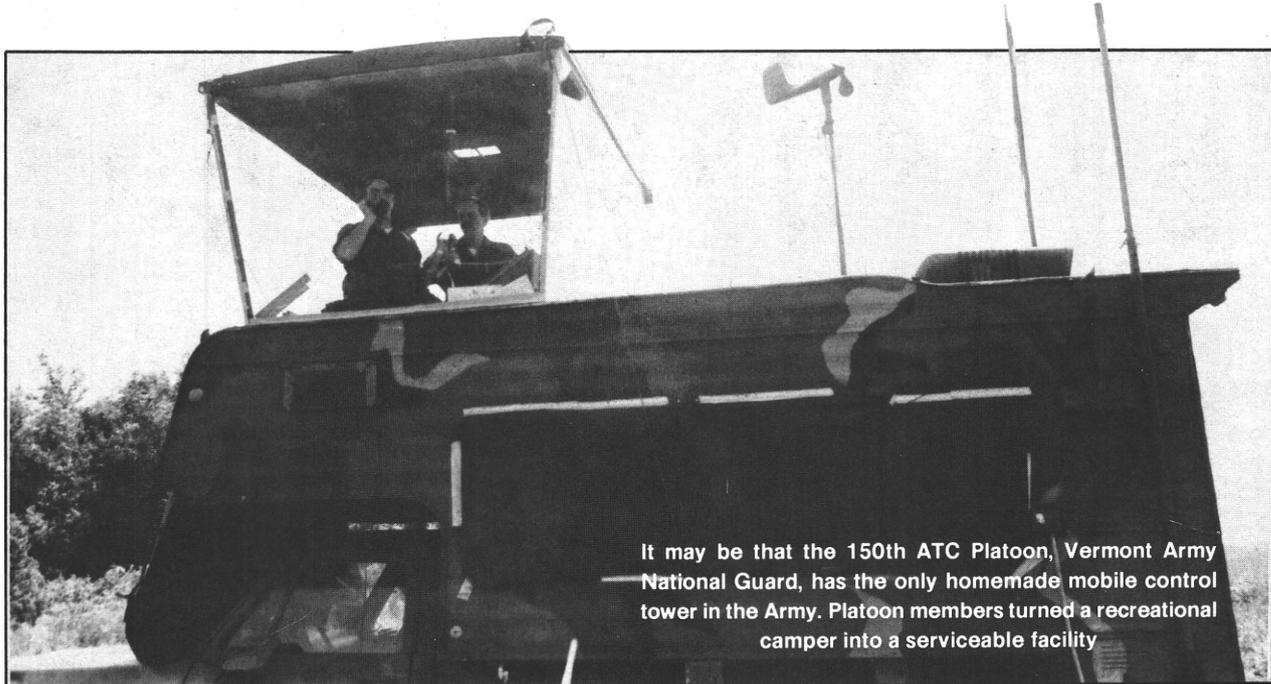
Like the Guard's 12 other ATC platoons, the Vermont unit's mission is to provide all-weather, *tactical*

air traffic control services, to include tower, approach control radar, ground control and terminal navigation aids. The platoon also provides en route air traffic regulation and flight following assistance.

Several months after the Vermont platoon was organized in late 1979, one key piece of equipment was not available through military supply channels: a mobile control tower (AN/TSQ-70). Not only was this facility needed for air traffic control, but also it was needed to house communications and meteorological

The 150th ATC Platoon's ground control approach site at Ft. Drum, NY





It may be that the 150th ATC Platoon, Vermont Army National Guard, has the only homemade mobile control tower in the Army. Platoon members turned a recreational camper into a serviceable facility

equipment, including radios, altimeters and a wind measuring set.

But, members of the 150th ATC platoon saw a way to solve this problem. They pooled their resources and purchased a 14-foot recreational "camper," mounted it on an M-880 truck, added antennas, camouflaged and modified it for tactical, in-the-field operations.

There were other examples of extra effort and innovation. Under the supervision of Staff Sergeant Raymond Smith, the platoon members, often working during off-duty hours, rebuilt a complete communications package, including ultrahigh frequency, frequency modulated and very high frequency radios. The unit's TPN-18 precision approach radar includes equipment cast off from the Navy in the late 1950s. The set is mounted on a modified flatbed trailer; most sets are designed for special platforms with adjustable legs for rapid field deployment. But, the inconvenience of the modified trailer has not gotten in the way of this unit's training.

Tactical, in-the-field exercises,

classroom instruction and special assistance from the Signal Support Company, 256th Army Maintenance Support Facility, Ft. Rucker, AL, have all been important to the unit's success, according to Captain Joseph Gwyer, platoon leader. Twelve enlisted men have graduated from the Army's Air Traffic Control School at Ft. Rucker. Ten others are participating in various ATC schools or training programs.

Tactical training is essential to assure the safe movement of the aircraft the 150th ATC Platoon supports. The unit can also provide services and advisories nearly identical to those available at most radar-equipped Army airfields or commercial airports. And the responsibilities are no less demanding. "There's about 22 mandatory transmissions that are given from the time you pick up an aircraft entering your airspace until the time the skids are on the ground," Smith noted.

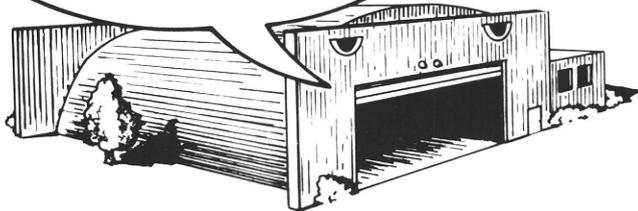
If activated under the Army's existing organizational structure, the ATC platoon would be one of three assigned to a Headquarters Com-

pany; and the company would be assigned to the 29th ATC Battalion, Glen Arm, MD, Major John L. Papier, commander. Captain Edwin Congdon, also a Vermont National Guardsman, commands the company.

Captains Congdon and Gwyer say there's a concerted, ongoing effort to procure the best available equipment for ATC platoons across the country. ATC equipment is the responsibility of the U.S. Army Communications Command, Ft. Huachuca, AZ. The command considers and evaluates all National Guard equipment requests alongside those from active Army units.

While awaiting further equipment upgrading this fall, the Vermont ATC platoon continues to train, only a few miles from picturesque Lake Champlain and a 20-minute flight from the majestic Green Mountains. It's sometimes hard to imagine this beautiful, recreation-minded state as a tactical environment. But, there's no imagination needed to find "home base" when guided by the "well-equipped" members of the 150th ATC Platoon.

HANGAR TALK



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

FM 1-30

Meteorology for Army Aviators

CW2 Gary R. Weiland

Directorate of Training Developments
U. S. Army Aviation Center
Fort Rucker, AL

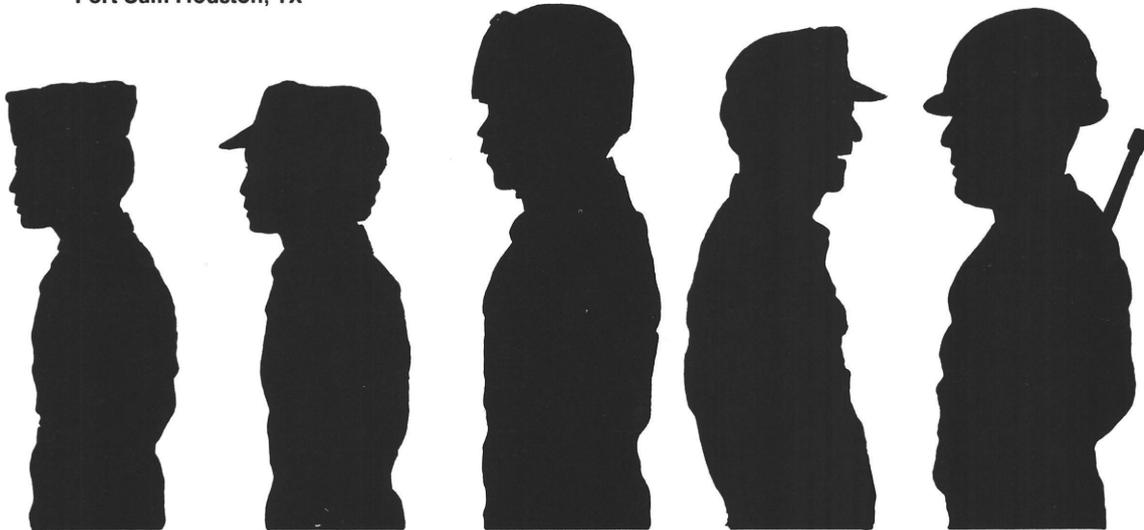
1. A warm front is the trailing edge of a retreating mass of cold air.
 - A. True
 - B. False
2. In which direction do warm fronts usually move in the Northern Hemisphere?
 - A. West to east
 - B. Southwest to northeast
 - C. Southeast to northwest
 - D. South to north
3. What type of fog is formed when warm, moist air moves over a colder surface?
 - A. Radiation
 - B. Advection
 - C. Upslope
 - D. Steam
4. If flight through a thunderstorm cannot be avoided, at what altitude above the terrain should most storms be penetrated?
 - A. 4,000' to 6,000'
 - B. 6,000' to 8,000'
 - C. 6,000' to just below the freezing level
5. What is the ceiling at Godman Army Airfield (FTK)?
 - A. 400'
 - B. 900'
 - C. 2,500'
6. What is indicated by the “2R-F” in the weather report?
 - A. Visibility 2 miles, rain, light fog
 - B. Visibility 2 miles, rain, thin fog
 - C. Visibility 2 miles, light rain, fog
7. How are visibility and wind velocity reported in aviation surface weather observations?
 - A. Both reported in statute miles
 - B. Both reported in nautical miles
 - C. Visibility reported in statute miles, wind velocity in nautical miles (knots)
8. In aviation weather reports, the height of the base of each cloud layer is measured in hundreds of feet _____.
 - A. Above ground level (AGL)
 - B. Above mean sea level (MSL)
 - C. Pressure altitude
9. What is the average forward speed (knots) of tornadoes?
 - A. 10
 - B. 20
 - C. 40
 - D. 60
10. When an aircraft is flown toward a region of lower pressure, a crosswind from the left will be encountered.
 - A. True
 - B. False

USE THE FOLLOWING HOURLY SEQUENCE WEATHER REPORT TO ANSWER QUESTIONS 5 AND 6.

FTK4SCT M9-BKN 250VC 2R-F 132/58/56/1817/993

- ANSWERS**
FM 1-30
1. A para 7-1B(2)
 2. B para 7-4B(4)
 3. B para 8-4b
 4. A para 10-8c(1)
 5. C para 11-11b
 6. C para 11-13
 7. C, paras 11-12 and 11-17
 8. A para 11-11a(1)
 9. C para 4-10g(1)
 10. A para 7-1d(2)

Lieutenant Colonel Brian H. Chermol
Chief, Behavioral Science Specialist Branch
Behavioral Science Division
Academy of Health Sciences
Fort Sam Houston, TX



Flight surgeons, company commanders and first sergeants must understand the psychiatric definitions, the process and elimination procedures outlined in AR 40-501 to preclude the administrative disarray brought before the Aviation Medical Board!

the Personality Disordered Individual in aviation units

A primer for commanders
and flight surgeons

WITHIN EVERY society there are individuals who experience chronic difficulty in adjusting to marriage, jobs and interpersonal relationships in general. Many achieve a marginal adjustment in a stable civilian community but, upon entering active duty, find that their coping skills, social skills and personality structure are inadequate to

permit adjustment to the stress of military life. While their level of functioning has not deteriorated to the point of psychosis or other acute disorganization of personality, their style of functioning is obviously incongruent with that of their peers.

When examined by mental health professionals, they are diagnosed as a personality disorder. **Such a diagnosis implies that the individual exhibits deeply ingrained, maladaptive life-long behavioral patterns that are often recognizable at adolescence or earlier.** Their etiology often appears to be rooted in their social learning experiences as children. They developed their particular life style early as a coping response to their environment. Since this life style is a life-long pattern, such individuals rarely develop the more typical psychiatric symptoms; e.g., depression or anxiety. Such symptoms are displayed only when the individual's life style is challenged, proves completely ineffective or an external agent attempts to change it—all of which could occur in a military setting. Since the individual rarely experiences subjective distress, most personality disordered individuals are requested or ordered to be evaluated because of problems in interpersonal relationships. It is often the individuals' peers, supervisors or spouse who feel discomfort in their presence rather than the individuals themselves.



Personality Disordered Individual

Some of the more common subtypes of personality disorder are:

- **Paranoid** (hypersensitive, rigid, jealous and suspicious of others)
- **Schizoid** (emotionally unresponsive, shy, seclusive and withdrawn)
- **Cyclothymic** (periods of elation alternating with periods of depression without obvious external causation)
- **Explosive** (sudden outbursts of rage and verbal or physical aggression)
- **Obsessive-Compulsive** (over inhibited, rigid and overly conforming)
- **Hysterical** (emotionally unstable, overreactive, dependent and self-centered)
- **Asthenic** (low energy, apathy and incapacity for enjoyment)
- **Antisocial** (impulsive, irresponsible, selfish and in conflict with society)
- **Passive-aggressive** (resentfulness, procrastination and stubbornness)
- **Inadequate** (inept, lack of stamina and poor adaptability)
- **Immature** (childish, irresponsible and self-centered)
- **Passive-dependent** (indecision, poor stress tolerance and emotionally clinging)

Sexual deviations, alcoholism and drug dependence are also forms of personality disorders, but their distinct method of identification, processing and disposition in the Army precludes their inclusion in a general discussion of personality disorders.

The aviation unit commander and flight surgeon must be familiar with Army Regulation (AR) 40-501 to understand the Army's policy regarding personality disorders.

Chapter 2 states that individuals who have been diagnosed as having an antisocial, immature, dependent or inadequate type personality disorder to such a degree that it interferes with their social, school or occupational adjustment will be considered medically unfit for enlistment or induction.

Chapter 3 states the personality disorders are not a physical disability and, therefore, are not medically disqualifying for retention on active duty. However, it further states that when an Individual's personality disorder prevents effective performance of duty, that individual should be considered administratively unfit and eliminated from active duty.

Chapter 4 states that diagnosis of a personality disorder is disqualifying for flying duty and all classes of flight physical examinations.

Aviators diagnosed as having a personality disorder are disqualified from flying (Chapter 4), but they may remain on active duty if they can perform other duties effectively (Chapter 3).

Confusion often arises because once a Soldier has been diagnosed by a psychiatrist as having a personality disorder, then that Soldier ceases to remain in medical processing channels. No further medical disposition is possible—only the unit commander can decide whether or not to seek elimination through administrative command channels (AR 40-501). **The Army's policy is that persons with personality disorders will not be processed through medical channels and are not medically disabled—for the purposes of discharge.** There are three possible reasons for this decision.

First, since by definition a personality disorder is a life-long pattern which usually started in childhood, it had to exist prior to entering active duty. To classify it as a medical disability might entitle the Soldier to receive disability pay and benefits for a condition for which the military had no responsibility.

Second, while research suggests that many other psychiatric disorders may have a biochemical component in their causation and may be treated, in part with psychoactive drugs, little such evidence exists for the personality disorders. Therefore, it is best viewed as a psychological problem which the motivated individual can control or overcome. Thus personality disorders

are viewed as different from other forms of disorders in which free will appears to be less an element.

Third, personality disorders represent the least severe form of mental disorders and many Soldiers would be eliminated from active duty if this diagnosis alone was sufficient for release. By requiring command input, many are retained on active duty. For example, a Soldier with a mild obsessive-compulsive personality disorder may be an asset to the unit, particularly in finance or other career fields where such traits are valued. Thus, by requiring the diagnosis and commander's evaluation, the process tends to benefit both the Army and the individual.

Only a few individuals diagnosed as having a personality disorder voluntarily report to an Army mental health facility. Many are referred by unit commanders for a command evaluation; some are referred by the flight surgeon for medical consultation; and others report because of the threats of the spouse, suggestion of peers or poor job performance ratings. Unit commanders should complete Department of the Army (DA) Form 3822 or a local form (e.g., U.S. Army Aviation Center Form 44) for the mental health facility. This form will be returned to the commander containing a response and diagnosis (if appropriate). Flight surgeons requesting consultation by a mental health facility should send a Standard Form 513. A response and diagnosis will be returned to the flight surgeon on the same form.

Once the individual has been evaluated by mental health personnel, the flight surgeon will be notified regarding personnel who require a flight physical; e.g., aviators, aircrewmembers and air traffic controllers. The flight surgeon will then decide whether or not the individual should be grounded (AR 40-501).

For personnel who were evaluated at the unit commander's request, the commander can decide whether the individual remains in the unit or is administratively discharged—assuming a personality disorder was diagnosed. If the individual's

flight status has been terminated, the unit commander can choose to have that person remain on active duty but must change the Soldier's military occupational specialty to one that doesn't require a flight physical.

Most individuals who have been diagnosed as a personality disorder and who the commander feels cannot adjust to military life will be discharged under the provisions of AR 635-200. Under this regulation, the commander must have had the mental health facility conduct a mental status evaluation (DA Form 3822) and must attempt counseling and rehabilitation (waived under certain conditions). The commander should be able to document evidence of the Soldier's inability to adjust to military discipline and living/working conditions. Commanders may want to use the Trainee Discharge Program or Expeditious Discharge Program in lieu of the unsuitability process.

The presence of individuals exhibiting moderate-to-severe symptoms of a personality disorder is a threat to the efficient functioning, esprit de corps, harmonious interaction and military discipline of a military unit. Due to additional stress and the need for small unit teamwork and cooperation in aviation units, the presence of such disturbed individuals is even more detrimental. Therefore, when Soldiers demonstrate an unwillingness or seeming inability to adjust, commanders should take the necessary action to eliminate them from service.

Flight surgeons can eliminate the personality disordered aviator from flight status; however, the aviation unit commander, in conjunction with the first sergeant and other supervisors, has the primary responsibility for the identification, duty evaluation and possible elimination of personality disordered individuals from service. 

Lieutenant Colonel Chermol was assigned to Community Mental Health, U.S. Army Aeromedical Center, Ft. Rucker, AL, when he wrote this article.

Glossary

AAPART	annual aviator proficiency and readiness test	PIC	pilot in command
AR	Army regulation	SIP	standardization instructor pilot
ATM	aircrew training manual	TC	training circular
IFE	instrument flight examiner	UT	unit trainer
IP	instructor pilot	WO	warrant officer
NOE	nap-of-the-earth		

If the Shoe Fits

CW3 John E. Cattilini

FWMEQ 82-2

Fort Rucker, AL

A SMALL TONGUE of yellow flame flickered momentarily in the midst of the blackened, twisted wreckage. In the stillness, the creak of contracting metal could be heard as it cooled in the night air. The greatest attack on the senses, however, came from the overpowering stench of charred

flesh. LTC Elliot momentarily lost his balance as his foot turned on something yielding in the short brush. Bending low and playing his flashlight beam at his feet, he suddenly turned away and became violently ill as he realized that what he had stepped on was a forearm and gloved hand that had been

severed just below the elbow. Weakened by the spasms that still clenched his stomach, he stumbled back to his jeep, the images of the crash scene indelibly burned in his brain.

"LTC Elliot! Shall I repeat the question?" The sharpness of the voice snapped Thomas Elliot back to reality. He became acutely aware that his palms were moist, his shirt sodden at the armpits and his fingers trembling.

"Sorry sir. Please say again," LTC Elliot replied.

The sharp voice resumed. "Colonel, I ask you again; in your judgment, was Mr. Peters fully qualified to be a pilot in command for this mission?"

How many times had he heard that question, not about Peters in particular but about pilots in general? He thought about the last standardization meeting that he had conducted. Now *there* had been a real conflict of opinion! After 2 hours of discussion, argument and outright disagreement, he had terminated the meeting with his two standardization instructor pilots rather brusquely.

"Gentlemen, I understand what you are saying. The fact remains, however, that AR 95-1 does not specify a need for a PIC program as detailed as the one you propose.

"Actually, it doesn't require a PIC program per se, at all. Furthermore, you yourselves tell me that TC 1-135 has no PIC evaluation guidelines specified although it goes into great detail for pilot, UT, IP, SIP and IFE evaluations. Obviously, the proponent agency doesn't see a need for a separate PIC evaluation either. The troop commanders feel that you are taking too much time from other duties and causing excessive maintenance downtime for worn skid shoes by requiring all this additional PIC training. Frankly, I agree with them. If an individual can pass a pilot AAPART evaluation, that should be sufficient to qualify him as a PIC. As of now, we will follow AR 95-1 to the letter.

The commander or his designated representative will appoint a PIC for each flight or series of flights. If an aviator is current, and has passed his pilot AAPART evaluation, then he may be designated as a PIC at any time."

LTC Elliot couldn't believe that it had only been 3 weeks since that meeting. He could still hear the arguments of the standardization officers as if they had been voiced yesterday.

"Yes sir, but there is also nothing in AR 95-1 that prohibits us from having a stringent PIC program. Most of our pilots can perform all the maneuvers mechanically correct. Most of them can even recite all the emergency procedures by rote. But getting them to explain their understanding of those procedures is something else again. What we're advocating, sir, is a most difficult program to define. You, as the commander, are placing your trust and confidence in an individual when you appoint him a PIC. You are saying that you believe in his ability to exercise good judgment and above average skill in all phases of flight under all weather conditions. You are saying that he has the ability to cope with all situations required to safeguard his aircraft, his life and the lives of his crew and passengers.

"With that in mind, it becomes necessary for us to instruct and evaluate a multitude of intangible areas beyond the specified ATM tasks. To the best of our ability, we need to evaluate knowledge and judgment, as well as performance, for each potential PIC in our unit. Does this individual know his own limitations? Does he consciously determine his course of action in *all* situations, or does he just pay more attention when things get tense? Is he totally mission oriented, or does he temper his decisions by considering safety factors and aircraft limitations? And finally, if he does all this, does he always project a professional attitude toward flying?

One of the most important roles of the PIC is that of an unofficial instructor. What he has learned through experience, those things we call technique, must be passed on to the copilots with whom he flies. He must be willing to share the lessons he has learned in a competent manner. We really believe, sir, that this kind of program would be the single most important step we could take to eliminate, or at least reduce, those accidents classified as obvious pilot error. The additional time spent training highly qualified PICs will be worth every minute if it prevents even one mishap."

Until two nights ago, when he had had to survey that smoldering wreckage, LTC Elliot had been sure that his own position was correct. That accident never should have happened. Although young, Mr. Peters was pretty sharp. After all, he had almost 600 hours, and had been here in the unit for 4 months now. Who would have thought a simple sling-load mission could have such disastrous results? Mr. Peters had flown that particular route several times before although never as a PIC and never with a sling load. The accident board made a preliminary determination that the crew had not allowed additional height for the length of the sling load.

Although the aircraft had cleared the wires, the external load made contact with the wires right at the attaching point. At 70 knots airspeed and that low altitude, Mr. Peters had no chance to correct for the violent nose-down pitch of the aircraft. The UH-1 Huey pivoted like a giant pendulum and dove into the ground. The transmission separated when the main rotor blade struck the ground, rupturing the fuel cells at the top and flooding the crew compartment with 700 pounds of JP-4 before bursting into flames. There were no survivors in the crew of three.

LTC Elliot had not slept much since that night. His sleeplessness

was attributable in part to vivid images of the crash scene. That, coupled with the look in Mrs. Peters' eyes when he had told her of her husband's death, was enough to rob anyone of sleep.

LTC Elliot became aware of the sharp voice once again as it said, "Sir, for the last time, would you please answer the question as stated by the board?"

LTC Elliot glanced once more at the folder on the desk in front of him. The folder was open to a copy of Peters' last gradeslip. The date on the gradeslip was 4 weeks old, 6 days before the last standardization meeting. The completed comment slip seemed to leap out at him. It read: "WO1 Peters completed all maneuvers satisfactorily. His knowledge of the local reservation is adequate. He tends to rush through some maneuvers without planning far enough ahead, especially NOE decelerations and turns during contour flight. It is recommended that WO1 Peters be given an additional 30 to 60 days mission-oriented training within his troop before being recommended for a PIC evaluation."

Looking up at the board members seated in the front of the room, LTC Elliot cleared his throat and began, "In answer to your question, sir, at first I thought . . ."

This story is pure fiction. The names are creations of the author. Although fiction, all the elements of truth from previous incidents everywhere in the aviation community combine to make this a very possible occurrence. The reader is tasked to mentally edit whatever minor details are necessary to match similar incidents with which he may be familiar. It is the author's hope that all those who could be cast in the role of LTC Elliot would ponder this hypothetical event and perhaps reconsider their policies. For those who have never been in a similar situation and believe their policies do everything to prevent it, congratulations, and best wishes for your continued success. 



PEARL'S

Personal Equipment And Rescue/survival Lowdown



Nettie Garth

photo by Tom Greene

Emergency Locator Transmitter

There have long been arguments both for and against the use of Emergency Locator Transmitters (ELTs) in Army aircraft. In fact, our first article on this subject was published in PEARL in October 1979. Sure, we have signal devices such as the flares, signal mirror and survival radio, but how effective are these items if you crash, are unconscious or have broken bones, and are unable to use them?

We feel that you should again be made aware of the current DA policy pertaining to ELTs as stated in DA Msg, DAMA-RQD, 241910Z Jul 81. "Hqs DA continues to support ELTs for aircraft in remote or isolated areas and other areas where a bona fide need exists."

The article appearing in the August 1981 *Aviation Digest* entitled "Emergency Locator Transmitters . . . Why wait?" again identified the ELT as a viable means of locating and rescuing downed aircrew personnel and their passengers. Further, based upon the Army's mishap experience, where delay in effecting rescue has resulted in loss of life and excessive time and money expended for search and rescue, the interest in ELTs is growing rapidly in the aviation community. We therefore suggest that each aviation unit evaluate its respective need for ELTs and forward its request for use of these items, with justification, through the appropriate chain of command to CDR TSARCOM, ATTN: DRCP0-ALSE. This information will be used

to assess the extent of interest and need for ELTs within the aviation community. (Reprinted from PEARL, December 1981)

ALSE Activities

The aviation life support equipment (ALSE) Management Steering Council held its latest meeting 28 to 30 October 1981 in Natick, MA. In attendance were representatives of The Surgeon General, Development and Readiness Command, Training and Doctrine Command, Forces Command, U.S. Army Safety Center, Army National Guard, and the Office of the Chief Army Reserve. Of the many agenda items discussed, the following programs are of particular significance to aviation personnel in the field.

- *Helicopter Crewmember Flotation Kit* concerns the development of a leg mounted or back pack type vacuum packed one-person life raft for aircrew personnel. Since several problems were identified during the Customer Service Test, the program is now in a "hold" status.

- *The Helicopter Oxygen System* involves the development of an oxygen system which would be available for Armywide application to all helicopters. The system is now under development and prototype systems will be available shortly.

- *The Aircrew Cold Weather Clothing System* concerns the evaluation and identification of a suitable antiexposure suit for immediate use by Army helicopter crews. This requirement is now under development and has been accelerated 1 year ahead of the projected developmental timeframe.

- *The Flyer's Gloves, Extreme Cold Weather* will start into development during fiscal year 1982.

- *The Aircrew Survival Armor Recovery Vest* involves the development of a new survival vest specifically designed for Army helicopter aircrews. This developmental effort is scheduled to begin shortly.

- *The Survival Environmental Packets* involve the development of improved survival equipment or components which are carried in the survival vest. This developmental effort is due to begin shortly.

- *The Aircraft Modular Survival Kit System* concerns the development of a modular survival kit system which will interface with present and future airframe designs and which will replace the currently issued survival kits. Approval is expected shortly for this developmental effort.

These are only a few of the efforts underway in the ALSE field. We will keep you updated on these and other developments as they occur.

New TM Adopted

U.S. Air Force Technical Order (TO) 14P3-5-81,

"Use, Inspection, Fitting and Maintenance Instructions for the Antiexposure Assembly, Type CWU-21/P," dated 1 May 1969, has been adopted by the Army. Technical Manual (TM) 10-8475-200-12 is now available through normal publications supply channels.

New Visual Signals For Survivors

The International Civil Aviation Organization (ICAO) and the Intergovernmental Maritime Consultative Organization (IMCO) have jointly adopted a new—and simplified—set of signals for use by survivors when signaling to aircraft. The new signals are only 5 in number, replacing a long-standing group of 18 signals. ICAO has incorporated the new code in Annex 12, Search and Rescue (SAR) to the Convention on International Civil Aviation. This amendment to Annex 12 became effective on 15 April 1981 and the signals became applicable for aeronautical use on 26 November 1981. IMCO will include them in the first amendment to the IMCO SAR Manual, the basic of which is to be issued shortly. (Adapted from *Flying Safety*, the U.S. Air Force Safety Magazine, September 1981)

According to the U.S. Air Force Inspection and Safety Center, Norton AFB, CA, the five new signals (shown in the figure) have been adopted for aviation use worldwide. It is vital that all Army aviators be aware of this new visual signal code; proper use of these signals could mean the difference between life and death in a survival situation.

message	code symbol
1 require assistance	V
2 require medical assistance	X
3 no or negative	N
4 yes or affirmative	Y
5 proceeding in this direction	↑

New Visual Signal Code for survivors

ALSE Pamphlet Update

We have been receiving a number of phone calls inquiring about the validity of our ALSE pamphlet which was originally published in 1977 and updated in

PEARL'S

1978. This publication contains a complete description of the Aviation Life Support System (Section 2), a list of the various sources of supply for ALSE items (Section 3), a list of references (Section 4), a list of ALSE and related items of equipment by national stock number (NSN) (Section 5), and a list of ALSE and related items of equipment alphabetically by nomenclature (Section 6). Although much of the information in the pamphlet is outdated, much of it is also still pertinent and still useful to personnel working with ALSE. We are in the process of completely revising and updating this publication, and we expect it to be in print and to be disseminated in the near future. Until that time, continue to use the 1978 edition for reference purposes.

Signal Kit Problem

A serious problem has been reported concerning the signal kit, personnel distress, PN A/P 225-5A, NSN 1370-00-490-7362, L119, which is a component of the SRU-21/P survival vest. The M-207 flare launchers in some of these kits have been found with the collets flush against the inner housing wall, thus necessitating the use of extreme force to insert and remove the signal flares from the launcher. It is feared that such a condition may result in the round remaining in the launcher after firing, leading to a heat buildup which may cause the round to explode and thereby injure the operator. Those defective launchers identified thus far bear PN OL4891050; however, *all* M-207 launchers should be checked to ensure that the flare rounds can be inserted and removed without the use of extreme force. Units finding defective launchers

should report the details to the U.S. Army Armament Readiness Command (ARRCOM), ATTN: DRSAR-QAS-P, on DA Form 2415, Ammunition Condition Report. Point of contact (POC) at ARRCOM is Mr. Tom Bilyeu, DRSAR-QAS-P, AUTOVON 793-4851 extension 219; POC at TSARCOM is Mr. Jim Dittmer, DRSTS-MCAPL, AUTOVON 693-3112.

Questions and Answers

We have replaced many bent, broken or otherwise unserviceable antennas on our AN/PRC-90 survival radios. What should we do with the antennas we have replaced? Is there some procedure for getting these items repaired so that they may be used again? It seems a waste to throw away an item costing in excess of \$27.00 simply because of some torn rubber insulation. (CW3 John Vasco, 2/10 Air Cav, 7th Inf Div, Ft. Ord, CA)

We agree that it seems a waste to throw away such an expensive (and sometimes hard-to-get) item as this antenna when it would appear that minor repair could restore it to service again. Be that as it may, both the Air Force and the Army Communications-Electronics Command confirm that no overhaul procedures exist for the antenna, AN/PRC-90 radio, NSN 5820-00-371-6806LS. The primary reason for this is the cost of repair in both materials and manhours versus the cost of replacement. As for what to do with the antennas you have replaced, since they are expendable and nonrepairable, throw them away. 

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



Major William F. Voth

Chief, Threat Branch
Directorate of Combat Developments
U.S. Army Aviation Center
Fort Rucker, AL

IF YOU ARE a longtime *Aviation Digest* reader, you may remember the February 1980 threat article which described the four-member threat team at that time. We've come a long way baby! We now have nine assigned and have recent authorization for a GS-12 civilian position, Intelligence Research Specialist, which we hope to fill soon.

Threat articles, identified by our threat logo as seen above, have become a familiar and, we hope, helpful part of almost every *Aviation Digest* issue over the years. Since "know your enemy" is one of the most basic laws of successful warfare, knowing may well save your life and will certainly help you do a better job!

To get the threat information you need and want directly to you, please take a minute to jot down your ideas, questions or comments, on the attached questionnaire. We would especially like to know what subjects you want to see in future *Aviation Digest* articles.

Providing current threat information to the aviation sector of the combined arms team through briefings and publication of threat items and articles in military periodicals is one of our important missions; we have several others which directly and indirectly benefit you, the combat aviator. We serve as the single point of contact for threat at the U.S. Army Aviation Center at Ft. Rucker, AL. This threat management function includes maintenance of the Center Threat Reference Library which contains the latest, all source, finished products from numerous intelligence agencies. This threat information, including briefings, is also available to you through your local threat representative or intelligence officer (see the threat training article in the April 1981 *Aviation Digest*). Our Threat Reference Library is the major source of information for the many articles and briefings we are called upon to produce.

Our task of supporting the Army Aviation materiel acquisition process in all stages is our interface in the combat development (CD) community. At Ft. Rucker, threat drives the CD train. We enjoy the total support and confidence of the CD structure and participate fully on the CD team. Ongoing actions include: the advanced attack helicopter (AAH)/semiautonomous laser HELLFIRE missile system (SALHMS), light helicopter experimental (LHX) and the Stinger air-to-air missile concept evaluation program.

In addition to supporting the resident Training and Doctrine Command System Managers (TSM) for the major systems acquisition, threat support, in large measure, is being given to the Army Aviation mission area analysis (AAMAA). We currently have three action officers working full time on this project. Since the major thrust of AAMAA is to identify and analyze the deficiencies facing Army Aviation in the near and far term, all of Ft. Rucker's combat developments community is centering on this action as a number one priority. Threat Branch has produced a detailed threat chapter of the study and has also played the Red forces of the battle wargame from which Red/Blue loss exchange ratios (LERs) are derived. These LERs demonstrate the capabilities of present and future Blue systems against projected threat systems.

The third major mission area of Threat Branch is training and training development. We give guidance for and review of lesson plans for threat content validity. In this capacity, we also monitor threat instruction in coordination with the Department of Academic Training. Our branch is becoming more involved in review of all training literature and audio-visual products containing threat portrayals. You can also blame us for those threat questions on the aviator's written examination.

Divided among us are 13 areas of subject matter. Each analyst specializes in several of these and is, therefore, the point of contact in that subject area. Page 24 shows these and the analysts responsible.

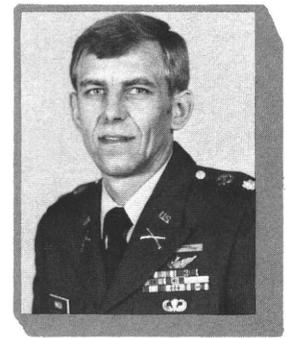
Threat Branch is a busy place. We do a lot of traveling to both gain and give threat information. We receive numerous calls daily from aviators requesting answers to threat questions; and while a lot asked for is unclassified, often a visit to our office or a secure telephone call is necessary due to the classification of the material (ask your local Special Security Office for the AUTOSEVOCOM number). In this regard, one of our primary missions is getting current threat information to you through publication of threat articles and assisting you in requesting threat training material. Any suggestion how to better do this would be welcomed. Write: Director of Combat Developments, ATTN: ATZQ-D-CT, Ft. Rucker, AL 36362. AUTOVON 558-3506/5671; commercial 205-255-3506-5671. Let us hear from you.



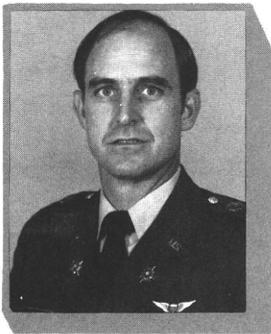
Major Frank E. Babiasz
 Military Intelligence (35/15)
 2,5,6*



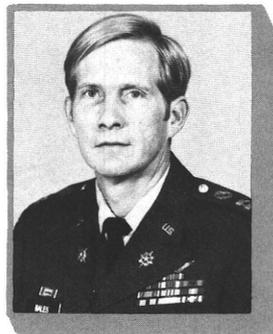
Major William F. Voth
 Infantry (15/35)
 2,5,6,12,13*



Major Bronislaw R. Maca
 Infantry (15/35)
 5,7,10*



Captain (P) E. Gary Campbell
 Military Intelligence (15/35)
 3,6,10,12*



Captain David Bales
 Military Intelligence (15/35)
 1,2,4,6*



Captain (P) Don R. Faint
 Military Intelligence (35/37)
 8,9,12*



**Sergeant First Class
 Richard K. McNeal**
 Military Intelligence
 Analyst (96B40)
 4,7,11*



**Specialist 5th Class
 Janet L. Garofalo**
 Military Intelligence
 Analyst (96B20)
 1,3,13*



Captain Dale L. Radtke
 Military Intelligence (15/35)
 2,8,9*

*** Areas of expertise**

1-Nuclear,Biological and
 Chemical Warfare
 2-Tactics and Doctrine
 3-Order of Battle, Mid/Far East
 4-Order of Battle, Europe

5- Tactical Air Defense
 6- Tactical Aviation
 7- Ground Vehicles
 8- Electronic Warfare
 9- Directed Energy Weapons

10- Current Intelligence
 11-Field Artillery
 12-Materiel Acquisition Process
 13-Data Base Management

USAAVNC THREAT BRANCH Questionnaire

1 What do you think of our threat articles ?
 good o.k. bad

2 Which threat articles from past issues were outstanding ? _____

...not so outstanding ? _____

3 Are threat articles helpful to you in unit training ? yes no
comment _____

4 What threat subjects would you like to see addressed in future articles ?

5 How would you assess the level of emphasis on threat awareness in your unit ?
 satisfactory unsatisfactory How can we help ? _____

6 Prioritize threats to U. S. Army Aviation by numbering the following one through nine
(1 = highest threat):

___ Radioelectronic Combat	___ Artillery
___ Small Arms	___ Tactical Air Defense (ZSU 23-4, SA-7, SA-9)
___ Antitank Guided Missile	___ Soviet "Army Aviation" (air-to-air)
___ Tank Main Gun	___ Nuclear, Biological and Chemical Warfare
___ Directed Energy Weapons (laser, particle beam, EMP)	

7 Do you have any questions, comments or requests ?

8 (optional) rank, name _____
duty position _____
unit address _____
AUTOVON _____

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U.S. Army Aviation Center
ATTN: ATZQ-D-CT
Ft. Rucker, AL 36362

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Directorate of Evaluation/Standardization
REPORT TO THE FIELD



The Army Standardization Program

PEACETIME ARMIES prepare for war! Training in the tasks of war is the sole tool a peacetime army has at its disposal to ensure that when war occurs, the army is able to meet its obligation.

One of the most difficult tasks facing a commander in a peacetime army is that of determining just how well trained his unit really is. Measurement of a unit's, crew's or individual's readiness is essential for decisions relative to training requirements.

"Checkrides, annual aviator proficiency and readiness test, aircrew training manual and dash 10" are all terms aviators are very familiar with through the Aviation Standardization Program outlined in AR 95-1. The Aviation Standardization Program permits commanders of aviation units to monitor their aircrew proficiency and accurately measure the training requirements needed to bring their units to full combat readiness. The success of the aviation side of their commands rests with "worldwide standardization." From the flying standpoint, the commanders know each aircrew will perform the same aircrew task exactly the same way, even if a new person just arrived from another unit the day before.

It is unfortunate that flying tasks do not comprise the entire spectrum of the commander's responsibility for training. Maintenance, supply activities, mess activities and logistical requirements for his unit are among the many other tasks that have to be addressed in his readiness thinking. There are many tasks in the unit that do not come under the umbrella of the Aviation Standardization Program. The commander

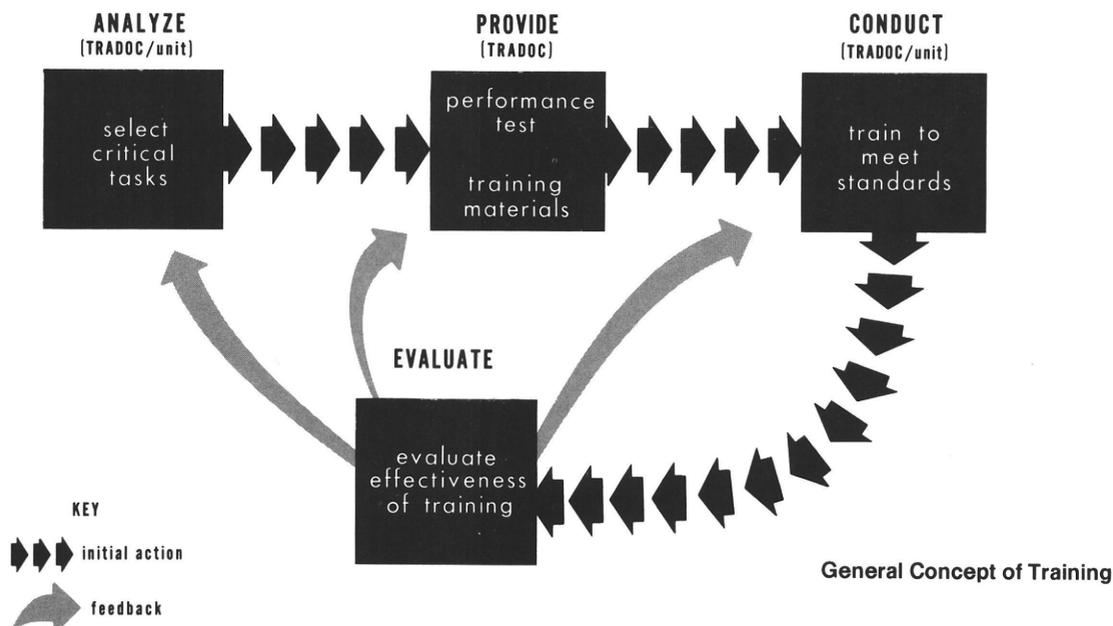
cannot afford to ignore these when assessing his unit's overall readiness position.

The Chief of Staff recognized the need to standardize all Soldier and crew tasks where possible and recently directed the implementation of the "Army Standardization Program." The Army Standardization Program is a tool that will eventually assist the commander in seeing the training battlefield.

The similarities between the Army Standardization Program and the Aviation Standardization Program are many and the purpose of each is essentially the same. The basic goals of each program are: Provide a measurable standard for tasks that can and must be performed the same throughout the Army; train Soldiers and crews as a minimum to meet that standard; permit no deviation from the standard that was set.

The program is an extension of the Battalion Training Management System, Soldier's Manual and ARTEPs (Army Training and Evaluation Programs) and impacts on all military specialties. Chapter 5, AR 350-1 outlines the program. The initial steps have been completed and identification of those tasks that can be standardized is being conducted at this time.

Examples of tasks currently under consideration for standardization that directly affect aviation are: "Passage of navigation information, hand signals during forward area refueling operations, tactical lost communications, listening silence procedures, target hand-off procedures and aerial observer training." Numerous other



tasks have been suggested and are under consideration by the responsible agency for inclusion in the Army Standardization Program.

“Training Management in Battalions,” TC 21-5-7, is a tool used by commanders to set up their training programs (see figure). It outlines a four-step general concept of training. The Army Standardization Program is currently in the first phase of this model. The intent is to reach the evaluation phase and complete the loop back to the trainer.

Once this loop is completed, the trainer has a tool which will assist him in evaluating his unit’s training needs. TC 1-134 asks the questions, “Are my Soldiers ready for war today?”; “Is my unit capable of performing its mission and surviving on the modern battlefield?” It goes on to point out, “The answers to these questions must guide the commander in formulating his unit’s training program.” The Army Standardization Program coupled with the Aviation Standardization Program will add a measure of confidence to the commander’s answers to these questions.

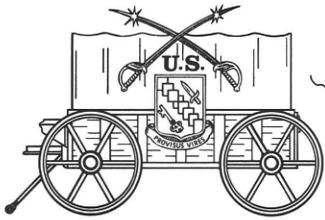
The U.S. Army Aviation Center at Ft. Rucker, AL, has established a Branch Standardization Committee to review tasks,

topics and procedures suggested for inclusion in the program. If you have a task, topic or procedure you would like to submit for consideration, address it to the Director of Evaluation and Standardization, ATTN: ATZQ-ES-E, Ft. Rucker, AL 36362. We always welcome your inquiries on any subject affecting aviation. The Director of Evaluation and Standardization would like to acknowledge and thank those in the aviation community who responded to the recent “Report to the Field” on tactical instruments. There were many well presented suggestions and all are being carefully considered.



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



Captain LeRoy K. Neel
 Public Affairs Officer
 6th Cavalry Brigade (Air Combat)
 Fort Hood, TX

HOME COMING MISSION FOR THE 6th CAV

TO THE WEST of Ft. Hood, TX, in an even more arid part of Texas, lies the city of Ozona, population 4,500. Surrounded by steep-walled mesas and deep arroyos, the ranchers here graze only 60 head of cattle per section of land (640 acres). Cactus and pampas grass are the most prevalent flora in this region, and new-found oil is the latest topic of conversation of its inhabitants.

The 6th Cav, historically, is not unfamiliar with this area, and recently was called on once again to lend assistance. The circumstances were different however than when the 6th was headquartered at Forts McKavett, Stockton and Davis during the Mexican Expedition and Indian Wars periods of the 1800s.

The request for assistance arrived and the Wagon Masters of D Troop, 34th Support Squadron, 6th Cavalry Brigade (Air Combat) rallied to the call. With their workhorse, the CH-47 Chinook readied, the crew consisting of the pilots, CPT Steve Misseldine and CW3 Ron Bender; the flight engineer, SGT Lester Hayse and the crewchief, PFC Ray Hill, departed Ft. Hood with III Corps riggers, SGT Gary Baker and SP4 James Coffey aboard.

The 2-hour flight was uneventful and contact was established in Ozona with a representative of the National Scientific Balloon Facility, located in Palestine,

TX. With the situation discussed, the cavalry troopers took to the sky for a first hand look at the problem.

Once onstation, the crew and riggers examined a metallic bar framed cubic box (hexahedron) filled with celestial electronic data collecting equipment of about 15 feet by 5 feet in size and weighing more than 3,000 pounds. This payload, belonging to the Federal Republic of Germany, had been mounted on the gondola of a gas filled balloon and was crossing Crockett County when its mission was terminated and the gas was allowed to escape. A parachute mounted to the frame brought the equipment safely to the ground and it finally rested on a steep banked escarpment on the Amos Owens Ranch. Trucks and four-wheel drive vehicles tried in vain to recover it. "I can see why nothing else can retrieve it," said PFC Hill, "but with this bird's capabilities we'll have no problems."

Enter the Wagon Masters—The pilots sized up the situation from the ground, issued orders to the riggers and departed for their helicopter, parked on top of the mesa. On determining the center of mass, the riggers affixed straps to the equipment, placing a metal ring near the top for the helicopter hook to grasp. As the Chinook hovered above the structure and lowered its cable, the hook was securely fastened to the ring. Slack out of the cable, the CH-47 hoisted the equipment and carried it to a predetermined spot on the valley floor where it was lowered in a place accessible to trucks.

With the mission completed, the huge aircraft flew back to Ft. Hood.

"This mission was an excellent training vehicle for a recovery crew," said CW3 Bender. "With the close nature of the work involved, the slope of the mountain in relationship to the helicopter blades, it required more pilot/crew coordination than the usual flat terrain missions."

"These missions never fail to increase our knowledge of recovery techniques," added SGT Hayse.

The troopers of the 6th Cavalry Brigade (Air Combat) once again came to the rescue in a territory they helped to protect more than a century ago.

A 6th Cav Chinook embarks on a unique mission



REPORTING FINAL

Late News From Army Aviation Activities



Four Decades of Service

Plan now to attend the celebration of Army Aviation's 40th anniversary from 4 to 6 June at Ft. Rucker, AL. There will be something for everyone to enjoy among the numerous events planned. Those include displays of Army aircraft and related systems and nonaviation equipment; tours and open houses at training, research and museum facilities; ROTC demonstrations; social gatherings; a carnival and bazaar; dedications and a memorial service.

More details will follow in the *Aviation Digest*. Further information can also be obtained by contacting the 1st Aviation Brigade Planning Committee, ATTN: CPT Shelton, 1st Aviation Brigade, Ft. Rucker, AL 36362. Telephone AUTOVON 558-3190/3405 or commercial (205) 255-3190/3405.

FROM WASHINGTON

New FORSCOM Commander. Lieutenant General Richard E. Cavazos, a nominee for the rank of four-star general, has been named to command the U.S. Army Forces Command (FORSCOM) at Ft. McPherson, GA, moving there from his present position as commander of the III Corps and Ft. Hood, TX.

At FORSCOM he will succeed General Robert Shoemaker who retired this month.

General Cavazos' new responsibilities will include exercising command control of the numbered continental United States (CONUS) armies, the major combat and combat-support troop units in CONUS, Alaska and Puerto Rico, and of units, installations and activities that are principally related to FORSCOM's readiness and defense missions.

He received his ROTC commission on graduation from Texas Tech University in 1951 and is

today the highest ranking military officer of Hispanic heritage in the Defense Department.

(ARNEWS 134)

Rescue Assistance. Five helicopters from Davison Army Airfield, Military District of Washington, were dispatched 13 January to participate in the recovery operations after a jetliner out of National Airport crashed in the Potomac River.

The first UH-1 Huey with a hoist onboard arrived at the scene about 20 minutes after notification was received at Davison. Because helicopters of the National Park Service were already operating out of the confined crash site, only one of the Army aircraft was used to transport a survivor to the hospital. However, the Hueys were on standby until about 9 p.m.

Commander of Davison Army Airfield, which is adjacent to Ft. Belvoir, is Colonel Willis R. Bunting.



TWO FIRSTS. 2LT Sheryl Rozman, left, is the Oregon Army National Guard's first woman helicopter pilot. She is assigned to Det 1, HHD, 141st Support Battalion at the Army Aviation Support Facility, Salem, OR



. . . CW2 Mary C. Slaughter, right, is the first woman to attend and graduate from the Aviation Warrant Officer Advanced Course at Ft. Rucker, AL. CW2 Slaughter is assigned to the U.S. Army Student Detachment, Ft. Benjamin Harrison, IN

FROM MARYLAND

New Management Structure. The Air Traffic Control Combat Support Activity (7th Signal Command), Ft. Ritchie, MD, has been formed to attain a more intensified management of tactical air traffic control. (PAO)

FROM FORT RUCKER

A Fourth of the Way There. A \$10,000 pledge from Northrop Corporation has raised the Army Aviation Museum Foundation's fund drive to the \$500,000 mark which is one-fourth of the \$2 million needed for the construction of a facility to house the museum!

"The new building will give the Army Aviation community a place of pride for displaying its history," explained Ed Brown, director of development of the foundation and coordinator of the fund drive. He noted that the structure will be large enough to contain the museum's entire inventory of aircraft, now numbering more than 100.

Individuals, units, industries, etc., are urged to make a tax-deductible contribution to the fund. The address is the Army Aviation Museum Foundation, Inc., P.O. Box H, Ft. Rucker, AL 36362.

Presentation of the Northrop pledge, to be paid next year, was made by Mr. John Richardson of the firm's home office in Century City, CA. That \$10,000 is in addition to the more than \$52,000 that has already been contributed by Northrop Worldwide Aviation Service, Inc., a

corporation subsidiary which has the aircraft maintenance contract at Ft. Rucker.

Graduation Speakers.

- Rear Admiral John G. Wissler, commander, Naval Air Test Center, Patuxent River, MD, challenged 64 newly rated helicopter pilots to leave a legacy for succeeding generations of military aviators.

The shape of that legacy, he said, will depend on how the aviators manage their careers and resources, as well as how they lead others.

- Major General James F. Hamlet (U.S. Army, Retired) told graduates of a recent Aviation Officer Safety Course that they must be leaders in the safety field and place high safety standards on their units.

A former deputy inspector general of the Army, and one of the last Army Aviation Liaison Pilots to retire, General Hamlet said that the aviation safety officer's duty is one that never ends.

(PAO)

FROM NEW YORK

Contract Awarded. The Army Communications-Electronics Command, Ft. Monmouth, NJ, has awarded Telephonics Corporation, Huntington, NY, a contract calling for the development, fabrication and testing of 52 communication system controls, together with associated test sets, for universal application in Army aircraft. Production versions of the airborne controls will initially be installed in the AH-64A Apache.

FROM COLORADO

MAST Rescue. There were no reindeer or sleighbells, but when the UH-1 Huey helicopter from the Ft. Carson Military Assistance to Safety and Traffic (MAST) team made its appearance 29 December, it brought the best possible gift to the four survivors of a private plane that crashed Christmas Eve in the mountains near Buena Vista.

The evacuation of the injured people was made from a small rock ledge on the mountainside. Weather conditions were heavy snow and high winds.

MAST crewmembers, who are assigned to Carson's 571st Medical Detachment, were CW3 John Pariury, pilot; 1LT Gary Buhler, copilot; SGT Daniel Redd, crewchief; and SP5 Brent Evans, medic. (ARNEWS 157)

FROM GERMANY

One of a Kind. At the Heidelberg Army Airfield, 61 men and women work around-the-clock to keep more than 7,000 Army pilots and their passengers safe. They are in the 59th Air Traffic Control Battalion's Army Flight Operations Detachment (AFOD), the hub of Army flight operations in Germany and the only unit of its kind in the world.

AFOD's job is to coordinate Army air traffic with Air Force, NATO (North Atlantic Treaty Organization), commercial and private air traffic. And when something goes wrong, it becomes the vital link between the pilot in trouble and help.

The service to the aviator begins when the flight is planned. The teletype section at AFOD links up all Army airfields with the rest of the flying world, and the more than 2,000 messages received daily help with that planning.

(Martha Rudd, 5th Signal Cmd PAO)

REUNION INFORMATION

6th Cavalry Brigade. A reunion for the 6th Cavalry Brigade (Air Combat) will be held at Ft. Hood, TX, 16 to 17 April. For further information, contact CSM Willie J. Bethay at AUTOVON 737-3010/5950/5802, or the PAO at 737-4494. Commercial numbers are 817-684-3010 and 817-685-4494.

(BDE PAO)

57th Fighter Group. Information about members of the 57th Fighter Group who served from 15 January 1941 through 7 November 1945 is sought by Wayne S. Dodds, P.O. Box 10428, Glendale, CA, 213-240-6868. The first reunion for the group since World War II is being planned. (Dodds)



photograph by SP4 Denise Starr

IN MEMORY OF. Jean Monk places a nameplate bearing the name of her late husband, CPT Donald G. Monk, on the "In Memoriam" plaque of the Army Aviation Museum Foundation, Inc., during a ceremony at Ft. Rucker, AL. Looking on is LTC William E. Woodson, commander of the Army Aviation Development Test Activity (USAAVNDTA) at the post. The aviator was killed in April 1979 while testing the XM-130 chaff system which dispenses shredded aluminum foil to distract enemy radar controlled weapon systems. Personnel of the USAAVNDTA donated \$100 to the Museum Foundation in CPT Monk's memory.

AVIATION DIGEST AWARDS. MG Carl H. McNair Jr., seated, commanding general, Ft. Rucker, AL, discusses the award-winning article written by MAJ Michael L. Brittingham, second from right, which appeared in the October issue of the *Army Aviation Digest*. Other monthly award winners are, from left, CW2 Gary R. Weiland (July), "Hangar Talk"; CW3 Carl D. Everhart and Michael G. Sanders, Ph.D. (August), coauthors of "Aviation Warrant Officer Retention: A Matter of Concern"; MAJ Brittingham, "Smart Guys Win: The Thinking Man's Guide to Helicopter Aerial Combat"; and MAJ Gordon L. Rogers (September), "Aviation Warrant Officer Retention: The Factors Which Influence The Decision To Leave." Each writer received a Certificate of Achievement from the magazine and an engraved pen from the post Thrift Shop. CW3 Orion T. King, now stationed at Ft. Hood, TX, was coauthor with MAJ Rogers. (photograph by SP4 Denise Starr)



photograph by SP4 Denise Starr

HOW TO GET THE



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TOTAL ELECTRIC FAILURE



WHAT WOULD YOU do if you had an electrical fire/failure while flying instrument flight rules (IFR) in a UH-1 Huey and lost all the electrical system? What then?

Could you keep the right side up? Or would you go into a graveyard spiral or roll inverted and kill yourself and others? Could you handle this? Many Huey pilots have wondered!

When I started flying Hueys, I often wondered why they weren't equipped with the vacuum-operated turn needle. I haven't figured it out yet. Whatever the reason, if you lose your electrical system, you will be forced into instrument flight without a horizon, radio magnetic indicator (RMI) or a turn needle. The turn needle would not fail instantly, but would within 30 to 45 seconds, depending on the condition of the bearings in the instrument.

I never became overly concerned about this situation until one day, I departed Dothan, Alabama, en route to Tennessee, with another pilot in a Cessna 310.

On takeoff I noticed that the magnetic compass had an air bubble just barely visible across the top. I wasn't too concerned since it had a lot of fluid left, was working perfectly and I had seen this before in other aircraft.

As we climbed on an IFR clearance into the clouds (about 2,000 feet above ground level) departure control cleared us to maintain 6,000

IN THE UH-1

Mr. Roger F. McPheeters

Crystal River, FL

Mr. McPheeters was a Department of the Army Civilian flight instructor at the U.S. Army Aviation Center, Fort Rucker, AL, when he wrote this article.

feet. I smelled an odor resembling kerosene in the cockpit as we continued to climb. It got stronger, and I noticed that the fluid level in the compass was dropping quite rapidly. This meant the magnetic compass would be nearly dry and very inefficient shortly. I checked and found that fluid was running down into the radio instruments. The odor of kerosene was extremely strong, so I opened both cabin air vents to get more air. Still the odor was strong; it smelled as if I had stuck my nose in the gas filler neck of a Huey.

Fluid was running out the front of the instrument panel directly below the radio package and dripping on the throttle quadrant. The fumes were so strong I felt they could be explosive or the fluid could start a fire in the instrument panel.

I immediately shut all electrical systems off, picked up my portable standby II very high frequency (VHF) transmitter-receiver, plugged it into the external antenna and called approach control. I advised them of our predicament, requested to reverse our course and to descend to visual flight rules (VFR) conditions. They cleared us, and we reversed our course, descended to VFR conditions, cancelled our IFR flight plan and landed.

The Cessna had a vacuum-operated turn needle, which we wouldn't have had in a Huey. This made me really think about what we would have done if we had been IFR in a

helicopter that didn't have an electrical system.

Shortly thereafter, while instructing instrument students in a TH-13T Sioux, I asked various advanced students to try flying the helicopter with the horizon, RMI and turn needle inoperative. They would:

- Use only the ball, airspeed, altimeter, vertical speed and magnetic compass.
- Maintain their altitude with collective.
- Maintain airspeed and heading with cyclic.
- Keep the aircraft trimmed with the ball.

I found in both the TH-13T and later in the Huey that if the student stayed calm and held a heading east or west, that the pilot could continue flying the helicopter and not come near losing control. They could even turn to the north or south, reverse direction, change heading, let down and climb the first time if they stayed calm, and made small movements with the cyclic and collective, monitored their instruments and were careful.

The most critical part of turning is turning from north, since starting from this direction the compass is not representative as to which direction you are turning. However, understand the magnetic compass and compass turns and keep your bank equivalent to one-fourth to

not more than one-half standard rate (equal to 4 to 7 degrees bank, preferably 4 to 5 degrees in a Huey). Do not try to climb or descend while turning if possible. This throws the helicopter into a bank (left or right on its own) and makes you have to move the cyclic farther to maintain the same attitude. If this additional cyclic is applied in the wrong direction, by misinterpreting your non-electrical instruments, it could be fatal under IFR conditions.

All climbs and descents should, if possible, be made on a heading of east or west with the ball centered. This way you'll note any turn on your magnetic compass almost immediately (which indicates you're in a bank). Make all movements of the cyclic (left or right) smoothly, slowly and very small. Do not make large changes of collective, since it will require larger and quicker movements of the cyclic laterally.

If you feel you are getting into trouble in a turn, roll out slowly and hold a heading (any heading). Then start your turn again carefully, very carefully.

After trying this several times (30 minutes or so) under a hood in VFR conditions, you will find it builds your confidence. And if you're ever forced to turn off the electrical system or it fails, you'll not have the tendency to panic. You'll know if it's possible to fly the helicopter without an electrical system.

Try it, it's a confidence builder!

This article is not intended to dwell on how to train. The shelves are filled with volumes on that subject. Rather, it points out a unique malady among many utility helicopter units—training starvation.

TRAINING - the Key Ingredient

Major Harold J. Brecher

Matériel Developments Division
Directorate of Combat Developments

and

CW3 Robert E. Browning

Combat Skills, Lowe Division
Directorate of Training and Doctrine
U.S. Army Aviation Center
Fort Rucker, AL

RECENT EDITIONS OF THE *Aviation Digest* have featured a number of well-written articles graphically portraying the capabilities and employment of threat weapons. The articles have illustrated quite clearly what can be expected on tomorrow's battlefield. However, their main emphasis has been focused on attack helicopter operations. It is this element of Army Aviation that has the mission to defeat the heavy armored forces of the enemy.

Our attack helicopter units are organized and trained specifically to provide the commander with the mobility and firepower needed to concentrate forces at decisive points to attack and defeat the enemy. All of their efforts are expended toward that one objective and rightfully so, but what about the other aviation elements that will be moving about the battlefield? Do they have the equipment and training necessary to survive a mid/high intensity conflict?

Utility helicopter crews, for example, have a number of diverse missions. The emphasis of their training is not channeled toward a single objective. It is divided among several mission areas such as troop and logistical

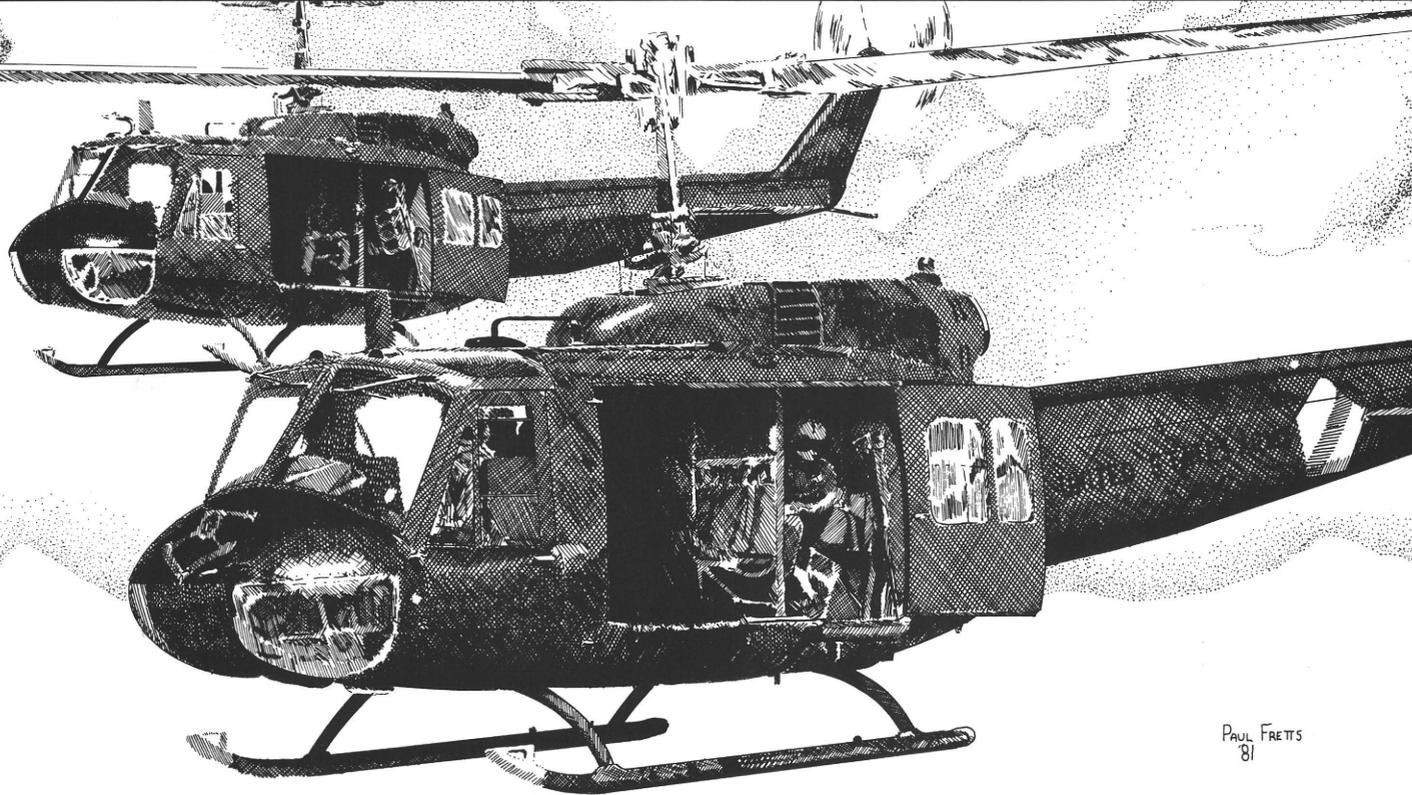
movement, aeromedical evacuation, command and control, target acquisition and intelligence gathering. As a result, tactical training for these crews is general in nature rather than highly specialized.

Of all those elements of battle which determine the success of a conflict, the single most important contributing factor is training proficiency. This can be historically proven. In the 1973 Mideast War both sides had excellent equipment; however, the highly trained Israeli forces held the advantage. Once they were fully mobilized their well-trained personnel and effective combined arms tactics turned the tide of battle in their favor. Even though the utility helicopter crews do not plan to meet the enemy on every mission, their training proficiency must be high enough for them to survive the modern threat.

Army Aviation is expected to operate at and across the forward line of own troops. This means more than just attack and aeroscouter aircraft. Who will insert the ground forces? Who will deliver the urgently needed ammunition and supplies or insert the TOW ambush teams? These will be critical missions which aviation must be able to guarantee if it is to keep its newly recognized place as a combat arm. Aerial deliveries of personnel and equipment are real missions which we have now; and in order to accomplish them, we must be highly proficient with the aircraft and equipment that are in the current inventory.

This is not intended to be an article on how to train. The shelves are already filled with volumes on that subject.

It is meant to point out that utility helicopter units often fall victim to a unique malady which few others have—training starvation. This comes from numerous



PAUL FRETTS
81

flying hours being used to move personnel and equipment to and from the field or unit training areas or to fly other administrative missions which may not be specifically directed toward training.

This time, which is invested in administrative missions, must be constructively used to the maximum. Training managers need to be innovative and imaginative. Missions should be tailored to provide for training the crews to fly the way they will fight through injecting appropriate tasks/maneuvers where possible in those administrative missions.

Proper pre-mission planning must be accomplished to derive the most from each flight hour. The basic skills of terrain flight navigation and nap-of-the-earth (NOE) flight operations cannot be overemphasized. However, the basic principles of these tasks can be incorporated into any mission, regardless of altitude flown.

There are some tasks which do not readily lend themselves to incorporation into administrative missions. One such example is operation of the onboard survivability equipment. Aircraft survivability equipment covers a wide range of threat areas, from radar directed weapons and infrared missiles to the individual Soldier on the battlefield.

In the case of radar warning and suppression, operation of the AN/APR-39(V)1 and AN/APR-44 can be accomplished without the use of special training aids or unique areas. Most units, whether in the United States or overseas, are located near a ground controlled approach or other friendly type radar. A friendly radar will activate the radar warning receiver and, with the proper training attitude, this can be used to practice operation of the radar warning receiver and to perform necessary evasive maneuvers. Training of

this type will stimulate a free exchange of thought and information within the unit and, to a degree, improve the combat readiness of all members.

If you are fortunate enough to be located near a friendly air defense artillery (ADA) unit, it might be possible to establish a cooperative training program which will benefit both the ADA unit and yours. This type of program will add a sense of reality for the aircrews as well as increase the proficiency of the air defense crew in tracking helicopters.

If your unit's aircraft are equipped with the M-130 chaff dispenser, radar suppression training can be accomplished. This training can be combined with evasive maneuvers either verbally or through the use of the chaff practice round which dispenses confetti instead of the normal chaff particles.

Infrared suppression training can be accomplished in conjunction with NOE and other evasive maneuvers to avoid or break infrared lock on; this also should be a part of discussions of threat formations and tactics. The proper technique is discussed in TC 1-135, "Aircrew Training Manual, Utility Helicopter."

These are but a few examples of methods used to accomplish training in these tasks.

Supervisors at all echelons can start to develop an effective program of alternate training methods which will maximize precious training hours and dollars. A good place to start is by comparing your current program to that suggested in Chapter 9 (Army Aviation Unit Survivability Training) of FM 1-2, "Aircraft Battlefield Countermeasures and Survivability."

Remember, training—to acquire and retain combat proficiency—is the number one ingredient affecting mission accomplishment and survivability on the battlefield.

Captain Bruce Coons

An Alternate AH-1 TOW Training System

THE AH-1S COBRA helicopter was one of the primary weapons systems that participated in the joint test of tactical aircraft effectiveness and survivability in close air support antiarmor operations (TASVAL). The joint test was conducted during the summer months of 1979 by the U.S. Army Combat Developments Experimentation Command (USACDEC) at Ft. Hunter Liggett, CA (see references).

As TASVAL was the largest and most sophisticated computer-monitored field experiment ever conducted at Ft. Hunter Liggett, CDEC instrumentation design engineers were required to design and fabricate a complex and sophisticated instrumentation system that would collect, process, evaluate and display vast quantities of data on a near real-time basis. In addition to the microprocessor-based instrumentation system that processed and passed

data between the central computer complex and the participating vehicles, key weapons systems such as air defense units and aircraft also were equipped with video (television) instrumentation systems to record on video tape simulated battle engagements for later study. Post-mission analysis of the engagements provided detailed data about target identification, tracking, aim error, masking and other parameters. The video recording system on the AH-1S Cobra helicopter recorded the same image that the gunner saw in the telescopic sight unit (TSU). The engagements recorded during the TASVAL test provided valuable insights into target acquisition and tracking procedures. The video system designed for the AH-1S in TASVAL may have some useful training and operation applications. This article will describe the video recording system used on the AH-1S and how it was employed.

System Description. The figure on page 40 is a block diagram of the video recording system used on the AH-1S aircraft during TASVAL. As indicated, only the video camera itself was mounted in the gunner's cockpit. The remaining components were attached to a shock-mounted aluminum pallet assembly that slid in and out of the aircraft ammo compartment in place of the ammunition box. This arrangement facilitated rapid and convenient removal of the instrumentation system for testing or maintenance.

The AH-1S video recording system consisted of several components and subsystems:

- *Video Camera*—The camera used in the TASVAL AH-1S Cobra video instrumentation system was a modified Edo-Western Corp, model CH-1431 miniature camera head. The TV camera is a rugged, miniature, two-piece unit designed for applications where size and weight are important and high resolution and dependable operation are essential even under extreme environmental conditions. The camera head is 2½ inches in diameter and 9 inches long, and weighs about 3 pounds. The camera was mounted in a special, locally fabricated mounting bracket in the gun camera port on the lower part of the TSU. The camera and its associated control cable projected slightly from the TSU into the area between the gunner's knees, causing minimum interference. The video camera in this application needed no separate lens since the optical processing necessary was supplied by the TSU.

A single multiconductor control cable, connected to the rear of the camera, was routed between the gunner's knees, along the bottom of the seat, through a modified inspection panel near his left foot, through the upper part of the turret and finally through the ammo belt passageway into the ammo compartment to connect to the camera control unit mounted on the video instrumentation pallet.



- *Camera Control Unit (CCU)*—The camera control unit was the second part of the camera system. It was an Edo-Western Corp, Model CCU-1430 airborne TV camera control unit designed to operate with the 1431 camera head. The CCU is about 7.75 by 5.25 by 3.35 inches and weighs 3 pounds. The CCU takes the primary power, develops the voltage and various synchronization and control signals needed by the camera head and outputs a standard EIA RS-170 composite video signal. The control unit is designed for airborne and other extreme environmental conditions. The control unit interconnects with the camera head by means of the single multiconductor cable.

- *Video Time Code Generator (VTCCG)*—Post-trial data reduction required that events recorded on video tape be accurately time-tagged to provide correlation with data collected by the central computer and other means. This was achieved by using an IET model D302515 VTCCG manufactured by Imposable Electronic Techniques, Inc. The IET VTCCG is a standard, off-the-shelf unit used primarily in commercial

video systems. Its output consists of hours, minutes, seconds and tenths of seconds digits interleaved with the composite video signal so as to place the numerals on the monitor screen. The VTCCG has provisions for stacking the time numerals either vertically or horizontally, and adjusting their size and placement on the monitor screen. The unit's primary power supply requires a nominal 28VDC and also includes an internal 9VDC rechargeable battery used to power the internal clock when primary power is disrupted.

The VTCCG is manufactured with a series of push buttons that are used to manually present the VTCCG to a given time. Although this manual time synchronization is acceptable in most cases, it was too cumbersome to meet the TASVAL requirements. Modifications were made in the VTCCG to enable the units to be automatically preset and synchronized with CDEC's Range Timing System, which is traceable to National Bureau of Standards standard time station WWV. This provided for accuracy and resolution of the time-tagging on the video tape to 0.1 second. The VTCCG also has the

capability of adding a "flag" numeral on the display when requested by an external signal. In the case of the TASVAL AH-1S system, a numeral "1" appeared in the lower left corner of the screen to indicate that a simulated tube-launched, optically-tracked, wire-guided (TOW) missile had been launched and was in flight. By observing the presence of this flag, data analysts were able to determine when the TOW was launched and watch the target being tracked throughout the flight time of the missile.

- *Video Tape Recorder (VTR)*—The composite video signal from the camera, with the time characters added by the VTCCG, was applied to the input of a TEAC V-1000 AB-N Airborne Video Cassette Recorder. The TEAC VTR is especially rugged for airborne application and weighs about 30 pounds. It uses convenient 3/4-inch video tape cassettes for ease of loading and unloading tapes. The VTR was mounted on the shock-mounted aluminum pallet in the ammo compartment. The VTR has provisions for external remote control of record/standby functions, will provide an end of tape signal and has the capability of two separate audio recording tracks. These and many other features make it especially well suited for airborne video instrumentation systems.

- *Power*—To power the video instrumentation system, as well as all other CDEC instrumentation systems onboard the AH-1S, CDEC instrumentation engineers designed and fabricated the instrumentation power supply (IPS).

The IPS contained several stages of electronic filters to reduce the electrical noise from the vehicular direct current power system. This clean power was used to power the instrumentation systems. The power also was used to trickle-charge dedicated, rechargeable instrumentation batteries whenever the vehicle charging system was operating. When the vehicle engine was off, the instrumentation system continued

to be powered from the dedicated instrumentation batteries. The IPS also provided a number of safety features, overcharge protection, and high and low voltage warnings.

The IPS received the aircraft power from the nonessential buss, through a circuit breaker and switch located on the pilot's breaker panel. Filtered power from the IPS was used to charge two 14VDC aircraft Nicad batteries mounted in the ammo compartment. The batteries were connected through a heavy-duty contactor relay wired to the control panel in the pilot's cockpit. In case of an emergency, the pilot could turn off power to the instrumentation power supply from the aircraft power buss and simultaneously isolate the instrumentation batteries. This was considered the best configuration for flight safety purposes. All instrumentation components,

including the video camera, VTCG and VTR, derived their required 28VDC power from the IPS.

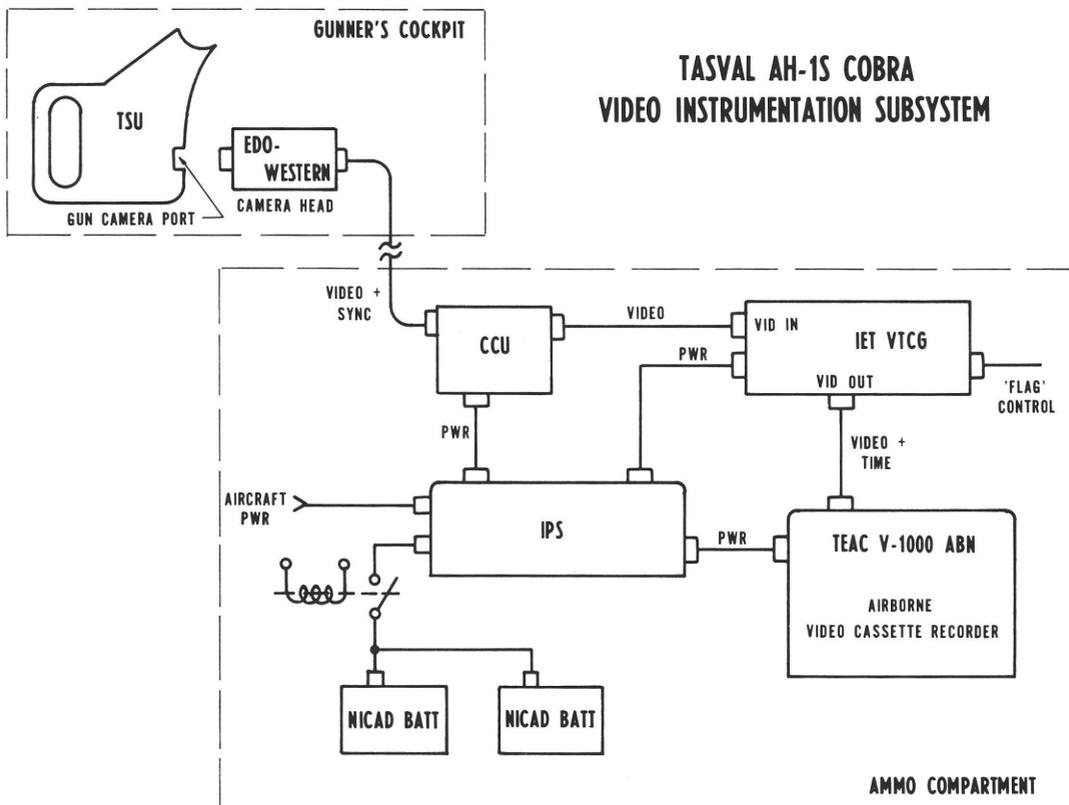
System Employment. The video recorder in the AH-1S was controlled by the onboard microprocessor contained in the instrumentation system. The microprocessor was in turn electrically connected to the firing circuits of the aircraft through a fire interface module.

Simulated TOW launch was determined by sampling the voltage applied to the silicon controlled rectifiers that normally fire the squibs in the TOW missiles. This voltage would appear if and only if a TOW missile were selected, a simulated missile was in the launcher, the aircraft was in prelaunch constraints and the trigger was pulled. In short, a signal would appear only if an actual missile would have been fired if it had been in the launcher.

When the TOW missile was launched, the microprocessor would turn on the video recorder for a preset period of time (normally 26 seconds). It would also cause the VTCG to place a numeral 1 "flag" on the video screen for the duration of the flight time of the TOW missile. At the end of the period the recorder would be placed in the standby mode and wait for the next engagement.

The video data were examined by data analysts and used to verify the following parameters:

- Number of engagements
- Target identification and aspect angle for each engagement
- Calculation of range and missile flight time for each engagement
- Target posture, exposure and breaks in line-of-sight for each engagement
- Time of occurrence for each engagement



Potential Training Applications.

The video recording system used during TASVAL could have several applications in unit training. During TASVAL, Cobra crews eagerly awaited arrival of the video tapes for post-mission debriefing. The system also provided a means for the aviator to observe the view seen by the gunner, who was "head down" in the TSU during various maneuvers. Combat units having video systems on their aircraft during training exercises and tests probably would find that post-mission debriefing would be facilitated, mistakes noted and corrected and the effectiveness of training increased.

A video system for unit training purposes probably would not need the accurate time-tagging required for TASVAL, so the cost of the system would be reduced. Also, since there are no power-sensitive components in the video systems, power could be supplied directly from the aircraft nonessential buss through appropriate circuit breakers. Approximate costs for the various video system components are:

- Edo-Western Camera Head, Control Unit and Interconnecting Cable \$3,500
- TEAC V-100 AB-N Airborne Video Cassette Recorder \$5,300
- Video Cassette Tape (Ea) \$20

Various power cables, connectors and mounting brackets would probably add another \$200 to the cost. The camera mounting bracket and aluminum pallet used to mount the video components in the ammo compartment are simple assemblies that can be fabricated in any medium-size support shop. Wiring to aircraft power is within the capability of a local avionics shop. Thus, total cost for an operational video recording system for an AH-1S aircraft should be in the \$9,000 to \$10,000 range. This could be a worthwhile investment to increase the training efficiency of a combat unit.

Captain Bruce Coons is a 1970 graduate of Clarkson College of Technology in Potsdam, NY. A Signal Corps officer, he is a graduate of the Signal Corps Officers Advanced Course and the Joint Service Telecommunication Systems Staff Officer Course at Keesler Air Force Base, MS. When the article was written he was assigned as a communications-electronics engineer with Instrumentation Command, U.S. Army Combat Developments Experimentation Command, Ft. Hunter Liggett, CA. During TASVAL Captain Coons was re-

sponsible for the conceptualization, design, fabrication and installation of the instrumentation system in the AH-1S.

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- "TASVAL," September 1979, *U.S. Army Aviation Digest*
- "JAAT," October 1979, *U.S. Army Aviation Digest*
- "Airborne Antitank Capabilities Scrutinized, Part I," November 1979, *Defense Electronics*
- "Airborne Antitank Capabilities Scrutinized, Part II," December 1979, *Defense Electronics*

The Army Aviation Center has developed a requirements document for a similar training device called the HITMORE (Helicopter Installed Television Monitor Recorder). It will consist of a TV camera, recorder, onboard monitor, necessary mounting brackets and electrical wiring assemblies. The HITMORE differs from the TASVAL equipment discussed by Captain Coons in this article in the following ways:

- Total system weight will not exceed 50 pounds.
- Onboard equipment will not interfere with crewmembers or aircraft mission capabilities (other than weight).
- Live ammunition firings are recordable.
- The pilot/instructor may observe the gunner's view through the gunner's telescopic sight unit on the onboard monitor at the same time as the gunner.

Costs for the total HITMORE system are similar to those of the TASVAL equipment. Fielding of the HITMORE if approved through higher echelons would probably be in fiscal year 1984.

Training Analysis and Design Division
Directorate of Training Developments
Fort Rucker, AL

PREPARED TO SURVIVE

photograph by SFC Dave Goldie



Dangling 120 feet below a helicopter in flight is not a favorite location for most flyers, but it beats having to walk out from a crash site—or does it!

SFC (P) W. Dave Goldie
Public Affairs Office
HQ, 193d Infantry Brigade (Panama)

Colin Hale
Public Affairs Office
U.S. Forces Panama

IMPENETRABLE jungles and large bodies of water. That's the terrain members of the 210th Aviation Battalion, 193d Infantry Brigade (Panama) fly over. It's their enemy and they have to be prepared to conquer it—that is a fact they live with on each mission.

To help with that preparation, the battalion started intensive survival and evasion (S&E) training for all aviation crewmembers last summer. Developed jointly by the 210th's staff and Ft. Sherman's Jungle Operations Training Center (JOTC), the two-phase course contains a series of classes designed to sharpen survival skills while increasing confidence and knowledge of the specialized survival equipment carried on the helicopters.

PHASE I

On the first morning of instruction the crewmembers learned vertical extraction techniques, using JOTC's newly designed jungle operation extraction system (JOES) hook-up. That procedure called for students to learn how to tie a "Swiss" rappelling seat, then rig a special series of knots in a standard rappelling rope that could be lowered from a rescue chopper to personnel downed in the jungle. The JOES was selected for the new course



photograph by Colin Hale

because it uses equipment easily carried on every mission—a short piece of rope for the seat and a snap link.

Each person was required to slip the rigged end of the lowered rope around his body and snap it into the rappelling seat. Then the helicopter lifted as many as four people at a time out of the dense foliage and, carrying them dangling from the 120-foot rope, took them to a safe landing zone (LZ), lowered them to the ground, then landed and picked them up.

Next the students learned about land navigation, a necessary skill because immediate location and extraction after a crash is not always possible. After receiving 2 hours of instruction and being divided into teams, they were transported deep into the jungle and told to find four locations before walking back to the JOTC. Their only provisions were a compass and some water.

This portion of the first day's instruction started at 1530 hours. All participants navigated the 4,000 meter course, finding all points and arriving back at the JOTC before midnight. That's an accomplishment most Continental United States (CONUS)-based infantry battalions that undergo jungle training can't claim!

The next morning the slightly weary crewmembers received inten-

sified jungle living lessons. They learned about both life-threatening and life-sustaining plants, foods and animals found in the jungle. Proper use of the aviator's survival vest equipment and the hot climate survival kit carried in the 210th's aircraft was also taught.

As the last portion of Phase I, hands-on instruction was given on the second of the constant crash threats, survival in the water.

Classes on how to use the one-man and seven-man life rafts were combined with training on how to build field expedient flotation devices. Then the students entered the water. Wearing water wings, they were required to swim to, enter and exit each type of raft, then swim back to the dock.

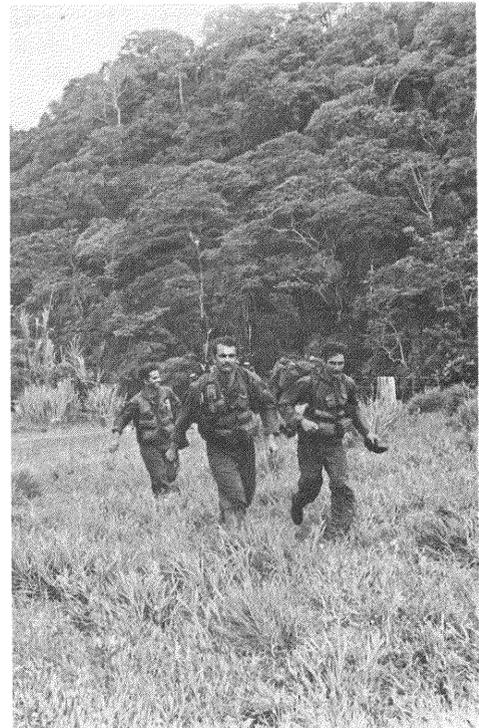
PHASE II

In this portion of the S&E course, UH-1 Huey helicopter crews were briefed on the scenario being played, on necessary radio procedures and frequencies and on safety requirements.

The students were told they were to fly a visual reconnaissance mission over the exercise area. After takeoff, they would be advised by radio of their targeted LZ. They were to have 10 minutes to find it and to radio the Army Forces (ARFOR)

The "downed" UH-1H sits on a ridgetop landing zone amid the jungle of Fort Sherman

After a night in the jungle, the crew hurries to the waiting UH-1H



photograph by Colin Hale

PREPARED TO SURVIVE

of their location as a "downed" aircraft. After landing, the crew had another 10 minutes to clear the helicopter and seek concealment in the jungle. Exercise rules precluded the downed aircraft's crewmembers from making contact with the ARFOR within 500 meters of the LZ; so the aviators knew they had a jungle trek of at least that length ahead of them, evading the enemies and looking for the friendlies. Most of them took much farther than 500 meters!

One crew made contact with ARFOR within 2 hours of leaving their LZ. That was about the same amount of time it took for Soldiers of the 101st Airborne Division (Air Assault), working as infantrymen for the exercise, to find the crew's helicopter and set up a perimeter to protect it.

Contact with the ARFOR occurred in the late afternoon, but that didn't mean getting out of the jungle for the Huey aviators. Instead, they spent the night moving through the jungle, reaching the pickup point the next morning where a helicopter awaited to return them to Ft. Sherman.

GETTING READY

"The possibility of an emergency landing is not something we look forward to," Captain Gary Bryant, training officer for the 210th Aviation Battalion, said, "However, it is a reality; and we intend to be prepared for it."

Every member of the battalion will complete both phases of the survival and evasion training, with annual sessions planned to ensure indoctrination of newly assigned personnel.

A JOTC spokesman said the two-phase module is being refined for submission to higher headquarters with the possibility that it might be incorporated as standard training for all flight crews, just as jungle training is for CONUS-based infantry units.



photograph by SFC Dave Goldie

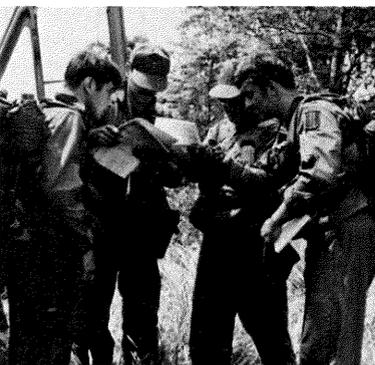
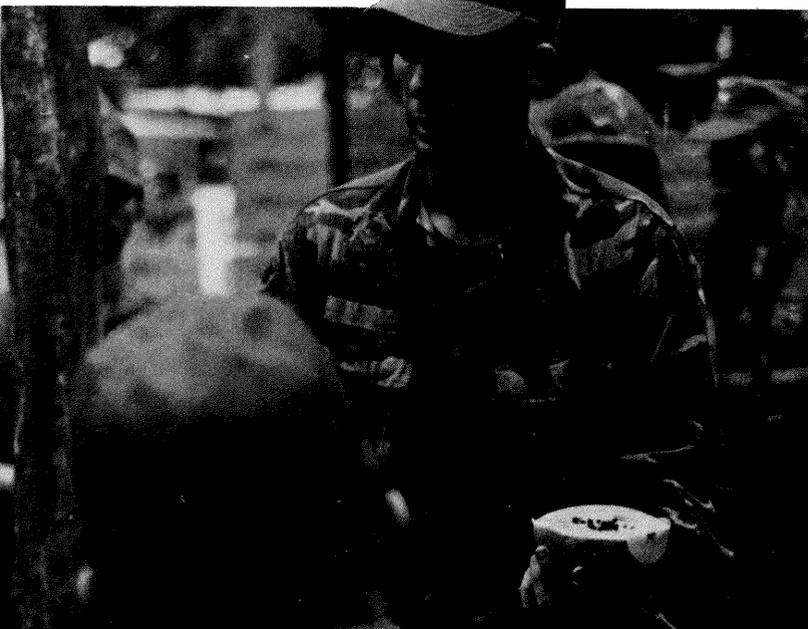


photo by Colin Hale

CW3 David Ciocca (above, right) concentrates on the next turn of the rope as he learns to tie the "JOES" extraction rig used in rescuing downed aviators. Talking him through the knots is the system's inventor, SFC Carol Frady (center) from the Jungle Warfare Branch at JOTC

The "downed" crew and the evaluation officer compare map positions (left) JOTC's jungle living expert, SFC Ray

Aylesworth (below) discusses food sources available in the jungle



photograph by SFC Dave Goldie



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

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

ARMING THE AEROSCOUT

THERE HAS BEEN a long-term controversy about arming the scout helicopter and the issue often becomes emotional. So that I make my personal view known at the start, I will simply state that I see some utility in the concept of an armed aeroscout. Please understand that this is a personal belief and not the reflection of any Army position on the subject. In fact, there is no clear established Army position, although the tendency during the last decade has generally been to steer away from armament.

The lessons learned in Vietnam concerning scout armament were somewhat inconclusive and often in opposition to each other, thus leading to the conflicting emotional views that are prevalent today. An often cited argument against armament is that young scout pilots strayed from their scouting missions and attempted to single-handedly kill the enemy. On the other hand, some argue that where leadership, training and discipline governed unit operations, the weapons were of some value in providing suppressive fires for self-protection.

Probably the most serious problem was the inadequacy of the hardware. Under the hot day conditions of Vietnam, the aeroscouts could

not afford to carry weighty armament systems. The unsophisticated small calibre systems that they could carry provided little useful firepower.

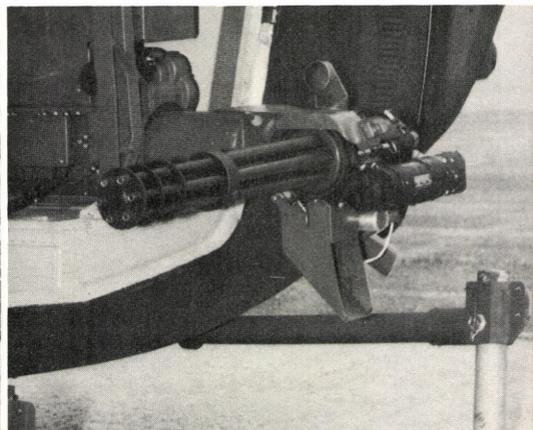
At any rate, no case was made for arming the scout helicopter during the Vietnam years. This lack of justification did much to influence the absence of stated armament requirements in the required operational capability document of the Advanced Scout Helicopter (ASH) when it was written in 1974. The ASH program was terminated in 1976 and then reestablished in 1978.

Subsequently, an ASH Special Study Group was formed and it determined that strong justification existed for an air-to-air missile to

be used for self-protection against threat helicopters. The ASH program was subsequently deferred in favor of the more affordable Army Helicopter Improvement Program (AHIP), which is designed to produce a nearer term improved aeroscout. However, the concept of an air-to-air missile was retained in the AHIP requirement document as a desired feature. To provide this capability, AHIP design specifications require airframe hard points and the inclusion of space, weight and power for an air-to-air missile system in the basic airframe design.

Philosophically, it is a simple step to move from the concept of arming the aeroscout with an air-to-air self-

OH-58C, modified for a special test, accommodates the M27E1 7.62 mm minigun and M158 7 tube 2.75 inch rocket pod



protection system to arming it with an air-to-ground system. The question is, can we support this step in terms of doctrine and equipment?

From a doctrinal standpoint, it is not too difficult to postulate logical armed missions for aeroscouts serving in attack team, air cavalry, field artillery aerial observer (FAAO) and special mission roles. A description of these conceptual missions is as follows:

Attack Team Aeroscouts

Specific armed missions for aeroscouts on attack helicopter teams could include the following:

1 Protect the team from enemy attack helicopters. This mission has already gained support because it is recognized that enemy helicopters might pose a serious threat. One concept is to arm aeroscouts with air-to-air missiles. However, close encounters may also require rapid fire cannons.

2 Protect the team from enemy air defense systems. Although the aeroscout could be specifically armed to kill air defense systems, I think the cost, developmental time and weight penalties would be excessive. The aeroscout always has the capability to direct attack helicopter fires, artillery and other forms of firepower against such targets to kill them. If he is armed to meet other mission requirements, he will probably have sufficient firepower to provide suppression in the event the team comes within close range of an air defense site.

3 Protect the team from tanks, armored fighting vehicles, antitank rockets/missiles and small arms. In intense, dynamic and fluid battle situations it is not unreasonable to expect attack teams to be suddenly threatened by the fires of ground maneuver force elements, in spite of nap-of-the-earth (NOE) standoff tactics. If some of the attack helicopters on the team must be kept

in constant overwatch to meet such threats, their firepower is then not available for the main mission of killing tanks. It would seem that by arming the aeroscouts to either suppress or destroy the ground maneuver fire elements which suddenly appear and threaten the team, the team would be more mission effective. Survivability of the valuable attack helicopters also would be enhanced because they could reposition into a better defensive posture while being covered by aeroscout fires, rather than having to disadvantageously expose themselves to protect the less costly unarmed scouts.

4 Augment the attack team's firepower. It is quite possible that the attack team may be faced with a target rich environment where target detection is not a problem. Armed aeroscouts would serve two purposes under these conditions. First, they would enhance the team's ability to service targets. Second, by virtue of being armed, the aeroscouts would become a direct threat to the enemy, thus requiring him to direct firepower against them. This would relieve some of the pressure on the attack helicopters, and contribute to their survivability. As a minimum, the aeroscouts would need a gun system capable of killing lightly armored vehicles, but an antitank missile might be more desirable.

Air Cavalry Aeroscouts

Aeroscouts assigned to air cavalry teams accomplish many of the same tasks as those on attack teams. However, air cavalry missions differ somewhat from those of attack helicopter units and are more oriented towards surveillance, reconnaissance, intelligence and economy of force. Additionally, the air cavalry aeroscouts are the primary air vehicles used to accomplish most air cavalry missions and the few attack

helicopters available usually protect the scouts. Specific air cavalry armed aeroscout missions might include:

1 Self-protection. This mission would be accomplished as already described for attack team aeroscouts. Since the air cavalry aeroscouts would, on many occasions, move into unknown situations, they would have an even greater need for self-protection capabilities.

2 Reconnaissance by fire. Armed reconnaissance always has been a valid mission. Currently, aeroscouts have to call on the fires of their supporting attack helicopters. The delay in coordinating and directing attack helicopter fires results in an increased risk to the aeroscout, and the attack helicopters must expose themselves when engaging the targets. If the aeroscout is armed, he can probe by fire and can suppress while disengaging from any return fire that he draws. The attack helicopters can remain concealed until the nature of the target is fully developed. For reconnaissance by fire, the aeroscout could be equipped with a gun, or perhaps rockets.

3 Economy of force. As previously mentioned, the attack helicopter firepower currently available to the air cavalry team is austere. By arming the aeroscouts, the team's firepower would be significantly enhanced and would result in a more realistic capability for economy of force operations. The nature of armament would depend largely on the threat that the team is to face, and the availability of artillery and close air support.

Field Artillery Aerial Observer

Since the FAAO would normally be dedicated to adjusting conventional artillery, COPPERHEAD or other fires using standoff techniques, it would not have the same armament requirements as the two other type aeroscouts. Self-protection, of



OH-6A, modified for a special test, is armed with the M27E1 7.62 minigun and the M158 7 tube 2.75 inch rocket pod

course, would remain a valid mission. Two additional missions are worthy of consideration:

1 Field artillery battery defense. Although field artillery batteries are positioned behind the forward maneuver elements, it is quite possible that they could be threatened during fast moving enemy actions. Armed FAAO aeroscouts could provide a means for rapidly augmenting self-defense fires of the artillery batteries to either cover their withdrawal or buy time for reinforcement.

2 Nuclear convoy protection. Armed FAAO aeroscouts would be a valuable asset to help protect ground and aerial nuclear weapons convoys, especially in forward combat areas, or where guerrilla operations are possible. The use of armed aeroscouts would preclude the need to pull assets from attack helicopter units.

Special Mission Aeroscouts

The applications for armed aeroscouts in special mission roles are only limited by the extent of one's imagination. The two roles that are most obvious include:

1 Rapid Deployment Force (RDF) advance elements. Since aeroscouts are relatively small compared to attack helicopters, thus being more easily transported in airplanes, they lend themselves well to being part of RDF advance elements. They could accomplish the necessary scouting functions while also providing highly mobile firepower to augment the advance maneuver elements. Also, they would be useful

to assist in maintaining the security of ports and airfields established to handle the arrival of the RDF main body and follow-on logistics support.

2 Counter terrorist operations. The relatively easy air deployability of armed aeroscouts would make them especially suitable to provide aerial firepower for short duration raids, ambushes, rescue missions and diversions.

The above armed aeroscout mission requirements are somewhat diverse and would call for a wide range of armament options. These options might include air-to-air Stingers, TOW (tube-launched, optically-tracked, wire-guided) missiles, 2.75 inch rockets, light machineguns (7.62 mm) and 20 to 30 mm rapid fire cannons. Since most of these armament systems are in the inventory, or could be made available, the main requirements would be to develop a universal mount to attach the systems to the airframe hardpoints, and to develop a universal sighting system. Universal mounts and sights would allow the operators to tailor their aeroscout armament systems to meet mission requirements. Sometimes, no armament may be needed, or density altitude conditions might preclude the use of armament.

Whether loaded with armament or not, the aeroscout would certainly benefit from the acquisition capabilities of the sight. In time, product improvements could be developed to improve night operational capabilities, to incorporate laser range-finders, and to adapt radar locating interferometers for aeroscout use. When the mast mounted sight becomes a reality, the armament systems should be integrated with it.

The foregoing should give you some feel for the potential missions that can be assigned to armed aeroscouts, and how they might be armed. I have summarized the advantages below:

- Armed scouts would increase the total killing power of Army

Aviation on the battlefield and would provide for more tactical flexibility.

- Attack and air cavalry team protection, and FAAO self-protection would be better assured.

- The pressure of enemy weapons concentrated against attack helicopters would be reduced.

- Dual capability aeroscouts would be more easily air transportable and in greater numbers than attack helicopters, thus providing for a more rapid aerial firepower response in contingencies.

- Universal mounts and sights, along with a mix of armament options, would allow commanders to tailor in response to the threat.

As always, nothing comes free, and there are some disadvantages. The following come to mind:

- An armed aeroscout would require a qualified gunner/observer. This would have to be a capable individual who is well trained.

- The addition of armament would increase logistical support requirements in the units to which the helicopters are assigned.

- The armament systems and their ammunition would create aircraft space, weight and power penalties.

- Units with armed aeroscouts would have to be well led, trained and disciplined to avoid improper use of the scout assets.

- If the armed aeroscout requirement is not properly articulated, it could be viewed as a threat to attack helicopter developmental programs.

You may have noted that the advantages that I have listed are equaled in number by the disadvantages. This does not necessarily imply that the disadvantages negate the advantages. All of the disadvantages can be overcome within reasonable bounds of cost or effort. A review of existing technology shows that it is feasible to arm scout helicopters, and valid missions and roles can be identified. All things considered, it may be a good idea for the Army to fully explore the potential for arming aeroscouts.

U.S. Army Communications Command
ATC ACTION LINE



AR 95-10! What Is It?

Mr. Carl Gray

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

EFFECTIVE 15 August 1981 a new Army regulation came into being. This is AR 95-10, the regulation pertaining to NOTICES TO AIRMEN (NOTAMs). Have you seen it? More importantly, have you read it? Let's take a brief look at some of its main features. Its purpose is to prescribe policy, procedures and responsibilities for U.S. Army Aviation activities using the U.S. Air Force and FAA NOTAM systems; and it applies to all active Army, Army National Guard and U.S. Army Reserve aviation activities having aviation assets and navigational aids.

There are two NOTAM systems (FAA and DOD) which exist to provide you, the user, with the latest information affecting aeronautical information products, NAVAIDs, landing areas and facilities.

The Air Force NOTAM system is managed by the CNF at Carswell AFB, TX, and provides NOTAM protection only for that data published in DOD FLIP. However, you should be aware that not every airfield listed in the FLIP IFR Supplement is covered by AF NOTAMs (e.g. Corona Muni). The symbol in front of the airfield tells the extent of the Air Force NOTAM coverage. AFCNF uses the AFTN, COMEDS and AUTODIN circuits to issue and receive NOTAM data. By the way, are your circuits getting overloaded with the free use of abbreviations and acronyms used in this article? If so, take a look at chapter 1 of AR 95-10 and it will explain and define what these mean.

The FAA distributes two types of NOTAMs—NOTAM D and NOTAM L. NOTAM D is limited to time-critical information that would affect a pilot's decision to make or continue a flight. NOTAM L is mostly advisory or nice-to-know information that can

be given to pilots on request. NOTAM Ls are given local distribution (normally within 200 miles).

Each AAF/AHP within FAA's jurisdiction will be assigned a tie-in FSS and must issue its NOTAMs through that FSS. To ensure complete dissemination, all qualifying NOTAMs must also be sent to the AFCNF. All NOTAMs that qualify as a NOTAM D should automatically be carried by the Air Force system. The HOW and WHEN you send NOTAMs will be found in chapter 4 of AR 95-10.

Some individual responsibilities are:

Commanders of Army Airfields and Heliports:

- Establish procedures to issue/receive NOTAM data.
- Ensure that pilots and operations personnel know how to use the system in their area.
- Ensure that each NOTAM is prepared and issued as explained in paragraph 4-4 of the regulation.

Pilots:

- Review all pertinent NOTAMS before each flight.
- Report to operations any error in aeronautical publications or any hazards to flight.
- Understand the NOTAM system.

ATC/Facility Chiefs:

- Have written agreement with the airfield commander concerning the issuance of NOTAMs.
- Ensure that base operations personnel take proper NOTAM action on reported NAVAID facilities.
- Establish timely followup action on the status of existing ATC NOTAMs.
- Keep operations personnel informed of any hazardous conditions.

If there is anything in the AR you don't understand, or if there is something which you feel should be a NOTAM but the regulation doesn't cover it, the Army maintains a liaison NCO at the AFCNF for just such situations. He is SFC Jim Doverspike and he can be reached at AV 739-7841/7842. Do not hesitate to call.

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

☆ U.S. GOVERNMENT PRINTING OFFICE: 1982-546-037/111

ETM

EXTENSION TRAINING MATERIALS

CATALOGS

IN EARLY 1981, there were thousands of separate products either in the field or in various stages of development which were intended to support the Armywide training effort. In addition, there was no single source of information on what these products were, how to get them or how to use them.

The U.S. Army Training Support Center (ATSC), Ft. Eustis, VA, set out to do something about it. The Center launched a program to identify the entire range of training support materials in the field and eliminate those items which were obsolete, impractical or duplicates of other products, while *establishing a single*, automated catalog system to provide trainers and training managers with a ready reference source of training materials available to support both individual (MOS) and collective (ARTEP) training.

The ATSC project was recently completed with the publication of a series of Extension Training Materials (ETM) catalogs which are now being automatically distributed to every unit in the Army. The series of 77 catalogs, published as Department of the Army Pamphlets (DA Pams) in the 350-series, is keyed to the existing ARTEP program, which means that Army field units will receive only the one catalog which directly supports its own ARTEP. An additional catalog, scheduled for publication, will be based on the enlisted MOS structure and is intended to support Table of Distribution and Allowances (TDA) units (which are not included in the ARTEP program) and individual training requirements.

What it all means to the unit commander or training manager is that a practical reference tool is now available at the unit level which provides easy-to-use information on what training support products are available, what specific skills or tasks each product supports, and simple instructions on how to order items not already on hand in the unit.

Typically, each ETM Catalog devotes separate chapters to products in support of common tasks, general subjects, MOS training and collective (ARTEP) training. Additional chapters cross-reference product availability to specific Training

and Audiovisual Support Centers (TASC) worldwide, and provide detailed ordering information for all products to include those not carried in the TASC system.

The results of the reduction effort are incorporated in the ETM Catalogs, giving commanders and training managers a reference source which is accurate in addition to being useful.

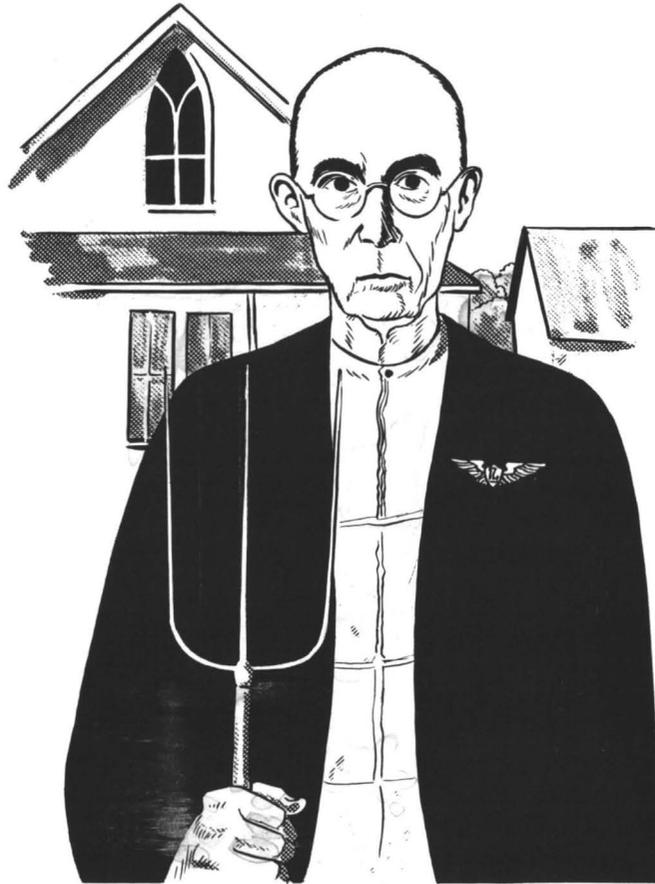
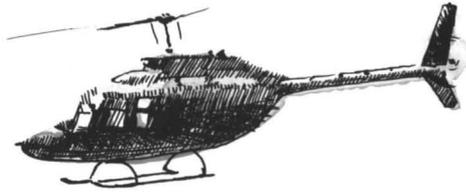
ATSC officials emphasize that the training product reduction and catalog projects are not simply one-time efforts. Both functions are remaining under ATSC management, and have already been incorporated into an automated system designed to maintain control over the development of training support materials while providing the means for periodic revision of the catalog series.

With the ETM catalogs now in the field, the old familiar service school catalogs, and separate catalogs for such items as Training Extension Courses, have become a thing of the past. The entire range of exportable training products is included in the new ETM Catalogs, making continued publication of separate catalogs for separate products unnecessary. The lone exception is the course catalog for the Army Correspondence Course Program administered by the Army Institute for Professional Development, which is also an element of ATSC.

Because of the individual nature of the correspondence course program, course catalogs will continue to be published separately.

Point of contact for ETM catalogs is Major Ronald W. Krisak, Army Extension Training, U.S. Army Training Support Center, Ft. Eustis, VA 23604, AUTOVON 927-3552/2240.

***Don't Forget Nuthin'
Don't Take No Chances***



Especially over MY house!