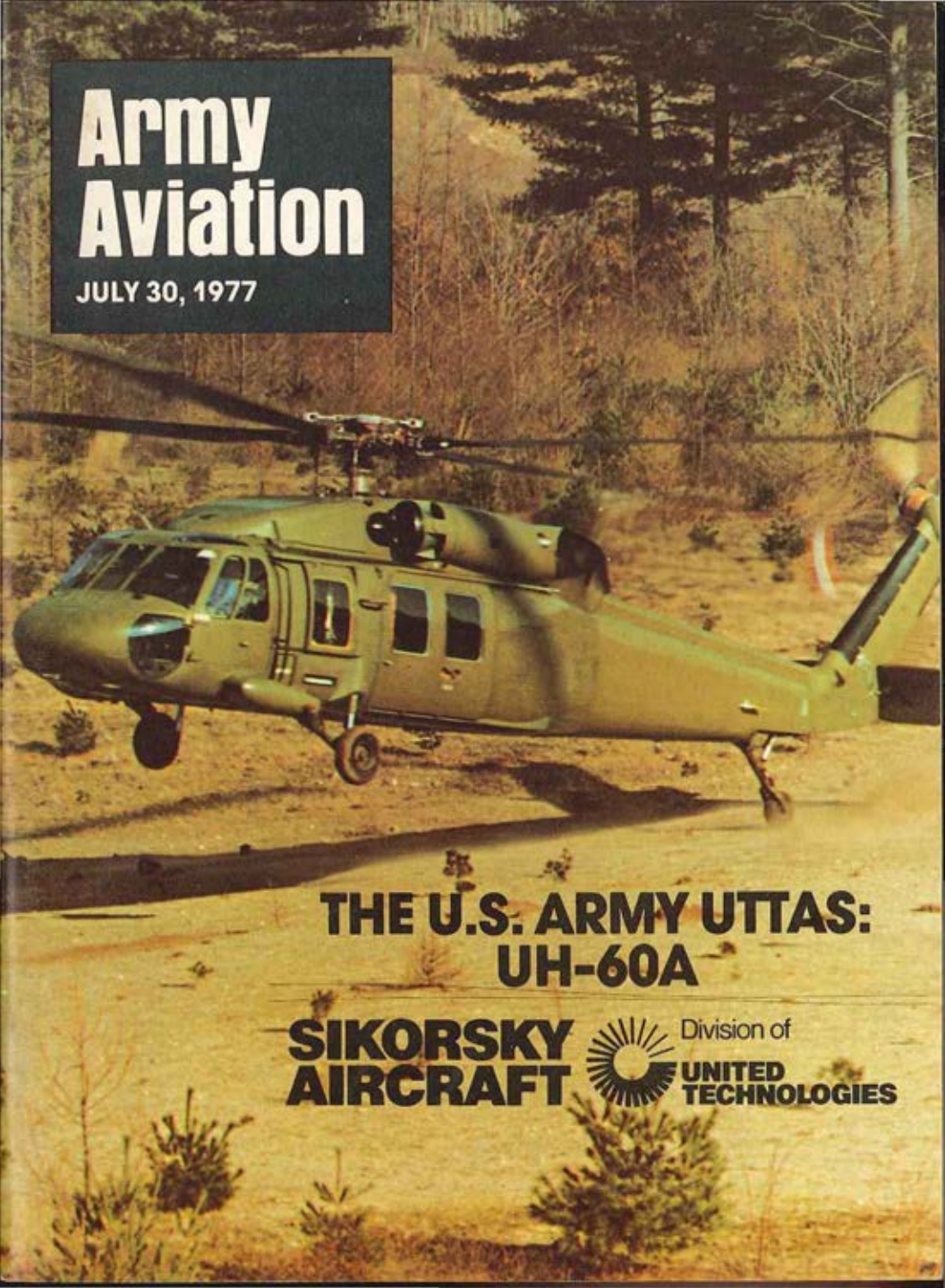
Army Aviation

JULY 30, 1977



THE U.S. ARMY UTTAS: UH-60A

SIKORSKY AIRCRAFT Division of UNITED TECHNOLOGIES

By LTG ROBERT R. WILLIAMS, USA [RET.]
President, Army Aviation Ass'n
of America [AAAA]

Editorial

A "Call for Professional Papers"

HAVE you, as a working pro in Army Aviation, considered writing an article for this magazine?

Our members are looking for writers with expertise in many of the lightly-publicized aspects of Army Aviation. For example, I've listed **twelve** such areas in which we'd welcome in-depth articles by military or civilian authors . . . and we've only scratched the surface.

The helicopter gunship. Truly one of the great innovations of the U.S. Army. An article that traced the history of the gunship, starting with the Army's early attempt to arm helicopters, discussing the inter-service problems, and placing the helicopter gunships in the proper perspective in the roles it has achieved in the Army and other nations could be most interesting.

One interesting aspect could be some discussion on the degree of acceptability of the armed helicopter in the Armies throughout the world vis-a-vis the Air forces of other nations.

Write professionally!

"Army Aviation" reimburses its subscriber-correspondents at five cents a word, up to 2,000 words, for exclusive articles. The copy must be "first run" and so state; no unit reports, product releases, or personal items acceptable as "articles." Send your copy to the back cover address.

The Helicopter Gunship in City Fighting. Combat in cities can be expected to be a part of warfare of the future even at the higher levels of intensity of combat.

Should combat occur in Europe, it can be forecast to be extensive for a major portion of the land area is occupied by the cities. The fighting within the cities will not differ greatly from the fighting in Saigon during the TET offensive.

An article could be written demonstrating combat based upon the **Battle of Saigon.** This aspect of helicopter gunship employment, as far as I know, has had little visibilitv.

Air Assault II [The Test of the 11th Air Assault Division]. Few people remember that the **Howze Board** concepts tested in Air Assault II were predicated on high intensity warfare and NOT on counter insurgency. To illustrate the point, during an evening meeting with **Generals Rich, Knowles, Wright, Kinnard,** and myself, **GEN Harold K. Johnson** asked our opinion of whether or not the Air Assault concept would be practical and effective in Vietnam.

We had to stop and think about this a bit. I believe it would be interesting to all readers to have an article that placed the **Howze Board** concepts in Air Assault II in proper perspective. As a point of information, the **Howze Board Report** did include jungle operations and counter-insurgency.

Helicopter Survivability. This has always been a controversial subject, par-

[EDITORIAL/Cont. on Page 6]

JOIN YOUR FELLOW MEMBERS AT THE 1977 NATIONAL CONVENTION OF THE ARMY AVIATION ASS'N THIS OCTOBER!

1977 AAAA Convention Programming Details

FRIDAY, OCTOBER 14, 1977
Pre-Registration and Check-In, 1977 AAAA National Convention at Stouffer's National Center Hotel, Arlington, Va.
AAAA Chapter Affairs Meeting — 1977 Cub Club Reunion
Early Birds' Reception

* * * * *

SATURDAY, OCTOBER 15, 1977
A.M. Professional Sessions and Career Guidance Assistance
General Membership Luncheon with National & Chapter Awards
Afternoon Professional Sessions
1977 AAAA Honors Reception followed by Honors Dinner and Dance

* * * * *

SUNDAY, OCTOBER 16, 1977
AAAA Diehards' Brunch
Pre-Registration & Check-In, 1977 AUSA Annual Meeting at the Sheraton-Park Hotel, Washington, D.C.

Advance Registration Form for the 14-16 Oct. 1977 AAAA National Convention

STAUFFER'S NATIONAL CENTER HOTEL — FRIDAY, 14 OCTOBER THROUGH SUNDAY, 16 OCTOBER 1977

I plan to attend the functions of the 1977 AAAA NATIONAL CONVENTION indicated below and have enclosed a check made payable to "AAAA" to cover the costs of my attendance and function tickets. I understand that I may receive a full refund through 5 October, and that this "Advance Registration" entitles me to receive a souvenir AAAA Coffee Mug claimable at the AAAA Advance Registration Desk at the Arlington, Va. AAAA Convention hotel.

FUNCTION	Active Delegate	Civilian Delegate	Military Member	Civilian Member	Non-Member
Registration [All AAAA Professional Sessions]	$5.00	$11.00	$8.00	$16.00	$25.00
Saturday, 15 October, 0930-1100 Ladies' Coffee, Presidential Suite	No charge	No charge	No charge	No charge	No charge
Saturday, 15 October, 1130-1400 AAAA General Membership Luncheon	$7.00	$12.00	$12.00	$16.00	$20.00
Saturday, 15 October AAAA Honors Reception, 1900 Hours, and Honors Dinner-Dance, 2000	$11.00	$23.00	$22.00	$32.00	$40.00
Sunday, 16 October, 1100-1400 1977 Diehards' Reception and Getaway Brunch	$5.00	$8.00	7.00	$11.00	$15.00
Total Payment	$29.00	$55.00	$49.00	$75.00	$100.00

[Note: All 1977 Member & Delegate Fee totals are less than the 1976 totals for the same number of functions.]

Name ..... Rank/Grade .....

Unit or Firm .....

Address .....

City ..... State ..... ZIP .....

NOTE: "Military Member" fee applies to active Army, Retired, Reserve Component, and DAC personnel, except those retired military, retired DAC, or Reserve Component members in the employ of defense firms or suppliers who are to register and attend functions at the "Civilian Member" rate. Wives' tickets may be purchased at the "Military Member" fees, and wives need not pay a "Registration Fee." Members who advance register prior to 5 October, and who submit full payment for same on or before that date, will receive a souvenir AAAA Coffee Mug at the hotel registration site. This Advance Registration Form should be completed and returned to: AAAA, 1 Crestwood Road, Westport CT 06880. For direct convention information, phone AAAA at Area Code [203] 227-0948.

CANEDY

MOLINELLI

ROSSER

Stouffer's Hotel Reservation Form

The 1977 professional presentations are being arranged by Brigadier General Charles E. Canedy, Deputy Director of Requirements and Army Aviation Officer, ODCSOPS, Department of the Army, assisted by Colonel Robert F. Molinelli, Chief of the Combat Division, Requirements Directorate, ODCSOPS, and Lieutenant Colonel Terry N. Rosser, Action Officer in the Combat Division, Requirements Directorate, ODCSOPS. The complete 1977 AAAA National Convention professional program details [speakers, subjects, and times of presentation] will appear in the August-September 1977 issue of ARMY AVIATION. □

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RESERVATIONS MUST BE RECEIVED NOT LATER THAN TWO WEEKS PRIOR TO ARRIVAL DATE, AND ROOMS WILL BE HELD ONLY UNTIL 6:00 P.M. ON DATE OF ARRIVAL, UNLESS ADVANCE PAYMENT IS RECEIVED. CHECKOUT TIME IS 1:00 P.M. ALL RATES SUBJECT TO 6% VA. TAX.

ARRIVAL DATE ..... HOUR ..... A.M. ..... P.M.

DEPARTURE DATE ..... HOUR ..... A.M. ..... P.M.

Please Circle:

Military Single .....$25 Military Double $30

Civilian Single .....$31 Civilian Double $38

[State you are attending AAAA Nat'l Convention.]

Will Room With .....

Everything possible is being done to assure that the 1977 AAAA National Convention will be rewarding professionally to both military and civilian members in attendance. The Stouffer facility is a convenient, ultra-modern convention site with highly attractive meeting function rooms. Its nautical ballroom motif will be refreshing for our aviation audience.

ticularly between the Army and the Air Force. The subject was debated in great detail in front of Congress and with OSD during the AAH-AX decision. Although it appeared to have been put to bed at the time, it seems to be arising again like the Phoenix. The Army needs to get its party line solidified on this matter and provide the proponents of Army Aviation with major argumentation.

A subject to be explored

Which Comes First? The Requirement or the Hardware? This is an old subject that always is one for discussion. An analysis of the question using Army Aviation as the platform could be very interesting.

The Piper Cub came before air observation. The helicopter was bought by the Army before we knew what to do with it. Medical evacuation became a high priority mission **because** the H-13 was in Korea.

The UH-1 was justified and designed for medical evacuation, but became the squad carrier. The **Cobra** came into existence based on a requirement established by the **Howze Board.** It was built on Bell's initiative outide the normal requirement - specification - development cycle.

Flight Simulators. The Army has **lagged** behind the airlines and the other military services for many years in the use of flight simulators, and are now getting them.

The question is: Does the Army fully appreciate what these devices can do for training, flight safety, and cost savings — and are the simulators being used to the maximum of their capacity and capability? A comparison with the airlines' use of flight simulators could be very interesting.

Army Aviation Museum. The Army has made a good start in building up the Army Aviation Museum, but it needs publicity. The fact that the Army has one and what it is and what it hopes to be should be of considerable interest to most of our members.

With knowledge of what the Museum wants and how to communicate with it, many of our readers would be encouraged to obtain and contribute items suitable for inclusion in the Museum.

And many more subject areas!

Motorcycles and Air Mobility. The Army has experimented extensively with motorcycles at Ft. Hood, where they are making considerable use of them in tactical exercises — and find them very effective, as I understand.

This is a subject that would probably be of high interest to our young members.

MASSTER. Recognized as one of the Army's major efforts in combat development and testing, MASSTER had its start in the requirement to test aircraft concepts, and hence has always been closely related to Army Aviation. A good article tying MASSTER to Army Aviation before its beginning would be on major interest.

Air Traffic Control. This is yet another area in which the Army has been late in getting started. Vietnam caught us so short in the Air Traffic Control game that we had to adopt FAA equipment and hire civilian Air Traffic Controllers for operating in combat.

The Army has come a long way in this field since Vietnam, and can be justly proud. An in-depth updating article on this subject is needed.

Director of Army Aviation. This could

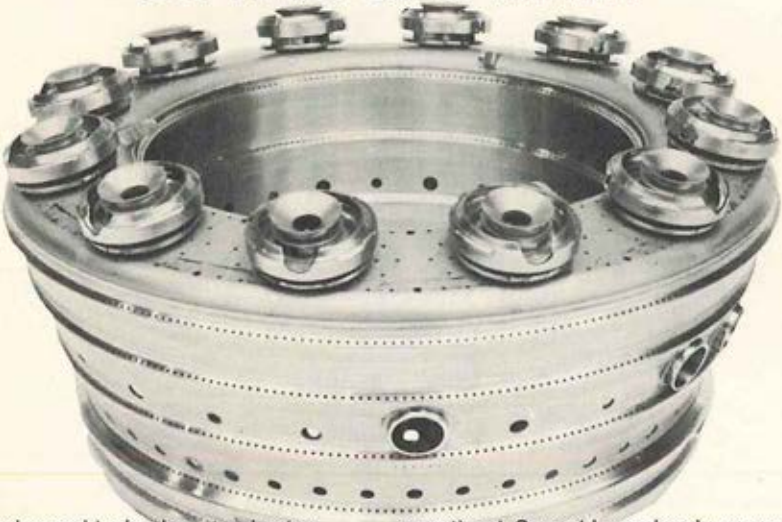
[EDITORIAL/Cont. on P. 42]

CREW CHIEF HONORED

Building 6005, home of the Maintenance Division, and the largest structure at Ft. Rucker, was dedicated Memorial Day as **Yano Hall.** It was named in honor of **Sergeant First Class Rodney J.T. Yano,** a crew chief who received the Medal of Honor posthumously for his actions while serving with the Air Cavalry Troop, 11th Air Cavalry Regiment, in Vietnam in 1969. □

T700 Reliability

Here's One of the Reasons Behind Unprecedented Engine Reliability for UTTAS and AAH



The T700 advanced technology combustor. When the Army established its UTTAS and AAH engine reliability goals, the combustor became a prime area for attention, because current operational engines are limited primarily by "hot section" life. New combustors or major repairs are needed after only a few hundred hours of operation.

The T700 goal? A combustor that will last 5000 hours. We're well on our way to achieving it. With more than 25,000 total engine hours experience, all combustors in the program remain operational. Several have already exceeded 1000 hours of operation. Not one has had to be repaired or scrapped.

Its reliability is a key reason why 75% less maintenance manhours will be required on the T700 when compared with current operational engines.

For UTTAS and AAH, the T700 offers the first real long-life combustor in helicopter engines.

205-158

The T700. The engine for the Army of the 80's.

GENERAL ELECTRIC

Combat. It taught the U.S. Army. It taught us. We both put the lesson to work to produce an advanced tank-killing helicopter that survives.

We did it with the YAH-64. A new concept—a team approach—that uses field-proven ideas to deliver airborne point target and area-suppressive fire, day or night, in any kind of weather. It does a lot of other things, too.

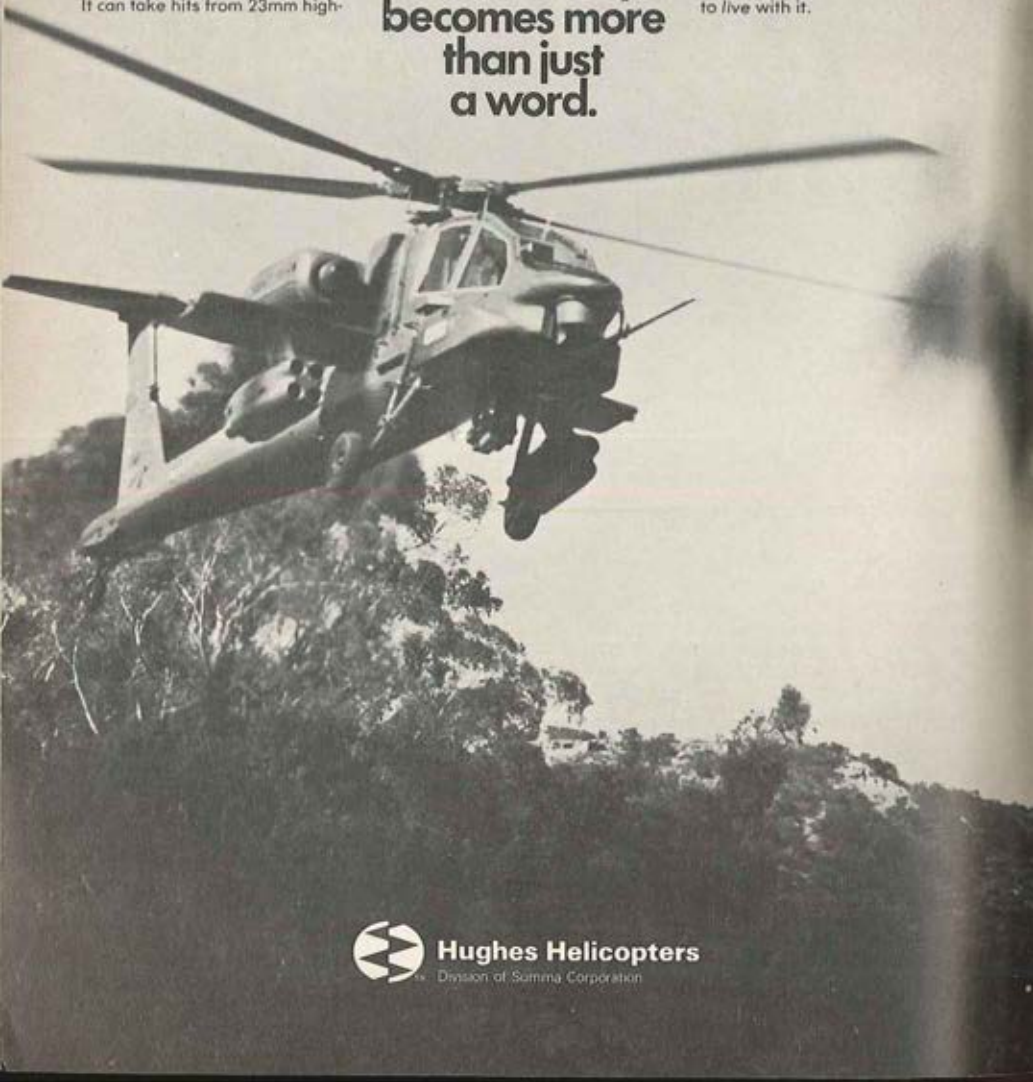
It's the most survivable helicopter ever developed.

It's small and highly agile. It can take hits from 23mm high-explosive incendiaries and 12.7mm armor-piercing incendiaries, and continue to fight. It has redundant flight-control systems. Fireproof, crashworthy, self-sealing fuel cells. Armor protection for crew and critical components. It's at home in nap-of-the-earth flight.

That's not all. Survivability also means minimum detection. The YAH-64's low rotor flicker, low-glint canopy, low noise, Black Hole engine-exhaust IR suppressor and compact size—add up to minimum detectability across the board. And maximum crash-worthiness. For example, the crew will survive vertical impact rates of more than 2,500 feet per minute.

All in all, it's one tough ship, built for the men who have to *live* with it.

When they're shooting at you, survivability becomes more than just a word.



Hughes Helicopters
A Division of Summa Corporation

Combat Operations

The Armed 'Copter in the Defense of Europe

The problem is different, indeed, from Vietman; it is well to acknowledge that from the very beginning. In Vietnam the shooting helicopter has proved the concept for that sort of war only, but in the process has also demonstrated great flexibility, great responsiveness, and a pronounced effect on its targets.

On a visit to the U.S. garrison at Phu Loi, not far from Saigon, I happened to be poking around on the flight line talking to the helicopter mechanics doing their customary "flashlight maintenance." On the camp perimeter a little fight erupted between one of the U.S. outposts and a probing Viet Cong patrol. Within, I'd guess, three minutes, two armed Huey alert helicopters were diving across the center of the camp pouring fire into the Viet Cong, the tracers streaking spectacularly across the night sky.

The only significance of this otherwise insignificant affair was the quick, instinctive reaction of U.S. forces in getting helicopters aloft and firing - as the most immediately effective response to an enemy initiative. No one but I, the visitor, saw anything unusual in this; to the garrison it was routine.

The extensive combat experience of Vietnam does not "prove" the effectiveness of the weapons helo in Europe. The biggest area of doubt, of course, is vulnerability. This being so, it is probably a good idea to face up to the matter at once.

By HAMILTON H. HOWZE,
U.S. Army, Retired
V.P., Product Planning,
Bell Helicopter Textron

CAN IT LIVE?

The point may be made that what is very useful on the battlefield can usually, at some expense in time and trouble, be made to survive on the battlefield. The technique of employment must, of course, be worked out to provide that survivability. It is this which will assure the continued applicability of manned fighter bombers, despite the advent of the missile; it is this that has preserved the role of the infantryman throughout military history. **Everything** kills the infantryman - from the club up through the ICBM - but he survives by a proper combination of fire and movement, the latter, of course, involving the proper use of cover or mask.

In Vietnam the armed helo flew escort for the troop-carrying helicopters across long stretches of hostile territory. I would think that a rare mission in Europe.

In Vietnam the gunships made fast, shallow diving passes at their targets, partly because the terrain immediately beneath the aircraft was almost always hostile, and it was therefore a good idea to keep moving. I think that the diving pass would not be usual in Europe unless the situation was fluid, or unless the helicopter's weapons were of such long

range that an early break-off were possible.

In Vietnam the prime threat to the helicopter, armed or unarmed, was the fire of enemy small arms, and this I think would be true in Europe. Undoubtedly, some helicopters will fall prey to larger enemy weapons, but proper helo tactics will keep the machines very low in the nap of the earth, beneath enemy radar, and in the field of view of very few enemy gunners at any given time. And since the helicopter will usually operate only against the outside edges of the enemy array of forces, it will not be visible to the crews of the heavier anti-aircraft weapons.

Normal employment will find armed helicopters firing habitually from over unoccupied or friendly territory into enemy territory. Very often this view will be from a ship at the hover with only a foot or so clearance over the intervening mask. Because it can, it will adjust quickly on a target, deliver its fire, and then drop out of sight behind the mask, and thereafter move laterally, under cover, to another point and repeat the process.

A helicopter maneuvering so will be very difficult to hit for it will present a fleeting target at a range difficult to judge, and the enemy gunner will benefit neither from observing bullet strikes near his target, nor from fragmentation if he is using an explosive round. A miss is above, below, right, or left, but which? And as we know, the proximity time fuse won't work in flat trajectory direct fire for it will explode the projectile prematurely.

There is nothing abnormal in an Army fighting vehicle which does not, in ones or twos, penetrate an enemy position. Even tanks penetrate only in quantity, and in the course of penetration police up the area they move through. In a sense therefore, the tank, even in exploitation, shoots from friendly territory (which the tanks have just made "friendly" by overrunning it) into enemy territory. So too will the armed helicopter which will, incidentally, be a most valuable companion to the exploiting tank.

The foregoing does not mean that armed and troop-carrying helicopters in formation will never penetrate enemy lines for this will occur only in fluid situations, or when there is available a route of approach not involving overflight of strong enemy positions. In practice, actually, this is apt to be true quite frequently - around a sea flank, or over swamp, lake, or heavy woods denying enemy gunners any observation, or very rough terrain unsuitable for occupation (e.g., the Quattara Depression at the battle of Alamein).

Survivability will be augmented by integrating helicopter employment with that of other weapons, notably fighter bombers, artillery, mortars, tanks, missiles, and medium caliber machine guns. By use of heavy but short concentrations of suppressive fire and smoke, dangerous parts of a planned flight path may be made relatively safe for the very brief time necessary for their traverse by helicopters.

OTHER FACTORS

The helicopter in Vietnam proved hard for the enemy to disable. The helo took hits on a very small percentage of its combat sorties, but perhaps more interesting is the fact that 13 ships were hit for each one downed. The explanation lies perhaps in the low "density" of the helicopter fuselage - as compared to the fuselage of a fighter, for example, which is crammed with essential gear. To put it

a little peculiarly, the helicopter airframe has room to accept many enemy bullets without crippling damage.

Low ceilings (100 feet or better) present little problem to helicopter operation except in rough terrain, but the current state-of-the-art in devices for field navigation without ground assistance and for stationkeeping and terrain avoidance do not permit helicopter foramations to operate in fog or cloud. Someday, perhaps fairly soon, it will, and when this is true low visibility weather will further decrease vulnerability.

Night operations by helicopter formations are practicable now, and were fairly frequent in Vietnam. Undoubtedly the developing practice will decrease the effectiveness of enemy fire, particularly that of small arms.

UNSAFE ON THE GROUND

The design of the armed and other tactical helicopters should take into heavy account the desirability, or rather the essentiality, of moving them for short distances on the ground. One cannot afford the luxury of leaving them exposed in open fields for they will fall prey there to enemy aircraft, artillery, and ground-to-ground missiles. It is foolish to contend that the helo can be kept safe, deep in the rear, except when aloft, for such a scheme of operation will limit very unacceptably the applicability of what will otherwise be a vitally effective weapon. Also, how "deep" is "safe?" Missiles now in the hands of modern armies go a long way.

Important features of survivability, therefore, are ground handling characteristics. A proper combat helicopter, armed or unarmed, should be capable of being moved across **soft** ground and under the trees without turning its rotor. For this the main rotor or rotors should either permit quick and easy folding and unfolding, or be two-bladed so that folding is unnecessary. Moreover, the craft must not be too large or too heavy, and footprint pressure not too great.

VETERANS!—Three of the four remaining Army **Liaison Pilots** still on active duty are assigned to Ft. Rucker. They met recently in the office of **MG James C. Smith,** Ft. Rucker commander, to chat about their aviation careers, past and present. (L-R) **COL George W. Shallcross, MG Smith,** and **COL Colin D. Ciley.** The fourth L-Pilot is **COL Walter F. Jones,** on Ft. Sam Houston assignment.

THE ATOM

What happens to the armed helo in an atomic war?

The question should better be, what happens to anything in an atomic war? The matter is so replete with unknowns that I shall inject only a few comments.

The first is that helos would be destroyed within blast range of the exploding warheads, just as much of all life and material will be. Nuclear blasts hurt people and things, so much so that I suspect that **none** of the great military forces are even remotely well prepared to cope with the situation as respects survival, morale, mass casualty evacuation, the filling of gaps by replacement units, communications, warning, resupply, or indeed even the exploitation of the results of our own blasts.

In contemplating an atomic war we reel in a sea of uncertainties, but it is probable that troop densities will be low (the atom exerting a corrective influence on forces which choose to congregate in small areas) and, therefore, that mobility will take on even greater importance than in conventional war. An added attraction lies in the radiological contamination of large areas which will deny

them to ground vehicles. In these messy circumstances the armed helicopter will often, perhaps, be the weapon most readily moved and, therefore, most readily employed.

From this we may not conclude that the weapons helo will thrive in an atomic environment, but we may confidently say that there is nothing in the threat of a nuclear war which should lead us to discard the machine as especially unsuitable. In truth, it may make out best, among its contemporaries, in a very bad situation.

But how probable is tactical nuclear war? I do not pretend to know, but I do suggest (with apologies because of my non-privileged position) that there is a real possibility that even a general war between major powers might remain non-nuclear. The German Third Reich, even at the height of its extremity, accepted unconditional surrender without taking recourse to its extensive stocks of super-lethal nerve gases. It is a notable precedent.

In a non-nuclear-war-which-might-**become**-nuclear, a not unlikely circumstance, each side will avoid heavy troop concentration. This obviously adds emphasis to the capability of moving weapons rapidly across greater than normal distances.

To sum up the matter of vulnerability in a non-nuclear environment: it is essentially a matter of tactics and technique. If helicopters are used foolishly they will be quickly destroyed by a sophisticated enemy. If they are used cleverly, though boldly, their mission will be accomplished at acceptable rates of loss.

Simulated enemy tanks move into position during annual USAREUR exercises.

EMPLOYMENT

The fact that the weapons helicopter can survive is not quite enough. It is obviously desirable that it also be able to do something useful.

The machine is in no sense a competitor with the fighter bomber or the fighter recon aircraft, so we may dismiss that misconception from the start. Our ship fights the ground battle with the same general view of the enemy as that enjoyed (if that's the word) by other ground fighters - it fights the enemy's front, or flank, or on some propitious occasions his rear. Only in exceptional cases, in war against a modern opponent, does it fight the enemy from above him. This alone is enough to differentiate it - clearly - from Air Force combat aircraft.

Soviet tank strength has been, is, and will remain a major concern of the military planners of the Free World. Soviet tanks constitute a problem of such magnitude that a multiple solution is indicated, it being unwise and in truth impossible to rely on any one counter weapon. Certainly the weapons helicopter won't solve the whole problem, but it will contribute to the solution in an important way because it injects into the situation new dimensions in time and space.

We have already discussed the technique of fire from a helicopter, with some emphasis on the virtues of fire from hover. For the readers of this magazine, it is hardly necessary to detail the tactics to be employed. It is enough to say that armed helicopter platoons (three or four aircraft) and companies (12-15 aircraft) may be attached to armored cavalry, tank and infantry battalions, and brigades, and will aid those units materially in the performance of their assigned missions.

They will assist throughout in the function of reconnaissance for the vantage point of an observer, even a few

Now joining the front ranks.

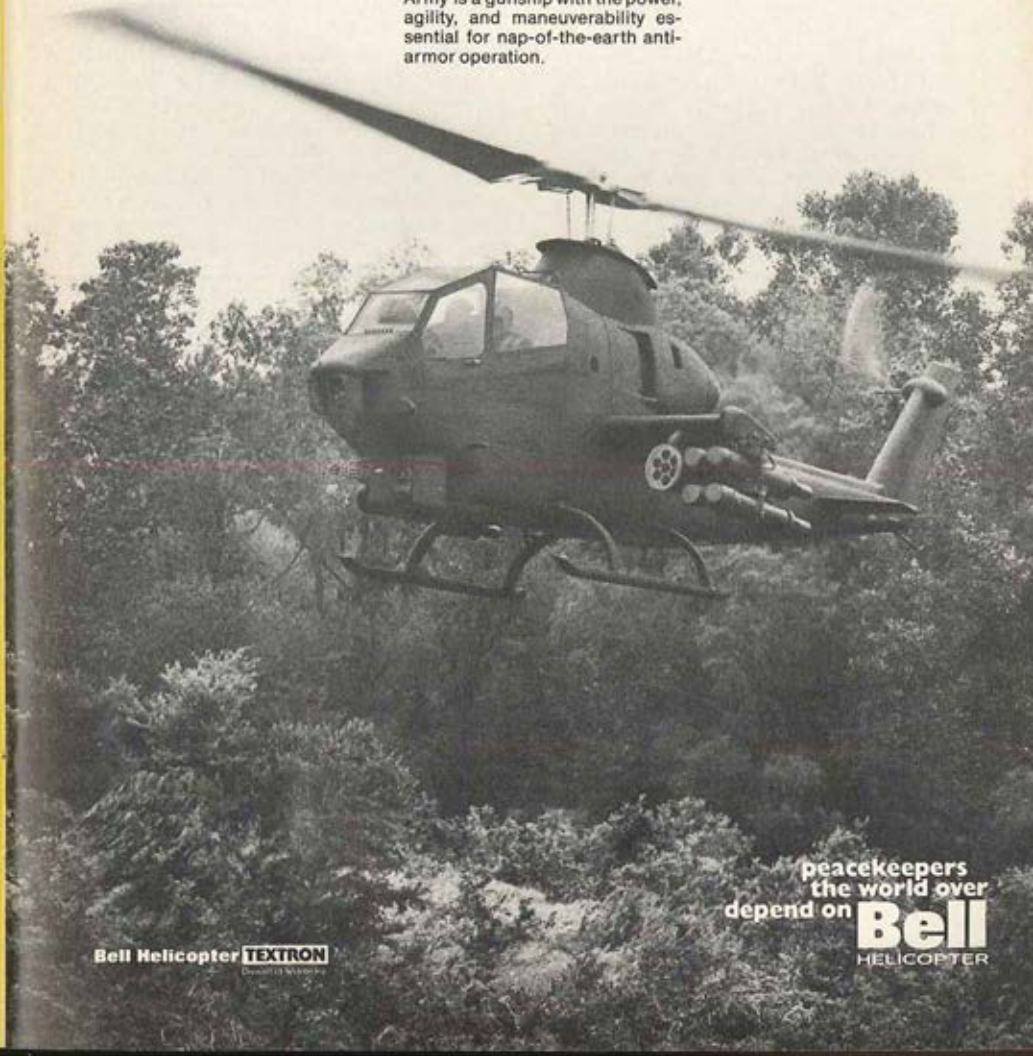
The most advanced gunship technology available is in the Army's hands right now—when they need it. It's the AH-1S—now in production and being delivered to field units.

Evolutionary development reduced risk and shortened development. In carefully planned, affordable program steps, Bell and the Army combined the combat-proven Cobra with the latest available technologies for mission effectiveness and survivability.

What Bell is delivering to the Army is a gunship with the power, agility, and maneuverability essential for nap-of-the-earth anti-armor operation.

New features provide increased survivability, NOE cockpit compatibility with night vision goggles and reduced glint canopy to name a few.

This new gunship is ready to meet the Army's anti-armor needs now and well into the future.



peacekeepers the world over depend on Bell HELICOPTER

Bell Helicopter TEXTRON

feet above the trees, will provide much useful information, particularly when that observer has exceptional mobility and a powerful radio available to him.

In defense against tank attack, one common helicopter tactic (by two or three ships, as a rule) will be simple ambush. Even at the beginning of an enemy armored attack, when his tanks are moving generally abreast on a wide front, normal terrain found in Europe provides countless positions in which helicopters can lurk against the moment at which they can rise to attack, usually by flanking fire against advancing tanks. The aircraft can position themselves in small woods or clearings, in villages, behind streams, or in rough ground and or other terrain impossible for the tanks to

One might contend that enemy infantry may force the helos from those positions. This, of course, is possible, but if a general Soviet assault can be slowed to the pace of infantry combing all the forests and by-ways, then the shooting helo would be justified by that accomplishment alone. The very rapid armored sweeps by the Germans in 1940 and 1941 and by the Allies in 1944 and 1945, were confined mostly to the roads - enemy infantry in the woods and fields were by-passed in the interests of speed. The helo would put a stop to that tactic.

"AN OVERALL ADVANTAGE"

It will sometimes occur, certainly, tha a larger armed helicopter force will be committed to block a single enemy thrust. It will usually be possible in this case to bring the hostile tanks under attack from several directions at once, the helicopters being able also to shift quickly laterally. War games, which one may choose to believe or disbelieve, have shown the helicopters to have a pronounced overall advantage in such confrontation, for they retain the initiative as to timing and direction (often being able, incidentally, to use the sun's blinding glare to their benefit) and in breaking off and reinitiating the battle at will.

When one gets right down to it the tank and the armored personnel carrier are clumsy beasts, and the dual purpose anti-personnel and anti-aircraft guns they carry are difficult to sight, difficult to manipulate, and slow to engage a suddenly appearing target with any accuracy. Conceivably this is correctible, but in any large tank and APC fleet only at enormous effort and expense, and only by lessening effectiveness elsewhere.

WEAPONS

The modern helicopter, on the other hand, has no such problem. It is certainly true that its anti-tank weapons must be capable of quick and accurate engagement at adequate stand-off ranges, but guns and missiles now in the late stages of development provide just that. Today, 20, 25, and 30mm rapid firing machine guns are available that will destroy APC's and all lesser vehicles; and wire-trailing missiles of the latest design are proving amazingly accurate at impressively long ranges, and are able to penetrate the frontal armor of any tank at gratifyingly large angles of obliquity.

The best of the aforesaid machine guns, incidentally, will tear up a tank's suspension system and at the shorter ranges will penetrate the sides, or the top of the engine compartment or turret. I venture to say that a tank subjected to that sort of pelting fire will be much inclined to go away, if he can.

When we speak of weapons it is most

desirable to bear in mind the effectiveness of the anti-tank mine, a device which inflicted immense delay and many losses on the advancing armored forces of World War II. But wide stretches of traversable terrain - such as that to be found in the west European plain - imposes requirements for **millions** of mines and weeks of elapsed time to plant them.

The already excellent delaying effect of helicopters would be further increased were they able to lay mines—anti-tank as well as anti-personnel— from the air. The more lethal the AT mine the better, of course, but one that would simply disable the tank temporarily would be very valuable. Helicopter-laid mines would sometimes be more visible than those buried and camouflaged, but it is usually necessary for a conventionally laid field to "weather" for days or weeks before the spoil and trampled grass recover anything like a natural appearance. And by far the largest part of the usual formal mine field is never traversed by the enemy, who penetrates it at only a very few selected points.

By contrast, helicopters - were proper mines available - would be able to scatter mixed AT and AP mines directly in the path of enemy spearheads, ignoring those parts of the front in which the situation was not critical. By such blocking action enemy tank maneuver could be greatly restricted and conceivably could be stopped altogether, with many casualties inflicted.

THE FORWARD STRATEGY

It is obviously desirable that an aggressor be halted as far forward as possible, and this, in turn, demands the quickest practicable application of resistance. Unless hostilities were preceded by a period of warning long enough to permit a general movement of forces to battle positions, it is hard to visualize a more quickly reacting defensive weapon than the armed helicopter. It is not suggested that they alone would suffice, but they would impose an immediate bar to progress which could not help but retard the enemy assault at a time when minutes would be golden.

As the battle progressed (especially if long warning were not available) it is generally accepted that some ground would be lost. In such a retrograde action armed helicopters will operate with significant effect on the flanks of the enemy points of thrust, often in territory unusable to other Army weapons.

To illustrate this matter, one need only recognize the common tactic, in delaying action, of falling back from one terrain obstacle (usually a stream) to the next. Ground vehicles must be laboriously gathered up and crossed before the bridges are blown, and thereafter cannot operate beyond the obstacle. Helicopters, by contrast, may leap the obstacle at will in the attack and delay of enemy columns.

A pronounced advantage will accrue to the commander who has the ability to concentrate force against selected points in the enemy array of troops. Quick concentration of combat power, to meet a sudden demand, is one of the great strengths of close support tactical air; it is equally a characteristic of a force of weapons helicopters. Such a force in reserve can reach any part of a division or corps sector, regardless of irregularities of terrain, in a matter of minutes. Such extreme mobility would allow a relatively small force of armed helicopters to supplant, with no loss in effectiveness, tank reserve forces many times its numerical strength in men and machines.

ANTI-HELICOPTER HELICOPTERS

In a discussion such as this it is inevitable that the matter of battle between hostile helicopters should arise. I am no longer privy to intelligence reports, but I know of no anti-helicopter helicopters; neither, to my knowledge, (in 1967) have any of the governments instituted programs to develop such craft.

On the other hand it is habitual in war for everybody to shoot at everybody else with whatever weapons are at hand, and it is consequently to be expected that

opposing tactical helicopters will, by accident or design, sometimes confront one another. Here we may take much comfort in the fact that the turrets and the sighting systems now appearing on our helicopters to engage ground targets will be very effective against slow air targets, and weapons helicopters designed as such will be extremely maneuverable in flight. We have rather backed into this one, but with fortunate results.

THE NUMBERS. HOW MANY IS DESIRABLE?

How many armed helicopters would be desirable? However interesting that question may be, it will probably remain academic. The answer, to be honest, is more than the average nation can afford. It's true, however, that even a few shooting helicopters will contribute markedly to the deterrent effect of any national force, because even a few will inject a new and very different element into the problem facing the enemy tank. The "cost effectiveness" of an armed helicopter should prove high in battle, as it has in battle studies.

That applies to the present. For the future, as the technology of helicopter design and manufacture improves and as soldiers come to learn of its effectiveness, the armed helicopter will become more and more a basic weapon instead of an auxiliary one.

Even now the United States has hundreds of effective armed helicopters converted from utility types, and within a very few additional years will deploy additional hundreds of ships specially designed and equipped for the purpose. They will be an impressive addition to U.S. military power.

RECAPITULATION

A former AAAA National President, **General Hamilton H. Howze** was the Vice President, Product Planning of Bell Helicopter Textron at the time he wrote this article. It appeared in the Aug.-Sep. 1967 issue of NATO's **Fifteen Nations Magazine**, published by Jules Perel's Publishing Co. of Amsterdam.

SIX YEARS!

The **196th Avn Co [ASH]** received DA's top Aviation Accident Prevention Award of Excellence for 7,000 flying hours during 72 consecutive accident-free months. **MG S.M. Marks**, XVIII Abn Corps deputy commander, presented the award to **MAJ John F. Koshinsky**, unit commander, at June 9 ceremonies. □

"AN ACCEPTABLE VALUE"

Let me conclude by reiterating these points:

The survivability of the armed helicopter gives every indication of achieving an acceptable value in a war between two highly sophisticated opponents, provided, of course, it is used with reasonable judgment. The best of weapons is no good if it is foolishly employed. It is desirable, moreover, that helicopter size and design take survivability directly into account.

The shooting helicopter can't do it all, and none of its proponents claim that it can. It is, however, capable of making a most significant and telling contribution to the problem of countering enemy forces heavily weighted in tanks.

The flexibility, speed of engagement, and responsiveness of the shooting helicopter makes it exceptionally effective in launching an immediate counter to enemy penetration, and in actions which are initially retrograde.

One may argue indefinitely the effectiveness of any weapons system. The helicopter is a new system, one which will be increasingly evident in battle as the years unfold. And some of those helicopters will shoot, a sometime amusing fact to the cynical but one which will become a matter of the most intense interest to the man or machine selected as its target.

By LT. COL. E.J. EVERETT-HEATH
British Liaison Officer, USAAVNC
Fort Rucker, Alabama

Heritage

Puzzlement: Who invented the helicopter?

IT was not easy to decide who was the **First Aviator.** Was it perhaps **Bellerophon** who presumptiously tried to soar to Mount Olympus astride his winged horse, **Pegasus?**

The great god **Zeus** was on the mountain at the time and did not wish to be disturbed by the puny **Pegasus.** He therefore dispatched a gadfly, the most impressive in his fleet, to intercept the unfortunate - and unsuspecting - animal.

The resulting sting so upset the horse that it threw **Bellerophon** who can now gracefully fade from the story. **Pegasus,** meanwhile, gathering every ounce of determination and flying skill, managed a safe - if unorthodox - landing on Olympus.

The Greek claim

Reputable Greek mythologists may argue that the **First Aviators** were **Daedalus** and his son, **Icarus,** who achieved the added distinction of inventing accident statistics. Both were imprisoned by **King Minos** on the island of Crete. Determined to escape, **Daedalus** laboriously made wings out of feathers and wax for himself and his son.

Came the chosen moment when the guards were slaking their thirst in the hot sun and the two flapped (or feathered) their way out of captivity and up into the wide, blue Grecian skies. Overcome with excitement at his newfound skill and courage, or unable to maintain control, **Icarus** flew higher and higher until he got so close to the sun that the wax melted, and he plunged to his death in the sea far below.

China-watchers will certainly put forward the claim of **Chang-Heng** (78-139), Imperial astronomer and self-styled master of the mechanical arts, who reported to the Emperor that he had risen in a contraption with moving rotors and a built-in power mechanism. The more historically aware will remember that this alleged event was supposed to have occurred during the reign of the notoriously gullible **Emperor Hoo Floo.**

Progress over the next thousand years was, to say the least, hardly dramatic. That noted English philosopher, **Roger Bacon** (1220-1292), may have been the first of the technical speculators when he quaintly suggested that a flying machine was possible, " . . . the wings, being artificially composed, may beate the ayre after the manner of a flying birde."

Note from the Author

In the March 1977 edition there appeared for the benefit of the non-mathematically inclined a brief article on how the helicopter flies. The notes you now read deal with the historical development of the helicopter and should be studied with care as some obscure facts are revealed here for the very first time.
—LTC E.J. Everett-Heath

Further fruitless conjecture followed - and many brokens arms and legs later - a genius in the shape of **Leonardo da Vinci** (1452-1519), stepped forward. This inventor and engineer-extraordinary was also a humanitarian. The thought of all those broken limbs upset him and so he invented the parachute. Due to an administrative oversight he quite forgot to tell anyone of this technological breakthrough, and so the parachute had to be re-invented some 300 years later.

Nevertheless, **Leonardo's** questing mind did not rest there and he soon realized that air and water behave in very similar ways. He likened the flight of a bird to a fish swimming. This, by means of some tortuous logic, led to his sketches and notes of a lifting airscrew, or primitive helicopter, written in mirror (backhand) script in 1483.

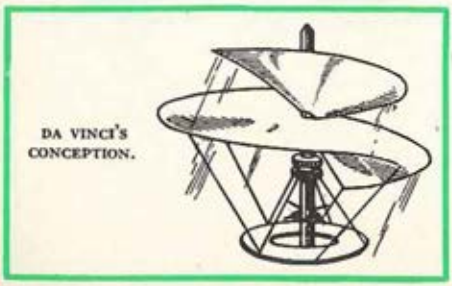
Regrettably these writings also failed to make much of an impression at the time as nobody could read them.

A chopper might have helped!

This absent-mindedness was keenly felt by **King Richard III** of England. Fighting desperately during the last important battle of the Wars of the Roses in 1485, the King (according to **Shakespeare**) was heard to yell: 'A horse, a horse, my kingdom for a horse."

How much better off he would have been with one of **Leonardo's** helicopters! But without helicopter or horse **Richard** was killed and the Plantagenet line became defunct. One man's negligence and a throne is lost; on such twists of fate turns the course of history!

The 17th and 18th centuries saw the greatest brains in Europe turned towards the problems of flight. One such was the lord bishop of Chester in England, one **John Wilkins.** In about 1660 he set his ideas down for posterity, perceptively explaining that he had certain reservations about the first three of his four proposals.



DA VINCI'S CONCEPTION.

Man might fly, **Wilkins** observed, with the spirit of angels, with the help of fowls, with wings fastened to the body, or in a flying chariot. The **AH-1 Cobra** is, after all, nothing if not a flying chariot.

Leonardo left his manuscripts and drawings to a friend who, unable to decipher them, did not bother to have them published. It was not until 1797 that the material began to receive serious attention, work having been curtailed on **Wilkins'** proposals due to the difficulty experienced in harnessing the power of angels and fowls.

In 1784, however, two Frenchmen, **Launoy** and **Bienvenu**, had built a small twin rotor model helicopter. Turning in opposite directions and driven by a spring on a single shaft, the rotor blades were made of feathers, exhibiting a degree of survivability not since reached by any subsequent rotor blade. The model gave a spirited flying demonstration in front of the French Academy of Sciences in the same year.

"A man of many parts"

It was this model that **Sir George Cayley** (1773-1857) copied in 1796 and which, through publication in 1809, led directly to the development of the helicopter. **Sir George** was a man of many parts: an English baronet, Member of Parliament, scientist, engineer, writer, anti-slavery campaigner, and designer of railroad equipment and artillery shells.

As an afterthought one afternoon, he decided also to become the greatest of all the early aeronautical pioneers: he invented the basic principles of the modern aeroplane and assumed the title of "father of aerial navigation." While concerned mainly with fixed wing — as opposed to flapping wing — machines **Cayley** also saw the need for vertical flight.

Turning his fevered attention to rotary wing design, he wrote in 1843: "Aerial navigation by mechanical means must depend upon surfaces moving with considerable velocity through the air, but these vehicles will ever be inconvenient, not to say, absolutely, inefficient.. they must be capable of landing at any place where there is space to receive them, and of ascending again from that point. They should likewise be capable of remaining stationary, or nearly so, in the air when required."

Now **Sir George** was a man who quite clearly had read **Sir Isaac Newton's** remarks, a century earlier, on tail rotors. He knew that, were he to construct a single rotor helicopter, it would have to have a tail rotor. He considered such devices to be aesthetically inappropriate.

He decided instead to be bold - have four rotors - and imaginative - two on either side amidships, mounted one above the other. Foreshadowing the **AH-56 Cheyenne**, this design had not one, but two pusher propellers at the rear. But two things conspired to keep **Cayley's** principles strictly theoretical: the lack of a suitable engine and his distressing inability to untie the red tape to be found liberally strewn along the corridors of power.

Who coined, "helicopter"?

The great scientific minds of the day were, sadly, less competent when it came to naming their inventions. It was a simple Frenchman, the **Viscomte Gustave de Ponton d'Amecourt** from Issy-les-Moulineuax who in 1863 coined the word, **'helicopter'**, supposedly derived from the two Greek words, **'heliko'** and **'pteron'** meaning helical or helic wing.

We may be thankful that this name has fought off all other challengers such as **pterophore, spiralifere, stropheor, helicogyre,** or **cyrnottero.**

Research continued. The steam engines of the day were not sufficiently powerful in proportion to their weight for use in a helicopter. The **Wright Brothers** soon realized that a much more powerful engine was needed for a rotary wing than for a fixed wing aircraft of the same weight. They decided **not** to be the first helicopter pilots after all.

In 1860 the gas engine was invented in France and in 1876 the German engineer **Otto** produced his immortal cycle from which all of today's gas piston engines are descended. Nine years later, the future of the helicopter was assured when **Carl Benz** and **Gottlieb Daimler** built, independently, the first practical gas engies.

The first "Intrepid Aviator"

The distinction of eventually building a machine, able to rise vertically in free flight, fell to another Frenchman. On Nov. 13, 1907 **Paul Cornu** ascended to the unprecedented height of 12 inches! Flying for endurance, **Cornu** remained aloft for 20 seconds! The craft had two 20-foot diamater rotors mounted in tandem, belt-driven by a 24 hp **Antoinette** engine.

A few hours later, flushed with success and champagne, **Cornu** was able to coax the machine to the record-breaking height of five feet! On landing safely, he was immediately awarded the title, "The Intrepid', by the assembled onlookers.

Enter Igor Sikorsky!

At about this time in Czarist Russia the young **Igor Sikorsky** (1889-1972) had built a twin rotor helicopter which could lift its own weight — but not a pilot as well. His second design failed to fly a year later, in 1910, and the disgruntled young Russian turned to real aeroplanes to preserve his sanity.

The First World War put a temporary halt to helicopter development. As the War started these redoubtable machines could just be persuaded, after a great deal of thrashing about, to leave terra firma. Once airborne, they appeared to

The First R/W Army Aviator?

In early 1923, **Colonel Thomas H. Bane** flew the Army's first rotary wing craft, a 60-ft. wide craft with four huge six-bladed rotors. The project was subsequently abandoned. □

have a remarkable affinity to rabbits, hopping with gay abandon wherever the spirit, or wind, moved them.

In 1921, the U.S. Army decided to take a hand in this new sport and try to bring order to the prevailing chaos. It commissioned a bearded Russian emigre, **Dr. de Bothezat**, to design and construct something appropriate. Due to a rather poorly drafted **Required Operational Capability** the learned doctor built a helicopter over 60 feet wide with four huge six-bladed rotors mounted at each corner. The doctor was at the controls for the first flight on 18 Dec. 1922, which lasted 90 seconds. The craft staggered drunkenly to six feet and then proceeded to drift 150 metres downwind.

Colonel Thurman H. Bane later flew this machine, becoming the first helicopter pilot in the U.S. Army.

He pronounced it **"Outstanding"**. Unfortunately for the Colonel this judgment proved to be somewhat premature. In its wisdom the U.S. Army abandoned the $200,000 programme because of its general mechanical complexity and the many unsatisfactory characteristics of the vehicle.

The "thing"

The day of 9 January 1923 dawned bright and clear at Cuatro Vientos, Madrid, Spain. The local peanut pickers were surprised later in the morning to see a strange looking contraption leave the ground, fly steadily across the field, and then land safely.

The "thing" resembled an aeroplane but it had a second propeller in the horizontal plane above the driver's head. No knowing what these lunatics will be up to next, thought the pickers as they resignedly returned to their work. Also watching this historic first flight of a practical autogiro was its designer, **Juan de la Cierva** (1896-1936).

An autogiro, of course, is unlike a helicopter in that its rotor blades free-wheel and are not driven by the engine. They turn because of autorotation, a modern miracle resulting from the flow of air on them which is generated by flight. The rotor mast is tilted back slightly so that the relative air flow through the disc is always from the front and below; the blades are thus autorotating all the time. The autogiro, however, to get airborne, needs a conventional propeller and, therefore, cannot hover or ascend vertically.

Before this successful flight **Cierva** had built three earlier models. All had stubbornly refused to fly. As they had gathered speed they'd exhibited all the right tendencies until just before liftoff. Then, to **Cierva's** and the unfortunate pilot's consternation, each had lifted on one side and begun to roll over.

It did not take the acute **Cierva** long to discover that the cause of this distressing phenomenon was dissymetry of lift — the advancing blades were gaining more lift than the rereating blades on the other side.

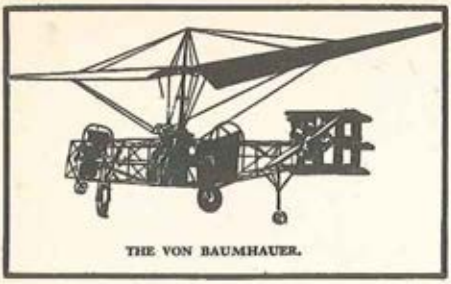
But why devote all this space to the humble and almost forgotten autogiro?

What made **Cierva** follow this line of development? Aero engines, even in the early 1920's, were rather less reliable than most pilots desired. In fact, they quit with almost monotonous regularity.

Now **Cierva** did not like heights, and the thought of using a parachute appalled him. His overriding concern, therefore, was to build an aircraft which could land safely once the engine had signed off. The answer: make the generation of lift independent of the aircraft's forward speed.

Having installed a set of rotor blades on a modified fixed-wing aircraft, his solution to the problem of dissymetry of lift was simple: he fitted hinges to his blades

THE DE BOTHEZAT.



THE VON BAUMHAUER.

so that they were free to flap and thus equalize lift. This made his pilot very happy; it also considerably increased his life expectancy.

Cierva's new rotor design was the forerunner of today's conventional rotors — and this is why he is important. He was also, of course, the **first** to confound those skeptics who believed that a helicopter would crash if the engine stopped.

It was **Cierva's** successful autogiro that spurred the helicopter designers on to renewed efforts. In 1925, a Dutchman, **von Baumhauer**, built and flew the **first single rotor helicopter**. He, too, was a disciple of **Newton** and so he had a mandatory tail rotor.

But how to make it go around? **Newton** had never thought of that! Why, a tail rotor engine, of course. The bemused pilot remained forever bemused and finally ended up in a heap of twisted metal.

Renewed U.S. aviation interest

During all this time aviation in the U.S. had failed to keep up with European developments. However, the position was changed dramatically overnight with the formation of the U.S. Army Air Corps on 2 July 1926 (others might argue that it was **Lindbergh's** trans-Atlantic flight in May 1927). Whichever event it was, it made a decisive impact on aviation in this country. It took off, as the saying goes.

On 8 October 1930, an Italian helicopter, designed by **Corradino d'Ascanio**, established three new world records: a height of 59 feet, an endurance of eight minutes and 45 seconds, and a distance of 1,150 metres. It is interesting to note the extent of **progress in rotary-wing performance** 23 years after the first helicopter flew in 1907. For example:

. . While most of them could undeniably get off the ground, they were'nt too good at going anywhere. Indeed, **d'Ascanio's** average speed was a breathtaking **4.6 mph.** On the other hand, 23 years after the **Wright brothers** got airborne in their Kitty Hawk, flights from England to Australia and back had taken place.

Nevertheless, the race to produce a helicopter that could actually outpace a man was on!

The theory of hinges was known and the autogiro had demonstrated that a helicopter could descend safely without the benefit of an engine. France, Great Britain, Germany, the Soviet Union, and the United States were in the forefront of the race. Contrary to popular opinion, it was not Germany which was the **first country** to produce a practical helicopter. This honour was, in fact, claimed by two Frenchmen.

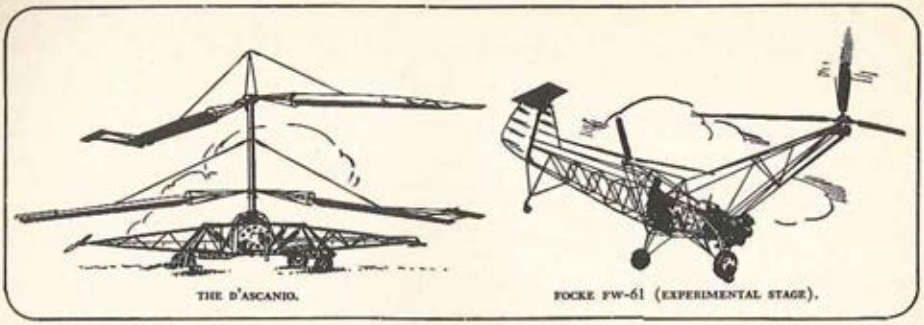
A devastating speed of 67 mph!

On 26 June 1935, the **Breguet-Dorand** 314 with twin co-axial rotors (similar in some respects to **Sikorsky's** present ABC helicopter) leapt nimbly into the air. Within six months it set a devastating speed record of 67 mph. By the end of 1936, it had established an altitude record of 517 feet, an endurance of 62 minutes, and a distance record of 27.5 miles.

Could helicopter technology ever be taken any further?

Exactly a year later to the day after the first flight of this French machine there flew for the first time the famous German-built **Focke-Achgelis** Fa-61 with two side-by-side rotors. It remained aloft for 28 seconds, and within a year it had set a new speed record of 77 mph and had climbed to the unbelievable height of 7,800 feet. Soon long cross-country flights were being made.

At pains to demonstrate the helicopter's excellent slow speed controllability, **Hanna Reitsch**, a German woman test pilot, flew the Fa-61 inside the Deutsch-



THE D'ASCANIO.

FOCKE FW-61 (EXPERIMENTAL STAGE).

landhalle in Berlin in February 1938. But despite the success of the Fa-61 the helicopter was still generally regarded by the public at large as an invention of the devil.

Who could really take seriously such an outlandish and noisy collection of rotating metal?

Re-enter Igor Sikorsky!

It took **Igor Sikorsky** to show that this invention had enormous potential. On 13 May 1940 he took off in free flight in his VS-300, a single rotor helicopter loosely resembling **Baumhauer's** 1925 design. It flew, but with rather less precision than its designer had hoped for. Several modifications were made. **Sikorsky** thought the torque was a bit fierce and so fitted at one time no less than three tail rotors. But while the machine then flew competently in all other directions it steadfastly refused to fly forwards in a responsible manner.

Finally, after further work, on 14 August 1941, a satisfactory version was flown, and it soon outshone the Fa-61. Five months later, the production version, the R-4, flew for the first time. During WW II it was operated by the U.S. Army, Navy, and Coast Guard, and by the Royal Air Force.

*****

And from this date, the helicopter rapidly established itself as a workhorse . . . just like Pegasus, the horse we mentioned 63 paragaphs back.

Dramatis Personae

(Cast of Characters, but not necessarily in order of appearance.)

Icarus: The **only** Greek astronaut.

Roger Bacon: An influential English philosopher, experimental scientist, and gourmet who argued that if we were meant to fly we should do something about making wings.

Leonardo da Vinci: An Italian inventor whose absent-mindedness allowed a king to lose his crown.

Sir George Cayley: The father of aerial navigation, the grandfather of the glider, and the great-grandfather of the cyrnottero.

Paul Cornu: The first **Intrepid Aviator.**

Igor Sikorsky: A Czarist Russian-American whose reaction to **Newton's** decree was neither equal nor opposite, but overwhelming.

Juan de le Cierva: A Spanish Inquisitor who decreed that gravity could be - and should be - defied.

von Baumhauer: A little-known Dutch woodcutter and radio ham. He made the unexpected discovery that certain radio sets only worked in the morning, while others only worked on Friday mornings. Nowadays, fortunately, we can easily distinguish these sets since they are usually marked AM—Any Morning, or FM—Friday Morning.

—LTC E.J. Everett-Heath

Hall of Fame

Seven persons inducted at June 4 ceremonies

SEVEN men were inducted into the Army Aviation Hall of Fame, increasing the Hall's membership to 28, at ceremonies held Saturday, June 4, at Fort Rucker in observance of the 35th birthday of Army Aviation.

The Ft. Rucker commander, **MG James C. Smith**, served as host and master of ceremonies at the formal induction of the 1977 nominees. Attended by some 200 persons, the inductions were held in the post's Physical Fitness Center.

All Inductees in retired status

Those inducted in 1977 were chosen by a six-member Hall of Fame Board of Trustees under the auspices of the AAAA, the sponsoring agency. The inductees were **LTG John Norton, BG Robert M. Leich, COLs Robert H. Nevins** and **Jay D. Vanderpool, CW4 Johnnie R. Sandidge** and **CSM Lawrence E. Kennedy.** All are retired.

Six of the honorees' escorts at the unveiling of the portraits were former Hall of Fame inductees: **GEN Hamilton H. Howze, LTG Harry W.O. Kinnard, BG O. Glenn Goodhand; COLs Delbert L. Bristol** and **John W. Oswalt;** and **Arthur H. Kesten. CSM Robert L. Roots**, Fort Rucker's CSM, was the seventh escort.

The portraits will be placed alongside the 21 other members' portraits already on display in a section of the Army Aviation Museum designated as the "Hall of Fame."

The day's formal events were concluded with a Birthday Dinner at the Officers' Club at which a near capacity crowd heard **GEN Howze** speak on the waning interest in airmobility within major segments of the Army.

Remarks of President Williams:

On behalf of the 48 members of the Association's National Executive Board, I'd like to extend a warm greeting to you on the occasion of the 1977 Army Aviation Hall of Fame Induction Ceremonies.

(HALL/Continued on Page 26]

Vanderpool, Norton, Nevins, Shepard, Kennedy, Leich, Sandidge

ONE OF 28 —Colonel Jay D. Vanderpool, Ret., left, of Sarasota, Fla., a proponent, tester, and developer of the armed helicopter in the 1950's, and his wife, listen attentively during the reading of the former's Hall of Fame citation. The action took place following the unveiling of Vanderpool's portrait by escort and Hall of Fame member, Colonel Delbert L. Bristol.

WELL DESERVED HONOR — Lieutenant General John Norton, center, and his wife, Cheney, watch as their escort and fellow Hall of Famer, General Hamilton H. Howze, unveils the former's portrait at the June 4 ceremonies. The Basye, Va. resident served with distinction in a wide variety of assignments having a a major impact impact on airmobility.

Aviation Hall of Fame inducts seven

IMPRESSIVE—The opening ceremonies at the June 4 Birthday Ball at the Fort Rucker Officers Club included herald trumpets and a presentation of the colors (above) by an Honor Guard. Attendees were then entertained by music presented by the U.S. Army Aviation Center's 98th Army Band. (All photos are U.S. Army photos taken by SP4 Debbie Caskey.)

RECOGNITION — Command Sergeant Major Lawrence E. Kennedy, Ret., right, of Amory, Miss., an outstanding senior NCO in virtually every major Army Aviation combat unit and higher headquarters, is reflective, as his Hall of Fame citation is read. CSM Robert L. Roots, Ft. Rucker's senior non-com, left, and Mrs. Kennedy join the honoree at the unveiling.

A FINE LIKENESS — Colonel (Ret.) and Mrs. Robert H. Nevins, Jr., left, and Lieutenant General Harry W.O. Kinnard, Ret., flank the former's Army Aviation Hall of Fame portrait following its June 4 unveiling at Ft. Rucker Physical Fitness Center ceremonies. A resident of Killeen, Texas, the aviation careerist was cited for his air cavalry contributions.

CONCERN—General Hamilton H. Howze, the guest speaker at the Birthday Ball on June 4, expresses some personal reservations on Army Aviation today.

UNVEILING — Brig. Gen. Robert M. Leich, right; his wife, his son, Robert, and daughter-in-law, Diane; and his granddaughter, Christina, are a proud family as they watch escort Art Kesten, left, unveil Gen. Leich's portrait. The Evansville, Indiana honoree was cited for his WWII 'firsts' and for career-long contributions to all who have served in Army Aviation.

HOST—Maj. Gen. James C. Smith, USAAVNC CG, welcomes the attendees to the Birthday Ball celebrating Army Aviation's Thirty-Fifth Anniversary, June 4.

QUITE PLEASED—Chief Warrant Officer (W4) Johnnie R. Sandidge, Ret., left, of Killeen, Texas, and his wife and daughter, admire the Hall of Fame likeness to be displayed in the Army Aviation Museum. Colonel John W. Oswalt, Ret., escorted the 21-year aviation veteran and maintenance specialist to the portrait site at the June 4 unveiling ceremonies.

AVIATOR HONORED — Colonel Claude L. Shepard, Jr., Ret. right, a key personnel specialist during the '40's-'50's; his wife; and longtime WWII friend and fellow Hall of Famer Glenn Goodhand, left, stand beside the former's portrait at its unveiling. The several portraits were then placed on permanent display in the "Hall of Fame" in the Army Aviation Museum.

A HAPPY MOMENT!—The Guests of Honor at the 35th Anniversary Ball of Army Aviation, the seven 1977 Army Aviation Hall of Fame inductees and their wives are shown in a formal group photograph held just after the June 4 social function at the Fort Rucker Officers' Club. From left to right are Mrs. Sandidge, CW4 Johnny R. Sandidge, Mrs. Kennedy, CSM Lawrence E. Kennedy, COL and Mrs. Claude L. Shepard, Jr., BG and Mrs. Robert M. Leich, COL and Mrs. Robert H. Nevins, Jr., COL and Mrs. Jay D. Vanderpool, and LTG and Mrs. John Norton. Brigadier General (then Captain) Leich served as Maintenance Officer in the initial Army Aviation organization assigned at Fort Sill, Okla. in June 1942.

Hall of Fame

In **General Smith's** opening remarks, and in all prior and present printed accounts of the proceedings, you should note that it is the **"Army Aviation Hall of Fame"** — and not the AAAA Hall of Fame, the marquee on the outside notwithstanding.

While it's true that the Association and many of its members were primarily responsible for the activation of the Hall, the successive Aviation Center Commanders have welcomed the "Hall of Fame" induction proceedings for the past four years, and have made them a part of the annual birthday celebration.

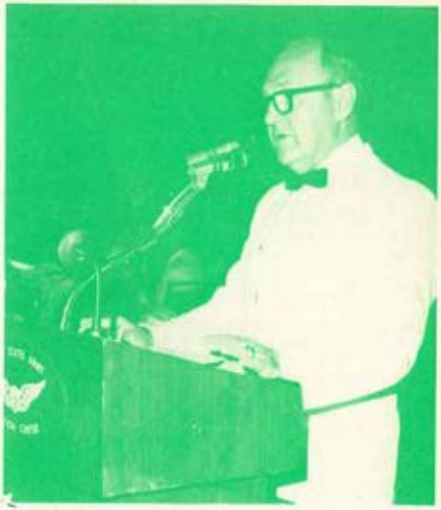
A fourth opportunity

We appreciate the opportunity these commanders have given us to serve your interests - and now in its FOURTH year, it seems certain that the "Hall of Fame" is here to stay.

Through our membership activities and our publications, the Ass'n has endeavored to underwrite the annual Hall of Fame costs. It has succeeded in great part in doing so, thanks to our ever-growing number of "Hall of Fame" Patrons.

These voluntary contributors have donated some $4,100 over the past two years. Their names have been inscribed on a **Patron's Plaque** which will be hung in the "Hall of Fame" in the Army Aviation Museum alongside the portraits of the Inductees.

At this time, I would like to ask **Mr. Jim Craig**, acting curator of the Army Aviation Museum, to step forward and accept the 1976-1977 Plaque that carries the names of the 352 **Army Aviation Hall of Fame Patrons** (See page 11).



AAAA President Williams addresses the Birthday Dinner audience on June 4

It's been the AAAA's privilege to take part in the identification, selection, and induction of the outstanding individuals who are cited at these annual ceremonies.

The Association looks forward to assisting you in these same roles in the future. Thank you."

On site principals assisting in the ceremonies were **COL Joseph F. Rutkowski, 1LT Robin Walker,** and **SFC Larry Rasnic. GEN Hamilton H. Howze, Ret.,** chairs the six-member AAAA Board of Trustees that made the 1977 selections.

Nevins, Sandidge, Kennedy, Leich, Vanderpool, Shepard, Norton

The USA Communications Command selects its "Air Traffic Control" specialists of the year

SP5 Murphy

Operations

Korea-based ATC Unit is "Best of Year"

THE U.S. Army's only radar Flight Coordination Center (FCC) has been chosen as the **Air Traffic Control Facility of the Year for 1977.**

The **FCC "Warrior Control,"** an isolated Air Traffic Control facility located on top of Papyongsan Mountain within the highly-sensitive Korean Buffer Zone, only nine kilometers from the Demilitarized Zone (DMZ), was selected as the top ATC facility from among air traffic control facilities worldwide.

FCC Warrior is an element of the U.S. Army Air Traffic Control Battalion-Korea, 1st Signal Brigade, 6th Signal Command.

The ACC's commander, **MG Gerd S. Grombacher,** telephoned the **Warrior's** site commander, **SSG David E. McCoy,** to congratulate him and his staff on winning the facility of the year award, and commended them on their outstanding record of efficiency.

Warrior Control, a self-contained, self-sufficient facility, is operated 24 hours a day by two dozen U.S. and Republic of Korea controllers. Its mission is to aid all U.S. Army and Republic of Korea (ROK) Army and Air Force aircraft operating in the buffer zone to prevent inadvertent flights over the DMZ which could lead to an international incident. **Warrior** also supplements the ROK Air Force early warning air defense system.

According to the citation nominating **Warrior Control** as facility of the year, there were no stray flights into the DMZ in 1976, which attests to the skill of the Warrior controllers who process an average of 175 aircraft daily. About half of these involve flights within the sensitive buffer zone itself.

The commander of **Warrior Control** will travel to Ft. Huachuca in October to receive the award.

KITZINGEN NCO SELECTED AS ATC CONTROLLER OF YEAR

An enlisted man credited with averting an international incident has been selected as the **U.S. Army Air Traffic Controller of the Year for 1977.** The announcement was made by **MG Gerd S. Grombacher,** Commander, U.S. Army Communications Command (ACC), at Ft. Huachuca.

Specialist 5 Clarence W. Murphy, senior controller and shift supervisor of the Kitzingen Tower/Approach Facility in Germany, was chosen from among

[OPERATIONS/Cont. on P. 42]

By MAJ. GEN. [P] EIVIND H. JOHANSEN
Commander, U.S. Army Aviation
Systems Command, St. Louis, Mo.

Maintenance

Reliability-Centered Maintenance

Reliability-centered maintenance isn't really a brand new way of accomplishing the daily business of maintenance. It has been practiced for a number of years by elements of the U.S. space program and by some commercial airlines.

Those organizations haven't been the only ones paying attention to reliability-centered maintenance, however. The Army has been actively applying similar concepts in its logistics support analysis programs associated with the development of new aircraft, notably UTTAS and AAH.

In general, reliability-centered maintenance calls for the elimination of time-honored maintenance practices that do nothing more than increase costs without adding to the safety or reliability of an item or system. It's a valid response to the unnecessary and wasted maintenance motions that we've seen being made in the midst of rising maintenance costs.

Recognizing the high costs of aviation maintenance and the need to either bring them under better control or endanger a viable Army Aviation program, the **U.S. Army Aviation Systems Command [AVSCOM]** adopted reliability-centered maintenance in earnest and looked for new, far-reaching ways to apply it.

Three programs that resulted from this effort are **on-condition maintenance, phased maintenance,** and **three-level maintenance.** There are others, but these three should suffice to show that AVSCOM means to cut maintenance costs without any decrease in reliability. These programs aren't just conceptual in form; they're live actions being put into practice with aircraft and aviation units in the field today.

On-Condition Maintenance

Let's look first at **on-condition maintenance.**

Throughout much of Army Aviation's existence, the vast majority of our aircraft went to depot overhaul when they reached a certain number of flight hours. Notable exceptions were battle- or crash-damaged aircraft. The time specified was based on the best possible engineering calculations of wear on critical components and systems, with a high regard for safety.

This approach was by no means a bad one, but it did ignore something that we all know about mechanical items—no two are exactly alike. In accord with the standard, two aircraft of like model and series that had been flown about the

same number of hours under similar conditions would be scheduled for overhaul at the same time, regardless of differences between the two.

Consequently a smooth-flying, power-loaded aircraft was often pulled away for depot overhaul along with a sick sister craft. Multiply the example manyfold, and the costs become staggering.

On-condition maintenance eliminates much of this unnecessary cost. The key is that we are doing away with "hours flown" and "time since last overhaul" as the criteria for sending aircraft to depot overhaul. We will apply the technical expertise of our AVSCOM airframe condition evaluation teams to examine unit aircraft and determine which ones go to overhaul.

Are we playing games with aviation safety or kidding ourselves about cutting costs? No, we're not.

We've been using **on-condition maintenance** with the UH-1 for the past few years, and the results and prospects look extremely good. In fiscal year 1974, the overhaul cycle for the UH-1 fleet stood at 4.52 years. By applying **on-condition maintenance**, we extended this to 6.6 years in fiscal year 1976, and fiscal year 1977 will show further improvement. While the reduced flying hour program may play a part in further extending the cycle, **on-condition maintenance** clearly offers the means to get the most out of our aircraft fleet for the fewest dollars expended.

PROUD MOMENT—LTC Robert D. Stearns, l., pins Army Aviator wings on his son, **WO1 Robert M. Stearns** at the latter's recent graduation. The former received hisAA wings at Ft. Rucker in August 1955. A third aviator in the family could be **Douglas Stearns**, now a plebe at USMA. □

Change of Assignment

Major General [P] Eivind H. Johansen has been reassigned as the Deputy Chief of Staff for Logistics, Department of the Army. **"Reliability-Centered Maintenance"** was first published in the July-August, 1977 issue of the **"Army Logistician."**

Phased Maintenance

Another program, **phased maintenance**, is a way to solve a problem that commanders, maintenance officers, mechanics, and aviators have recognized for a long time—we spend a lot of time and effort taking things apart and checking them again and again, just to discover that they were okay to begin with.

Phased maintenance is AVSCOM's attempt to accomplish only the necessary inspections and eliminate the redundant, unprofitable, "make-work" efforts.

Using the current system, certain aircraft components are checked at every intermediate inspection. These same components, and others, are rechecked at the 100-hour periodic inspection. **Phased maintenance** changes this "do it over and over again" approach. Drawing on the output of a computer model, optimum aircraft inspection intervals and component inspection schedules based on failure data are derived.

While daily inspections remain essentially the same as before, phased interval inspections have been set at 100 hours on the sample fleet of UH-1 aircraft with which we have worked. At these intervals, the computer-produced schedules insure that each component is inspected at least once in every 800-hour

cycle. Generally, no two component lists inspected in the 800-hour cycle are alike.

In a field evaluation of the **phased maintenance** concept at Fort Campbell, Kentucky, we compared 60 UH-1 aircraft in a test unit with 60 others in a control unit. Thus far, the evaluation has confirmed the anticipated reduction in maintenance costs. Essentially, the results of the evaluation show that we've achieved significant cost savings with only a negligible reduction in mission readiness. This is the objective of reliability-centered maintenance.

Reserve units employing **phased maintenance** during annual training reported that all missions were fully supported and that some flights would have been impossible using the "old" inspection system. Beyond this, we are looking at the AH-1 and CH-47 aircraft at Fort Hood, Texas, and going over checklists from the Army National Guard at Edgewood, Maryland. The Army Reserve is conducting similar reviews at Cahokia, Illinois, and Tomball, Texas.

These tests aren't conclusive, but we believe we're on the right track to cutting aircraft maintenance costs and improving aircraft availability with **phased maintenance**, and we'll keep on working to insure that we achieve these goals.

Three-Level Maintenance

The third program I mentioned earlier, **three-level maintenance**, is not all that new to many aviation people with Vietnam experience. The program largely came into its own there, when aviation units integrated their organizational maintenance with a portion of their required direct support maintenance.

The concept was put to a hard test by the 1st Cavalry Division in 1969. Maintenance personnel and tasks were realined, and the results included decided increases in both operational readiness and flying hours. The results were so good, in fact, that they had the effect of adding 140 aircraft to the division! These results were incorporated in an Army study, released in April 1974, that called for the establishment of **three-level maintenance.**

At AVSCOM, we don't have full responsibility for implementing **three-level**

DINNER MEETING—Shown at a late Spring meeting of AAAA's Morning Calm Chapter at Yongsan, Korea, are honored head table guests. L-r, **LTC Ernest Hafers,** guest speaker from USAAAVS; **COL Stratton,** JE, EUSA; **Mrs. Gerald Lord; GEN John W. Vessey, Jr.,** CG, EUSA; **LTC Ernest F. Estes,** CO, 19th Avn Bn (Cbt); **Mrs. Vessey; BG Barnes,** ADC, 2d Inf Div; **LTC Gerald Lord,** Pres., Morning Calm Chapter, AAAA; and **COL Petersen,** Cdr, USAG, Yongsan. □

maintenance, but we do have a major role, and we've just about completed our initial implementation. Pertinent changes to the -20 and -34 manuals have been published, outlining procedures for use under the "old" and "new" systems while we await transition into full-blown **three-level maintenance** under a new, combined -23 manual. I want to emphasize the transition period.

Three-level maintenance requires many coordinated actions, and all of the AVSCOM publications provide instructions for the transition period while other implementing actions are being concluded.

Of primary interest to commanders and maintenance people is the maintenance allocation chart. This shows some tasks formerly performed by direct support Code F units moving to aviation unit maintenance (AVUM) Code O, and some direct support and general support Code H tasks combined into the new aviation intermediate maintenance (AVIM) Code F level. Still others, of course, are aligned with the depot level.

Repair parts and special tools lists also are being revised. As these come into being, all aviation units will begin to feel the impact as we make the necessary manpower and tool adjustments.

In a nutshell, we're staffing Army Aviation units to perform high frequency, "on-aircraft" maintenance tasks to return aircraft as quickly as possible to serviceable condition at the operating level. Aviation intermediate maintenance units will be providing backup support, and they will be mobile and responsive to meet "one-stop" maintenance requirements. Depots will do the rest, either in Army facilities or through interservice agreements or commercial contracts.

All in all, these actions and a host of others point to the fact that **reliability-centered maintenance** is in full swing within Army Aviation circles. We believe in the concept at AVSCOM, and we're convinced that people in the field also will believe in it when they see the results in the form of decreased maintenance costs, increased aircraft availability, and a notable improvement in aviation reliability. □

Course PMC-77-1 of the Defense Systems Management College's **Program Management Course** graduated on 9 June. The 20-week course, which prepares students in the Army's Project Manager Development Program, is on the level of C&GSC or AFSC. PMC 77-1 students were, left to right, **LTC Curtis J. Herrick, Jr.; MAJ David R. Forville; CPT Albert B. Garcia;** and **MAJ Kendall K. McIntyre,** front row. Faculty-members in the rear row are **LTC Robert B. Machen** and **MAJ Carlton F. Roberson.** □

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Command & Staff

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MG(P) Eivind H. Johansen, as Deputy Chief of Staff for Logistics, DA, Washington, DC 20310.

MG John K. Singlaub, as Chief of Staff, Hq, FORSCOM, Ft. McPherson, GA 30330.

BG Joseph H Kastner, as ADC, 101st Abn Div (Air Aslt), Ft. Campbell, KY 42223.

BG William J. Kennedy, to USAE, SHAPE (NICS-COA), APO New York 09055.

BG Rufus C. Lazzell, as Asst Chief of Staff, Plans & Policy, AFSOUTH, FPO New York 09524.

BG Francis J. Toner, as ACofS, J-4, Hq, UNC/USFK/EUSA, APO San Francisco 96301.

COL Willard M. Bennett, to USREDCOM, J3-06, MacDill AFB, FL 33608.

COL George A. Brown, as Deputy Asst Commandant, Hq, USA Transportation School, Fort Eustis, VA 23604.

COL Paul J. Buchanan, to Hq, EUCOM, Box 1229, APO New York 09128.

COL Clifford A. Crosmun, to US Defense Attache Office, American Embassy, APO San Francisco 96263.

COL William E. Crouch, Jr., as Cdr, USA Aircraft Development Test Activity, Fort Rucker, AL 36362.

COL C.B. Dehrkoop, as Cdr, USA Air Traffic Control Activity (ACTA), Ft. Huachuca AZ 85613.

COL Emmett F. Knight, as Cdr, Eustis Directorate, USAAMRDL, Fort Eustis, VA 23604.

COL Howard H. Oakley, to USASE-LSE, Box 3142, APO New York 09224.

COL Ralph J. Powell, to USA War College, Carlisle Barracks, PA 17013.

COL Harold L. Rose, to USA War College, Carlisle Barracks, PA 17013.

COL Ivar W. Rundgren, as Chief, Aviation Systems Division, ODCSRDA, Washington, DC 20310.

COL Henry J. Stein, Jr., as Director, Management & Administration, USA MMC, APO New York 09052.

COL Howard J. Tuggey, as Director of Maintenance, Hq, AVSCOM, St. Louis, MO 63166.

COL Robert E. Wilson, as Cdr, 2nd Brigade, 3rd Infantry Division, APO New York 09031.

"Command & Staff" lists the change of assignments and station of those AAAA members in the Colonel and General Officer ranks. □

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People

AAAA AWARDS AND HONORS

Mr. Charles L. Black, Columbus **Ledger/Inquirer,** Honorary Membership in Ft. Benning Chapter, 19 April.

DEGREES AND HONORS

CW3 Paul R. Wilson, MA, Ball State University, 25 February.

DISTINGUISHED GRADUATES

U.S. Army Aviation Center

(AAAA presents engraved silver wings)

2LT Randall W. Cason, Sr.,* 29 March.
WO1 Walter E. Riley, 29 March.
WO1 Steven M. Rebbe, 12 April.
2LT James L. Fairchild,* 26 April.

AWARD—CPT Wayne C. Dunlap, cen., AvnSafO, Phillips AAF, Aberdeen Proving Ground, holds a DA Award for Excellence given the airfield's pilots for 30,761 accident-free hours during six years. **COL Alvin D. Ungerleider,** r., APG's CO, made the presentation; **LTC Edmund B. Bookman, Jr.,** Airfield Cdr, looks on. (USA photo)

A brief letter to the editor is welcomed on any subject. Letters must be signed; however, the writer may ask to have his name withheld. Submit letters to: Editor, Army Aviation Magazine, 1 Crestwood Road, Westport CT 06880.

WO1 Larry E. Pollard, 26 April.
WO1 Robert O. Martschinske, 10 May.
2LT Robert R. Casella,* 24 May.
WO1 Robert E. Miller, 24 May.
Pilot Aspirant Peter Hofer, Europe/NATO Class, 24 May.
WO1 Charles C. Gaines, 7 June.
WO1 Randall S. Erwin, 1 July.
*ORWAC; remainder are WORWAC.

U.S. Army Transportation School

2LT Drew C. Wallace, AMORTC Class No. 2-77, UH-1. 14 March.
SSG Steven Durbin, AMNCOAC, Class No. 3-77. 11 April.
CW2 Kenneth W. Cowan, AMORTC Class No. 3-77, CH-47. 20 April.
1LT Frank J. Matulonis, AMORTC Class No. 4-77, UH-1. 18 May.
SSG Richard W. Babe, AMNCOAC Cl. No. 4-77. 27 May.

BIRTHS

The national drop in the birth rate is reflected accurately in the number of births recorded among AAAA families. We haven't received a notice from a proud Father in 13 months.

CHANGE OF ADDRESS

Your change of address notice to the AAAA also serves to change your Chapter affiliation and magazine address of record. □

Ready In Reserve

By LTC RICHARD R. NOACK,
Aviation Officer, Office of the
Chief of Army Reserve, DA

Enlisted Aviator Proposal Gains Momentum

Now that I have your attention, I'd like to add that the current enlisted aviator proposal will never be defeated with emotion or past history.

It will only be defeated—and soundly, in my opinion—by assessing its impact on our ability to maintain a "total Army" aviation force capable of meeting Army requirements at mobilization. This has not been done!

The guidance in the development of the enlisted aviator concept included: "Consider only Active Component TOE/TDA positions" — and we did it again! We developed a concept without considering its impact on a Reserve Component structure representing about 50% of the total Army's TOE aviation force.

Any future change in aviation training programs **must** be compatible with and support a Reserve Component structure of this size—and if you don't believe it, ask anyone at Fort Rucker.

I submit that "it's back to the drawing board time" to develop a conceptual plan for management of an enlisted aviator program, and this time let's wear our **"One Army"** think caps. Only then can we assess the desirability or feasibility of establishing an enlisted aviator program to meet total Army requirements. In short, "What may be good for half the Army is not necessarily good for the other half."

I'd like to point out just a few of the problems the Reserve Components would encounter under such a proposal. Currently the 6,000+ Reserve Component aviator force experiences an approximate 18% turnover rate annually. This force is sustained largely by the Aviation WO Program as we know it today.

This program provides for Warrant Officer professional development commencing with graduation from flight school and has produced a Warrant Officer Corps composed of individuals flying all aircraft in the current Army inventory; performing duties as aircraft IP, SIP, gunnery IP, NOE IP, Instrument IP and Examiner; and qualifying as aviation safety and aircraft maintenance officers.

HAIL AND FAREWELL!

This will be my first and last controversial article. After three years in DA as USAR Aviation Officer, I'm departing for a new assignment in Europe. My OCAR replacement is **LTC William W. Priest**, a nine-year AAAA member and formerly assigned to the FORSCOM Avn Div.

"Ready in Reserve" - to be contined by **LTC Priest** - has been an attempt to provide Army Aviation personnel throughout the world with a better understanding and appreciation of the USAR Aviation Program, one consisting of a large group of dedicated professionals and one that I've been proud to have served.

—LTC "Dick" Noack

Recruitment of **prior service aviators** with these qualifications has been key to Reserve Component progress to date in terms of aviation training and readiness. Graduate aviation training quotas are only needed for 10% of qualification requirements at present.

Today, only 1% of Reserve Component aviator strength requirements are met through Reserve Component initial entry flight training. The remaining 99% of aviator strength requirements must be met through recruitment of prior service aviators. Herein lies the problem with the enlisted aviator concept.

Aviators leaving the service after their initial obligation will predominately be sergeants, for whatever the reason, be it failure to cut it as an aviator, failure to demonstrate potential for Warrant status, disenchantment with aviation service, or abolishment of the enlisted aviator program because it wouldn't work.

The aviation sergeant would settle and seek civilian employment in Somewhere, USA, and if we're lucky, within recruitment distance of one of the 123 Reserve Component aviation facilities.

The facility needs aviators. However, it is not cost effective to the enlisted aviator to commute distances currently traveled by warrant and commissioned aviators to participate voluntarily in additional flight training periods, a program essential to low aircraft accident rates and accomplishments of individual training goals and objectives.

So he doesn't join.

THREE DOUBLE STANDARDS

An alternative is to create a double standard and lower warrant appointment standards as an incentive for recruiting and retention or lose our training investment because someone thought they could save money or spaces by making him a sergeant.

Let's assume the enlisted aviator lives in close proximity to the facility. The facility needs AH-1 qualified aviators for an attack helicopter company, a UH-1 IP, an instrument examiner, and an NOE IP. The enlisted sergeant can only fly a UH-1 and/or an OH-58, but he is a rated aviator and therefore must be recruited and trained to fly an AH-1 (the **second** double standard - sergeants in the Active Component will not fly AH-1's) or travel to Rucker for a UH-1 IP course (the **third** double standard - his classmates will all be Active Component officers and wo's).

The enlisted aviator will then return to the flight facility and fill a warrant (or maybe even an officer) position whereas the Active Component enlisted aviator is managed by PCS to obtain appropriate career progression assignments. But then again, that's a problem for only half the Army.

As dedicated as he may be, the Reserve Component enlisted aviator will question the system sooner or later. He'll be flying the same aircraft and performing the identical duties of other officers and warrant officers in the unit and only receive enlisted pay. Again, a choice must be made: Lower the standards and appoint the enlisted aviators as warrant officers to insure retention, or lose them as aviators because someone thought they could save money by making them sergeants.

[READY IN RESERVE/Cont. on P. 42]

TOP FLIGHT SURGEON WINS COVETED LYSTER AWARD

Major General Spurgeon Neel, commander of the Health Service Command, a member of the Army Aviation Hall of Fame, and a 1962 winner of AAAA's McClellan Aviation Safety Award, received the 31st annual **Theodore C. Lyster Award** at the Aerospace Medical Assn's Honors Night Banquet. The award, established in honor of the first Chief Surgeon, Aviator Section, Army Signal Corps, is given for individual achievement in the field of aerospace medicine. □

By BRIG. GEN. BENJAMIN E. DOTY
Director of Officer Personnel
Management, MILPERCEN, DA

Personnel

A matter of continuing concern

LET me first say that I'm a regular reader of **"Army Aviation Magazine,"** and that I enjoy and look forward to each issue.

In the last year I've noticed that reader interest has increased. Apparently, **Colonel Sam [Kalagian]** has definitely lit a few burners.

Once in awhile a few raw pieces come out of the oven that are a little bit tough to chew but, overall, I think it's added lot of spice to our diet. With more folks offering their recipes, our menu — **personnel management** — stands to improve.

The management of aviators, particularly warrant officers, is a matter of continuing concern here at MILPERCEN and on the DA staff. Just so you know where I stand, I consider today's aviation warrant officer the best professional aviator in the world.

It is difficult **not** to get emotional when discussing an **enlisted aviator program.**

Task: Matching faces with spaces

— a current, high interest topic. While I will not argue the specific merits or disadvantages of enlisted aviators, I think it's important to note that the feasibility of such a program is being studied by DA as one alternative to balance the competing demands for officer and warrant officer spaces.

We at OPMD do not consider warrant officers to be enlisted men wearing different brass. Aviation warrant officers provide the Army with many positive attributes as was clearly articulated by **General "Bob" Williams** in his recent article, "The True Professional Military Pilot — The Aviation Warrant Officer."

Requirements vs Budgeted Strength

The real problem in our warrant officer division is matching "faces" with "spaces." The requirements in Army authorization documents exceed the budgeted number of WO aviators. Warrant officers constitute 13,000 of the Army's total officer budgeted strength of 98,345 with 5,508 of these spaces requiring aviation warrant officers.

Authorization documents, on the other hand, show projected requirements for WO aviators of 5,990 and total WO aviator assets of 5,494. Approximately 350 to 400 of these aviators are normally in a transient, patient, or student status.

The **difference** between budgeted and required strengths is not easily resolved, but in the meantime we'll continue to train 465 new WO aviators each year to

maintain our strength of 5,508 AWOs.

On the officer side of the picture we also have strength problems; however, the dynamics are somewhat different.

Two years ago, we were faced with reduced input to initial entry officer flight training. We had an officer aviator strength of 9,780 to fill 4,400 positions; 3,800 were operational flying slots. Of these officers, 5,840 were captains in year groups 66-70.

An excess of officer aviators

Very simply put, and especially in light of the Aviation Career Act, DOD's position was that the Army had an excess of officer aviators, especially in the company grades, and did **not** need to train more until the excess was reduced. Consequently, in December 1975 the Army was directed to reduce commissioned officer output from initial entry flight training to 100 per year for FY 77 and 78.

It was obvious, assuming normal promotion and attrition rates, that the high density aviator year groups would soon mature to become majors and lieutenant colonels. Since aviator requirement decline in the field grades, we could anticipate that our flexibility to manage and utilize these aviators would become more difficult.

THROWBACK—The Aviation Museum's 100-ft. tall, 80-ft. diameter hot air balloon soars over the drill field at Ft. Rucker during 35th Birthday festivities. The tethered craft appears to dwarf the Chinook and Skycrane in the foreground. (USAph)

During FY 76 and 77 our primary goals were to increase commissioned aviator training and to reduce the number of operational aviators in the excess year groups to manageable numbers.

The joint efforts of DCSPER and DCSOPS were successful in refining the Army's commissioned officer requirements. The **Programmed Objective Memorandum [POM]** for FY 78-82 projects commissioned aviator initial entry rates as follows:

FY	78	79
No.	200	365
80	81	82
465	465	465

The Aviation Specialty

The imbalance in strength was addressed in the implementation of **OPMS Aviation Specialty 15.** Approximately 1,000 commissioned aviators were **not** designated with an aviation specialty (15 or 71). Although these actions have improved the outlook for commissioned aviators, we will continue to be short lieutenants and somewhat over in the field grades in the foreseeable future.

On the commissioned aviator management side, the **Aviation Specialty [15]** is looking good. We've made a great deal of progress since the Vice Chief of Staff's decision to establish the specialty in September 1975. The first year was devoted to the **specialty designation process** for over 6,500 aviators in year groups 68 and earlier. In the past year, this process has covered year groups 69 and 70.

This process involved the development of participation objectives designed to meet field grade requirements, a careful review of the files of all officers affected, recommendation by career managers, and feedback from individuals. Reconciling these factors required decisions on the part of our OPMD career managers.

In March 1977 designation of the aviation specialty was changed to an **event-oriented process.** Aviation is now designated as an **alternate specialty** upon completion of initial entry flight traning for all officers, except AMEDDS and those already designated in Aviation Materiel Management.

The same policy applies for the designation of appropriate specialties for officers selected to attend civilian graduate schooling.

Specialty Skill Identifiers

Aviators' records will still be reviewed at the **eighth** year of service to determine formal designation based on field grade requirements. Our projections show that virtually all aviators in year groups 71 and later will maintain aviation as either a primary or alternate specialty at the eighth year point.

Another step in the evolution of Specialty 15 is the development of **Specialty Skill Identifiers [SSI],** which will provide commanders with an improved ability to identify aviation positions. The new **SSIs,** which are defined in Change 3 to AR 611-101, and become effective 1 Sept 1977, are:

15A - Aviation Officer - General
15B - Combat Aviation Officer
15C - Combat Support Aviation Officer

The August-September 1977 issue will cover "The Army's Advance Attack Helicopter" in depth. □

15D - Combat Service Support Aviation Officer.

These **SSIs** identify positions, not people. Change 3 to AR 611-101 also gives the commander greater flexibility in coding positions requiring aviators.

While we feel that we're off to a solid start on the **Aviation Specialty,** it is a dynamic process that will require constant review to ensure that we're meeting the Army's requirements, while providing for the professional development experience and education of our aviators.

The newly-established **Commanders Readiness Course** and **Aviator Refresher Training Course** at Fort Rucker provide definite improvements in this area. We are working with DCSPER, DCSOPS, and TRADOC to develop alternatives for advanced course level education for members of the Aviation Specialty.

In closing, I'd like to again compliment the Association and the editorial staff for the excellent magazine we receive and for the contribution it makes to maintaining meaningful dialogue within the Army Aviation community.

Don't quit! Hang in there, Sarge!

The anonymous MSG, who wrote of indifferent inspection teams in the April-May 1977 issue (**"There's a right way and there's a wrong way!"**), revealed a real mess that needs correction. Most of us can identify with the sitaution cited by the MSG. Fortunately, being retired, I'm no longer involved.

But - and it's an important **"but"** - "Mysterious Sarge" also revealed a lack of John Wayne **True Grit** in his last paragraph: "I have over 18 years of service and when my 20 years are in I'm definitely getting out because of actions such as I've cited."

Hey, Sarge! Running away won't solve the problem! From your account, it would appear you have a keen insight into what inspection teams should and should not do **to help** aviation units. By leaving, you leave the door open for some "meatball" to ghost his or her way to inefficiency.

Hang in there! Army Aviation could use about a thousand NCOs with your ability and experience. There are few TO&E or T/D slots out here in civilian life for you folks. Stay in and help to make Army Aviation what it should be, "Above the Best!"

—CW3 William G. Grauling, Ret.
Baltimore, Maryland

Operations

1,700 Army air traffic controllers worldwide. He is a member of the 14th Aviation Unit, an element of the 5th Signal Command at Worms, Germany.

The "save" occurred Oct. 11, 1976, when a small aircraft became lost near the East German border and its fuel was almost exhausted. According to the citation, **Murphy** realized that only **GCA** radar could aid the distressed aircraft and he declared an emergency.

Further complications arose and **Murphy** instituted unorthodox procedures to find the aircraft. Located within miles of the border, the aircraft was directed to Kitzingen where it made a safe landing. **He** was credited with preventing an international incident in the emergency.

The nomination citation also noted that **Murphy** had "greatly assisted in the upgrading of the training program for new controllers" at Kitzingen and has developed visual flight rule approach techniques to help trainees better understand the complex ATC procedures.

Murphy, an eight-year Army veteran, is scheduled to receive the **Army Air Traffic Controller of the Year** plaque at an October banquet at Ft. Huachuca.

Ready In Reserve

I hope by now someone has told Sergeants Austin and Bates, and the "thousands of crew chiefs, flight engineers and other enlisted aviation personnel"—who now have something to hope for—that (1) they, as enlisted members, qualify for entry in the current aviation training program, (2) entry standards will not be lowered if an enlisted aviator program is adopted, (3) existing quotas/input will not necessarily be increased, and (4) if the enlisted aviator proposal is adopted - they lose! They will be sergeants instead of Warrant Officers when they graduate.

At the onset of this article I said the proposal will not be defeated by emotion. If I sound emotional in the remainder of the article, it's because I am emotional about it. I've watched the National Guard and USAR aviation programs grow by leaps and bounds in training and readiness for the past three years to become the first segment of the Army, in my opinion, to make "Total Force Policy" a reality.

Anyone who has worked in the Reserve Component aviation environment cannot support such a proposal if he were responsible for the training and readiness of Reserve Component aviation units.

The bottom line is: "The Reserve Components are here to stay and we must insure development of programs that support their existence."

Editorial

be a controversial article, and it might take some nerve to write in. On the other hand, it could be highly educational to many people, to include those in key positions in the Army.

If an article were prepared covering the history of the Office of the Director of Army Aviation, and discussed its accomplishments and contributions, this would probably require the collaboration of many of the ex-Directors of Army Aviation.

Night Flying. Much emphasis has been placed on night flying in recent years. The efforts focused on developing sophisticated equipment to permit accomplishment of night missions. Night flying **without** any sophisticated equipment is a true art that seems to dissipate after every conflict during which it has been employed through necessity.

A great deal can be accomplished in night flying by the well-trained pilot with a little experience in night operations. It would be interesting to have an article prepared by some old-timers who have done it.

Calendar

JUNE 17. Air Assault Chapter. Picnic & Family Day. Clarksville Base Recreation Area. (Postponed & re-scheduled in August with local publicity notification.)

JUNE 27. Pikes Peak Chapter. Professional-Social Dinner Meeting. **LTC Jack T. Clark,** OPD, MILPERCEN, guest speaker. "Hail & Farewell" for new & old Chapter officers. Petersen AFB O-Club. "Members only."

JUNE 28. Coastal Empire Chapter. Gen'l Membership Business Meeting. Open discussion of programming plans. Hunter AAF O-Club.

JUNE 29. Fort Riley Chapter. Late afternoon Business-Social Meeting. Welcome to new members; ratification of Chapter Constitution; socializing. Flying Club Patio, Marshall Army Airfield.

JUNE 29. Sun Bowl Chapter. Late afternoon Business-Social Meeting. Chapter elections; financial report; programming plans; membership drive planning. Top 5 NCO Club.

JUNE 29. Fort Sill Chapter. Professional Luncheon Meeting. Presentation on AAH with speaker from AVSCOM PM's Office. O-Club.

JUNE 30. Cajun Chapter. Professional Luncheon Meeting. **COL[P] Edward M. Browne,** AAH PM, Hq, AVSCOM, guest speaker. Ft. Polk OOM.

JULY 22. Army Aviation Center Chapter. Late afternoon business-social meeting. Introduction of Chapter Awardees; details on First Region Convention; the Chapter's plans for Sept & Oct 77 meetings. FROOM.

AUG. 11. Monmouth Chapter. Second Annual Monmouth Chapter Tennis & Golf Tournaments/Clam Bake. Gibbs Hall Area. Ft. Monmouth O-Club.

AUG. 25-27. First Region—AAAA Convention (Air Assault Chapter, Sponsor). Sheraton Nashville Hotel, Nashville, TN.

OCT. 14-16. AAAA 19th National Convention and **1977 AAAA Honors Reception and Dinner-Dance.** Stouffer's National Center Hotel, Arlington, Va.

AAAA's **Esfahan [River City] Chapter** installed its '77 slate at its annual banquet held at the Suite Hotel. Nat'l President **Bob Williams** addressed the members and accepted a $200 check for the Scholarship Foundation with an add'l $100 raised during the evening. After honoring outgoing President **Lucien Benton,** the '77 slate was installed. L-R, Pres **Nick Psaki**; SrVP **LTC Jim Kidd**; VP Indus, **Chuck Zangas,** Grumman; and VP Publicity **Doug Brandon**; VP, Prog **Jerry Ogles**; Treasurer **Steve Glasby**; VP, Memb, **Morton Meng,** all BHI.Sec **Bob Albino** & VP, Tech Aff **Sam Sundby** not shown.

People

THE THINKER—CW3 Wesley F. McElveen, cen., of New York, NY, receives a **Creative Thinking Award** on his graduation from Ft. Rucker's **WO Senior Course.** He'd suggested a model allowing the user to relate equipment availability to the availability of the item's test, diagnostic, and measuring equipment. **BG Benjamin L. Harrison,** left, Rucker DCG, and **MG Ira A. Hunt, Jr.,** Hq, DARCOM, flank the awardee. (USA photo)

RECAP—The June 1977 issue cited an **"All-Aviator Wedding"** — groom, four ushers, and the chaplain all being rated Army Aviators, and indicated "a photo to come." The photo proof of this unique **"First"** shows. L-R, **LTCs Dick Quigley, Wes Sims,** and **Fred Brodeur** (Groom); **MAJ Ted Hepner** (Chaplain); bride **Pat Brodeur;** and **LTC Jay Tirre** and **MAJ Steve Lowe.** The May 28 wedding took place at Fort Monroe, Va. □

STAND-OFF TEST ITEM—A front three-quarters view of the **Remote Controlled Vehicle**, showing the unit's microwave radio, camera control, inverter pan, and tile with camera. A **'Creepy-Peepy"** tracked unit of a sort, the vehicle is used by engineers at the Yuma Proving Ground to locate and examine items under TECOM test from a remote location. (USAph: SP5 Larry Drummond)

Hardware

AVSCOM places June 28 contracts with six firms

The following contract awards were announced on June 28 by **Dr. Richard M. Carlson**, Director of the Army Air Mobility R&D Laboratory (AMRDL). Moffett Field, Calif.:

Boeing Vertol will investigate single rotor helicopter configuration interactional aerodynamics and develop a set of generalized configuration guidelines for design and operation of single rotor helicopters, under a one-year, $99,900 contract awarded by AVSCOM.

Kaman Aerospace Corporation has received a $352,600 AVSCOM contract to verify a new structural dynamic concept called **Force Determination.** The two-year contract is expected to demonstrate a method for determining helicopter hub loads (forces and moments) directly from measured inflight fuselage accelerations.

Under a $351,085 advanced development contract, **Lockheed-California Co.** will complete fabrication of improved ice-protected UH-1H main rotor blades, improve ice protection and data acquisition

A NEW SHAPE ON THE SCENE—A by-product of the Army's test and evaluation system, the **Airborne Target Acquisition and Fire Control System [ATAFCS]** is shown mounted on a **Cobra** AH-1G helicopter at White Sands Missile Range, New Mexico. The ATAFCS's laser designator is used in conjunction with the **Copperhead** cannon launched guided missile (CLGM) now under test. (USAph: Warren Weaver)

Hardware

systems, and support Gov't-conducted simulated and natural icing flight tests.

Hughes Helicopters will conduct an evaluation of an energy distribution system for helicopter landing gears during hard landings, under a $92,700, 10-month AVSCOM contract. The program goal is to design, make, and test a hydraulic system that features a distribution system for alleviating the pitch and roll movements resulting from hard landings.

A 10-month, $42,430 contract for a Low-Cost Servoactuator Study has been awarded to **Honeywell, Inc.** Under the AVSCOM contract **Honeywell** will investigate a simple actuator concept with performance reduced to the minimum levels of slew rate, output force, output stroke, and response.

Tailboom Replacement

Under a $98,990 contract, **Hughes Helicopters** will flight test an OH-6A equipped with an experimental tailboom which uses circulation control principles to produce an antitorque force. Prior design studies by **Hughes** indicate that an integrated circulation control-direct jet antitorque system can replace the tail rotor of a typical light helicopter without degrading helicopter performance.

AVSCOM has awarded **Bell Helicopter Textron** a $63,367 contract to analyze and evaluate the response characteristics of a helicopter performing low speed operations, particularly in NOE. In 1975-76, **Bell** acquired flight test response data for simulated NOE maneuvers using an AH-1G aircraft with a highly instrumented rotor.

Under its new contract, **Bell** will (1) reduce the test data obtained to usable form; (2) analyze the reduced data to determine the aerodynamic characteristics and structural response of the aircraft during NOE maneuvers; and (3) evaluate and interpret the results for application to helicopter design criteria.

AAAA's 1977 National Convention will be held in Arlingtom Va. during 14-16 October. Plan now to attend!

Life Membership

Joining the AAAA's initial 310 **Life Members** during the past few months were nine new applicants:

*****

Chief Warrant Officer [W3] Billy R. Holt, Benton, Kentucky
Major James A. Williamson, Schofield Barracks, Hawaii
Chief Warrant Officer [W3] Stephen L. Davidson, Ft. Wainwright, Alaska
Colonel Joseph R. Koehler, Fort Sheridan, Illinois
Lieutenant General Sidney B. Berry, West Point, New York
Lieutenant Colonel Thomas L. Orr, Hubbard, Ohio
Lieutenant Colonel Edward J. King, Ret., APO NY 09202
Chief Warrant Officer [W3] Charles E. Rice, Ret., APO NY 09202
Lieutenant Colonel Jack W. Ruby, Ret., Palo Alto, California

Life Member applicants would make a one-time $150 (tax deductible) donation to the AAAA Scholarship Foundation, Inc.; the latter would - on the applicant's death - provide a **Memorial Scholarship** in the donor's name in the subsequent academic year. Write: AAAA Scholarship Foundation, Inc.; 1 Crestwood Road, Westport, CT 06880. to enroll. □

THE READERS OF ARMY AVIATION SPEAK OUT ON A WIDE VARIETY OF SUBJECTS

Letters

A SMALL CORRECTION

Dear Editor:

I'd like to have you make a small correction in the **U.S. Navy's T-44A** caption appearing on p. 14 of the April-May issue (Ed. Note: See photo below).

The **T-44A** is the THIRD version of the Beech King Air bought by the military, not the second. The first version was the King Air A-100 of which the U.S. Army purchased five in 1970. Designated the **U-21F**, this aircraft has been deployed primarily at Davison Army Airfield for VIP missions. The second version was the **C-12A.** Additionally, the Army also has a **B90 King Air** at Anniston Army Depot.

CPT Richard H. Scruggs, II
394th Trans Bn (AVIM)
APO New York 09061

AAAA ON TARGET!

Dear Editor:

Allow me to express my sincere appreciation for the well-published article on the **Enlisted Aviator Program** with the extremely well-written introduction on the Aviation Warrant Officer Program by **LTG Robert R. Williams.** The article has received many favorable comments from all who have read it.

SHOP TALK—COL James L. Tow, left, 2.75-in. Rocket System PM at Redstone Arsenal and President of AAAA's Tennessee Valley Chapter, chats with **CW4 Robert R. Hawkins,** AAAA's 1976 "Army Aviator of the Year," during a recent 2.75 training seminar at Huntsville. **Hawkins** is stationed at Fort Hood. □

Both our Chapter of the WOA - and all concerned Warrants here at Ft. Campbell - appreciate your editorial support in opposition to an **Enlisted Aviator Program,** and the support of AAAA and **LTG Williams,** its national president.

I feel that with these articles we have, at least, opened some eyes at DA, and hopefully have provided the decision-makers with appropriate information on the undesirability of the E5 aviator proposal.

CW3 James P. Fazekas
Fort Campbell, KY

(Ed. Note: See **"Personnel"** column on page 39 for additional comment.)

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SECOND CLASS POSTAGE PAID AT WESTPORT, CONNECTICUT

PATRONS' PLAQUE—LTG Robert R. Williams, USA [Ret.], left, National President of AAAA, presents **James G. Craig**, Acting Curator of the Army Aviation Museum, with a plaque inscribed with the names of 351 Hall of Fame Patrons during induction ceremonies held in early June. (Ph: SP4 Debbie Caskey)

It happened one day in Da Nang.

It was a typically humid and muggy day in Da Nang, Vietnam, in 1970. Our Dustoff medical evacuation helicopter was circling the hospital ship, **Sanctuary**, then anchored in Da Nang harbor.

We were No. 2 to land with a litter patient dropping off supplies. The following radio exchange took place while the **Chinook** was on short final. The conversation would never have endeared the **Chinook** crew to any members of the dedicated, hard-working nurse corps aboard ship.

Sanctuary: "Lancer 4, you're cleared to land. Wind out of the east at 10 knots."

Chinook: "Roger . . Say, good buddy, I've got an extra 250 pounds of apples aboard. How about a trade?"

Sanctuary: "Sounds good. What can we do for you?"

Chinook: How about 250 pounds of nurses?"

Sanctuary: (Dryly and without any hesitation) "O.K., which one do you want?" —Captain Robert B. Robeson