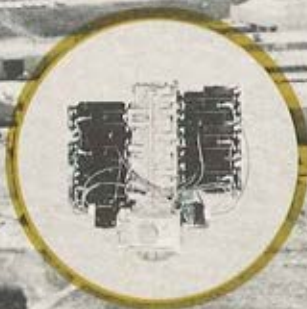


MAY/1963

# ARMY AVIATION



The Hiller H-23F is powered  
by a Lycoming VO-540  
reciprocating engine,  
rated at 305 hp.



# Lycoming

Division—Avco Corporation  
Williamsport, Pennsylvania

# Chinook

# PROGRESS

## CHINOOK AIRLIFTS JET TRAINER

A U.S. Army CH-47A Chinook helicopter recently airlifted a U.S. Air Force T-33 jet aircraft from Maxwell Air Force Base, Alabama, to Tuscaloosa, Alabama.

The jet, an obsolete trainer, was presented to the Mayor of Tuscaloosa for permanent display in the Junior Chamber of Commerce Park.

This Chinook, one of 11 CH-47A aircraft currently assigned to Ft. Rucker, made the 85 mile ferry flight as part of the U.S. Army Aviation Test Boards User Test Program.

## FIRST CHINOOK HELICOPTER ASSIGNED TO U. S. ARMY TACTICAL UNIT

The first CH-47A Chinook helicopter to be assigned to a tactical unit of the United States Army was formally accepted at Boeing's Vertol Division.

This Chinook aircraft will be assigned to Company A of the 228th Assault Support Battalion at Ft. Benning, Ga. Pictured below is Colonel Myers turning the helicopter over to Major A. C. Hawkins, Commanding Officer of Company A. Looking on is R. W. Tharrington, Vice President and General Manager of the Vertol Division.

The 228th Assault Support Battalion is part of the Army's newly activated 11th Air Assault Division at Ft. Benning, Ga.



# SUMMARY

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MAY, 1963

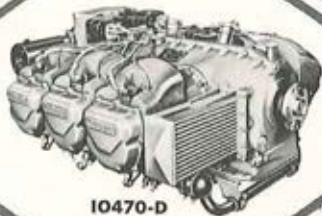


**BOEING**

VERTOL DIVISION



O470-M



IO470-D



O470-15



PE-150  
PACKETTE

Continental Motors finds solid satisfaction in its long-established role as a principal source of engines for utility planes. The performance of Continentals—their power, economy and dependability as proved in millions of hours of flight—has joined with established world-wide service to earn them outstanding assignments, both in the armed services and as power for the world's leading aircraft for business use.

***Continental Motors Corporation***

AIRCRAFT ENGINE DIVISION • MUSKEGON, MICHIGAN





# TWENTY-FIRST ANNIVERSARY OF ARMY AVIATION

On behalf of all the men and women of the United States Army, I extend congratulations and best wishes on the occasion of the twenty-first anniversary of Army Aviation.

Since its inception, Army Aviation has grown from a few essentially observation aircraft to a complex organization embracing practically all arms and services.

Through the Army's early pioneering efforts to provide maximum utilization of aircraft in support of combat operations, we find today increased mobility on the battlefield which was beyond imagination a few short years ago. With today's rapid advances in technology, Army Aviation will achieve ever-increasing importance and will be required to assume even greater roles and responsibilities.

All members of the Army join me in expressing pride in the many past accomplishments of Army Aviation and confidence in its ability to meet the important challenges of the future.

A handwritten signature in cursive script that reads "Earle G. Wheeler". The signature is written in dark ink and is positioned above the typed name.

EARLE G. WHEELER  
General, United States Army  
Chief of Staff



19 hrs. 20 min.  
**AIRBORNE**

**The Caribou CV-2B is the World's  
First Army STOL Utility Aircraft  
with a ferry range of 2,500 miles.**

The U.S. Army's flight of 18 Caribou aircraft in 1962 from Fort Benning, Ga. to Thailand — a distance of 11,000 miles—proved Caribou deployment capability to Overseas bases anywhere in the World.

**DE HAVILLAND AIRCRAFT OF CANADA**

DOWNSVIEW

ONTARIO

Washington Representative: J. E. McDonald—319 Tower Building—14th & K Sts. N.W.  
St. Louis Representative: T. E. Hall—P.O. Box 7093—St. Louis 77, Missouri.



*Expressive hands, accentuated by long brass finger thimbles, spell out a colourful gesture of greeting and respect in Thailand's traditional language of the dance.*

# SCIENCE AWARDS: A FEELING OF ACCOMPLISHMENT!

**BY COLONEL ROBERT H. SCHULZ**  
**ACTING DIRECTOR OF ARMY AVIATION**  
**ODCSOPS, DEPARTMENT OF THE ARMY**

**H**AVING just returned from the Science Awards Luncheon at the Army Navy Country Club where the Washington, D.C. Chapter of the Army Aviation Association of America presented their second Annual Science Awards to sixteen high school students from the Washington area, I wish to make a comment! Of all the many fine things the Army participates in and supports, I know of nothing that has brought a greater feeling of accomplishment to me than this project of encouraging our young high school students in science.

When you talk to these students - who will be our leaders tomorrow - and have a feeling for their keen interest and deep appreciation, you realize what a real credit this pro-

gram has brought not only to the Association but to Army aviators and the Army as a whole. I take this opportunity to salute all those members of the AAAA Washington Chapter who have contributed to its success!

## **AAAA MEMBERSHIP**

The latest statistics indicate that approximately 87 per cent of all Army aviators are now members of the Association. This is truly a significant figure, and it has been obtained through the hard work of all of the members in the chapters throughout the world. I know of no reason why our goal for next year should not be 97 per cent, and I urge each aviator to attempt to bring in a new member.

## V/STOL CONFERENCE

Along with a number of other Army officers I had the privilege of attending the DOD V/STOL Conference at Kirtland AFB, Albuquerque, New Mexico during the period 23-24 April. This conference was attended not only by members from DOD, the three Services, NASA and FAA but by a large representation from industry. Security classification prevents me from telling you the Service positions. However, the message I really want to put across is that each one of you as a member of the Army and as an Army aviator can be proud of the part that your Army played in this symposium.

Lt. General Hamilton H. Howze gave an outstanding professional presentation of the Army requirements. Each member of the Army team had been so thoroughly briefed on the Army position that he was able to make a major contribution in the subpanel deliberations. I believe it is fair to point out that the Office of Research and Development carried the ball on this action, with Lt. Colonel McDaniel, who works for Colonel Bill Leeney, being the main spark.

## ORGANIC AVIATION

The part that Army aviation plays in the Army, i.e., being organic to the Army and serving to augment the ground commander's capability in winning the ground battle, has been talked about and written so many times that I am afraid many of us forget what it actually means. I am even more apprehensive when I realize the constant pressure being placed upon the Army aviation units

and the aviation staff officers to do just the opposite in the field, i.e., to centralize.

I know this topic of decentralization has been swinging back and forth ever since 1942; and many of the old philosophers visualized that with the new ROAD divisions a new era of decentralization was in vogue, particularly with the DivArty getting its flight detachments once again. Unfortunately, we attempt to tie the operational use of the aircraft to an organization rather than to sound operational requirements in the field.

I am of the opinion that the test as to which level aircraft should be centralized depends upon the communications system. For this reason DivArty, even under the ROAD division, can hold all of its aircraft under DivArty control simply because it has the communications equipment and facilities to provide the aircraft at the point of decision at the time when it is needed. This is the very essence of Division Artillery. An effective means of helping the ground commander - whether it be a weapon, a vehicle, or a unit - is not going to be habitually relied upon by a ground commander if he does not have it available to him and responsive to his needs.

Most of us in the Army and in the Army aviation program buy the above philosophy. Why, then, in actual practice do we make a 180 degree turn and centralize at the highest possible headquarters? Looking around at the various aviation units, it would seem there are two fundamental reasons: (1) be-





***Steady as a Rock***



***Smooth as Silk***



***Fast as Lightning***



***That's the Kaman UH-2***



**KAMAN AIRCRAFT CORPORATION, BLOOMFIELD, CONNECTICUT**

cause of safety considerations, and (2) because of problems in maintenance.

It is a foregone conclusion that if there are enough aviation staff officers and people charged with implementing a safety program watching each aircraft, we should be able to reduce the accident rate, particularly if we are going to limit the flights and the operation rather than meet the requirements of the field commander. Flying from short airstrips, unprepared fields and roads, from daylight to dark, will inevitably lead to some unfortunate accident. Unfortunately, these are prices we have pay to maintain proficiency and to accomplish the task. Being able to fly from hardtop runways under ideal conditions is hardly part of the real mission that an

Army aviator is expected to accomplish.

### MAINTENANCE PROBLEMS

The maintenance problems can be solved and will have to be solved. Much of the maintenance that has to be done on a modern aircraft can be performed better in the rear areas, but there is no reason why the aircraft should not be flown back to have the maintenance performed. Certainly an aircraft can do it much easier than a tank could possibly move to the rear. But the habitual home of the pilot and aircraft should be with the unit that needs it. If the aviator is going to sell the average Army commander on the use of aviation, he must be under his direct control and responsive to his needs. He must know the unit's plans, the officers and men in the unit and the terrain in which the unit is working if he expects to do a topnotch job.

### W/O PROGRAM

I want to keep "beating the drums" for our warrant officer training program. As you know, our first fixed wing warrant officer course is just getting underway at Fort Rucker. Those individuals selected for this training will get preflight warrant officer training amounting to four weeks, with their flight training course being the same as that presently given to the officers.

In view of the tremendous success we have had with our warrant officer program at the Primary Helicopter School, Camp Wolters, Tex., we are anticipating that the fixed wing warrant officer course will

### ACTION SEQUENCE



■ A "still shot" from an action sequence of the Army's "Big Picture" shows elements of the 101st Airborne Division attacking a mock village occupied by Aggressors. A 25-man crew of military and civilian cameramen shot the sequences at Ft. Campbell, Ky., for a "Big Picture" segment to be shown nationwide in June.

be equally successful. Each aviator should be familiar with Department of the Army Circular 601-9, dated 26 March 1963, entitled "Personnel Procurement, Warrant Officer Flight Training Option."

Now a young man between the age of 18-30 can enlist directly in the Army for the specific purpose of entering the warrant officer flight training program. Here is a wonderful opportunity for the young men of our country to embark on a real career in flying for the Army, and each of us should be sure that we pass this word along to all of our contacts, particularly in the civilian community, and to recruiting officers in order that we can get the maximum number of applicants and thus be able to meet our ever increasing program.

### **ARMY AVIATION RESEARCH**

The U.S. Army Transportation Research Command (TRECOT) conducts the Army's aviation research program. TRECOT is involved with everything from one-man flexible wing drop gliders to more sophisticated Vertical Take-off and Landing (VTOL) tactical transports capable of carrying a 3 to 5 ton payload at speeds in excess of 250 knots.

A subordinate installation of the Army Mobility Command, TRECOT is constantly striving to enhance the Army's air mobility by providing faster, more efficient mission-suited helicopters and fixed wing aircraft.

What might be expected in the next few years? The answer to that question is almost limitless. Pres-

ent research indicates feasibility of 300 mph rotary wing aircraft; 600 mph VTOL surveillance fixed wing jets; and heavy payload high speed VTOL transports.

These are but a few of the many research projects presently in process or under consideration at USA-TRECOT. The newly formed Air Assault Test Division at Fort Benning and the increased use of Army aircraft in Southeast Asia will undoubtedly generate new requirements.

The majority of TRECOT's test programs are accomplished through research contracts with various aircraft and engine companies. Other programs are conducted in conjunction with the U.S. Air Force, U.S. Navy, Federal Aviation Agency (FAA), and the National Aeronautics and Space Administration (NASA).

A substantial amount of research is conducted in TRECOT's facilities at Fort Eustis, Virginia. One striking example is the recent design and fabrication of prototype personnel armor kits for Army aircraft, ranging from the Caribou transport to the UH-1B helicopter.

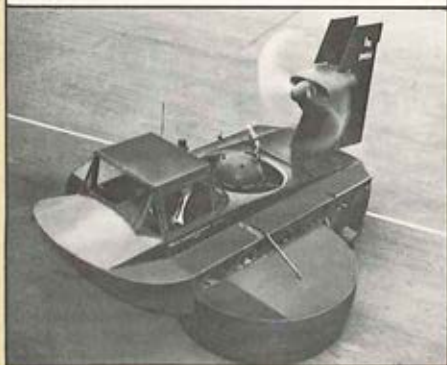
A wide variety of propulsion systems for the Army's future aircraft is currently being tested or studied. The propulsion systems studied for VTOL aircraft, for example, have provided substantial data on which to base a design for a 500-600 mph VTOL surveillance aircraft capable of operating from small, cleared areas.

A VTOL fan-in-wing research aircraft (the XV-5A) is being constructed to evaluate the lift fan propulsion system. The power from two



■ The operation of a UH-1 Iroquois helicopter is explained to a quartet of British officers by Major Harry P. McDaniel, Chief, Projects Branch, Department of Rotary Wing Training at USAAVNS. Listening to the explanation are (left to right) Lt. Colonel F.J. Hornby, British Liaison Officer to Fort Rucker; Squadron Leader Alan Twigg of the British Air Staff in Washington; Flight Lieutenant Royston H. Garwood of the Royal Air Force Helicopter School at Ternhill, Shropshire; and Wing Commander James Corbishley, Chief of the Flying Section of the RAF Helicopter School. ■■

■ Textron's Bell Aerosystems Company has developed a multi-surface ground effect machine (GEM) which can ride on a cushion of air over land, water, ice, mud, and marsh. Designed to surmount obstacles up to one foot in height, the GEM utilizes three circular cells, equally spaced around the center of the vehicle and fed by a single lift fan, as well as an aft-mounted pitch propeller for propulsion and braking. The 60-mph vehicle is named the "Carabao" after the tough and versatile water buffalo found in the Philippines. ■■



jet engines is diverted to the wing-mounted fans, producing vertical thrust of almost three times that supplied by the jet engines operating alone. For conventional flight the exhaust is allowed to flow through the engine in the normal manner.

Another VTOL system (the XV-4A) utilizes augmented, deflected exhaust from two jet engines for vertical lift; this is accomplished by diverting the exhaust into ducts along the top of the fuselage, and directing it downward through a series of nozzles into a mixing chamber where the jet gases are exposed to a secondary air flow which increases the thrust to a point sufficient to allow VTOL flight. Both of these VTOL systems will be flight tested this summer.

Helicopter research by USA-TRECOM includes high performance and high speed helicopter weapons system. One of the high performance programs involves a UH-1 Iroquois helicopter modified to decrease fuselage drag; provide tilting pylon mechanism, three-bladed rotor, stub wings and auxiliary propulsion. Results of this program have been very satisfactory to date; by incorporating the first three modifications listed above, a 50 per cent increase in range and endurance, 20 per cent in productivity, or 30 per cent speed increase has been demonstrated.

Study of a high speed helicopter weapons system is underway to meet the Army's future tactical requirements. This highly maneuverable helicopter will incorporate an integrated weapons system.

Other rotary wing research in-

# U.S. ARMY

# OH-5A

## DESIGNED TO LEAD

"Hands-off" flight characteristics of an airplane. "Platform" stability for positive target acquisition and fire control. Provision for unprecedented IFR and night flight ability. More room, plus built-in growth potential for higher speed, higher lift, more demanding missions of the future.

One reason for these qualities in the Army's new Hiller OH-5A is an exclusive rotor stability augmentation system, proved in a year and a half of flight operation. Another is the OH-5A's aerodynamic design, the inherent cleanliness of design perfection. Another is the rugged structuring of the aircraft itself.

No halfway ship this—but a thoroughbred light helicopter, fully engineered to meet its mission, and forgiving to fly.

The professional pilots of the United States Army deserve the best.

This is it.

**HILLER**  
AIRCRAFT COMPANY  
PALO ALTO, CALIFORNIA • WASHINGTON, D.C.  
DIVISION OF THE ELECTRIC AUTOLITE COMPANY



cludes: a Hot Cycle Rotor Propulsion System which expels engine exhaust at the blade tip thus eliminating the need for transmissions; a blade tip mounted turbine propulsion system; a rigid rotor system which features no flapping or lead/lag mechanism.

A study is underway to determine feasibility of automatic electronic inspection of Army aircraft. Results to date indicate that maintenance inspection can be performed by less experienced personnel in certain structural areas and components of the aircraft resulting in a more accurate determination of the status of the aircraft at a considerable savings in man hours.

These are only a few of the many programs presently being carried out at TRECOM; research on armor systems, support equipment, ejection seats, cargo hooks, cargo handling systems, etc., is being pursued to insure that existing and future aircraft will have the necessary equipment to carry out a successful mission and provide the utmost in safety and comfort for operations and maintenance personnel.

#### **SAFETY PAMPHLET**

Department of the Army Pamphlet 95-9, "U.S. Army Aviation Accident Prevention" has just been published. I urge each aviator to read through this short pamphlet. I am well aware that no single document has ever prevented an accident. But this pamphlet is the beginning of an effective Army-wide accident prevention program, and each aviator must be thoroughly familiar with the ap-

proved Army position. Since this is our first effort, your comments and suggestions are solicited. Write direct to: USABAAR, Fort Rucker, Alabama.

#### **OPD**

Each one of you will come in contact eventually with the Officer Personnel Directorate (OPD). I noticed the other day a new sign in the Pentagon which reads, "Executive for Army Aviation, OPD." This in itself indicates that real progress is being made. This job is being filled at the present time by Lt. Colonel Jim Neumann whom many of you know personally.

#### **BIG PICTURE**

Members of the Staff recently had the privilege of previewing a CINFO production for the BIG PICTURE series entitled "WINGS AT THE TREE TOPS." The TV film release is now in the final stages of production and should be ready for distribution by 10 June. In my opinion, it is an outstanding production, and I wish to take this opportunity to congratulate not only the members of CINFO but all of the members in Army aviation and the Army who contributed so greatly of their time and effort in making this a successful production!

I only hope that Major General Ernie Easterbrook will be able to see the release because I remember how hard he tried some four years ago to get a similar release on a film entitled "TREE TOP TACTICS." It only goes to show that when you have a worthy cause to fight for, never give up!



## CONARC REPORT

BY BRIG. GEN. JOHN NORTON  
HEADQUARTERS, USCONARC

**T**HE annual ARADCOM aviation conference was held on 16-18 April 1963 at ARADCOM Headquarters, Ent Air Force Base, Colorado Springs, Colorado. Over 50 aviation officers attended the three day meeting and social events hosted by Major Terry Salt, Aviation Officer for ARADCOM, and his able assistant, Major Karl Ritz.

The opening address was given by Major General D.B. Johnson, C/S of ARADCOM, who welcomed all conferees and stressed the important part that Army aviation plays in the operations of ARADCOM and its many diversified activities. Principal speakers at the Conference included representatives from Department of the Army and USA-BAAR.

Colonel George P. Putnam, ODC-SOPS, presented a resume of the current status of the Army Aviation Program with particular emphasis on aircraft status world-wide. Lt. Col. James Neumann, ODCSPER, described the aviation personnel picture for the coming fiscal year. Col. J. Elmore Swenson, Headquarters, USCONARC, explained the testing program and the status of the 11th Air Assault Division at

Fort Benning, Ga., for Phase I and the current planning underway for the build-up in Phase II. Lt. Col. Orval Sheppard, USABAAR, gave an enlightening briefing on aviation safety and projected plans for the ensuing year.

After the first day's meeting a pleasant cocktail hour was held for the attending conferees followed by an excellent banquet in the beautiful Skyline Room of the Ent Air Force Base Officers Club.

### **AIR ASSAULT BUILD-UP**

Planning guidance has been published for the next step in 11th Air Assault Division and associated units' testing program. Preparations are now underway for the build-up of 165 additional aircraft and 5,196 more officers and men in the air mobile test force.

Phasing will start this summer at Fort Benning. Upon completion of the unilateral testing of the Phase I battalion-size force in October 1963, the Phase II units will be formed, and training will begin for the brigade size unilateral tests which will culminate in joint testing scheduled during July and August 1964.

Most of the additional 165 aircraft for the Phase II build-up will come from production. Of course, there will still have to be some substitute type aircraft since the LOH and flying crane types are not available.

The increased requirement for personnel will be the big problem. Belts will have to be drawn tighter in order to provide the authorized pilots and maintenance personnel for the air assault test units. It promises to be a long summer, but eventual relief will be forthcoming from the CONUS training bases.

### **CH-37 TRANSITION**

Credit should be spread around on the excellent CH-37 helicopter transition training done by the 54th Helicopter Company (MH) at Fort Sill. It all began when DA hurriedly needed 17 pilots transitioned in the CH-37. At the beginning, all concerned were apprehensive about this special program. In fact, many of the seventeen students did not even meet the reduced prerequisites of the stringent TC 1-14 for 200 hours helicopter time (100 hours must be cargo time) as authorized by US-CONARC.

Despite the limited background of most of the transition students, training was established on a proficiency basis. This turned out to be justified inasmuch as all the pilots graduated. The interesting aspect was that the top student, Lt. G.E. Hardy, arrived at Fort Sill with only 320 hours of observation helicopter time and no cargo experience, yet he graduated number one in the class.

This special transition training by the 54th was the first venture in such a program. The course ran from 7 January 1963 thru 1 March 1963. Over 976 hours were flown and aircraft availability during the period was 53 per cent of 16 CH-37's on hand.

### **THREE FINDINGS**

Three important points were derived from the project. First, the day may come when pilots must train for specific aircraft to be flown. If they are assigned to a unit with sophisticated aircraft, the luxury of step-by-step transition may no longer be afforded but must progress from primary training aircraft directly to the operational aircraft assigned to the unit.

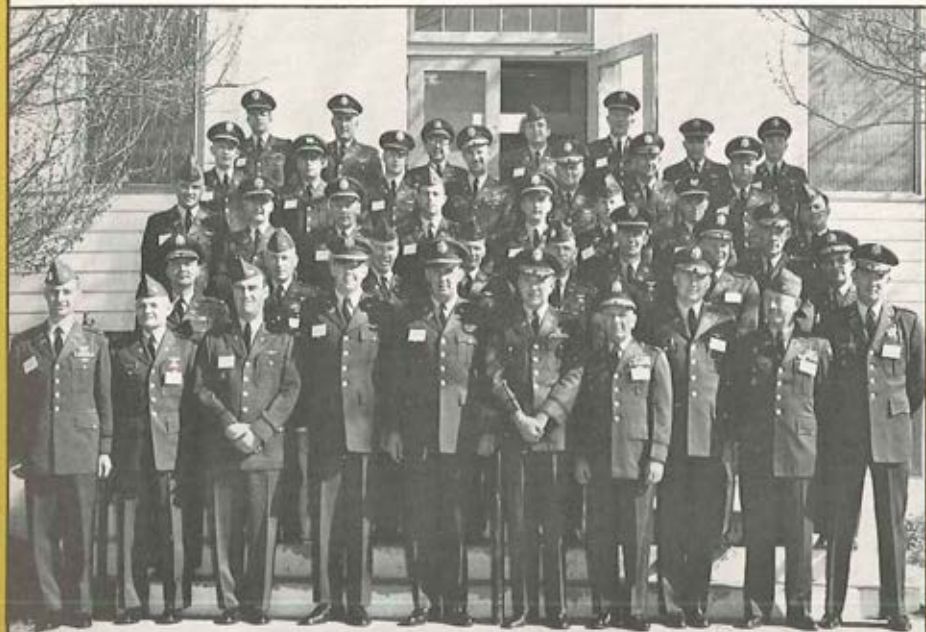
Second, transition training of Army aviators in the field offers the best training means, whether it be in the U-6 or more sophisticated type, as evidenced by the success of this special course.

Third, it is apparent that a few of our training circulars, particularly TC 1-14 dated 29 June 1959, are unrealistic and require revision.

The consolidation of the maintenance efforts of the 54th and 154th was to a large extent the keystone for success of the program. This merging resulted in many favorable aspects: cross training of personnel was facilitated; better utilization of personnel and equipment was effected; faster processing of aircraft through the maintenance facilities was realized; considerable duplication of effort was eliminated; overhead type effort was reduced; and improved control was achieved.



# AO'S ASSEMBLE AT ENT ARADCOM CONFERENCE



■ Shown gathered at the recent ARADCOM Aviation Conference held at Ent AFB, Colo., were well over fifty Aviation Officers. In the **FIRST ROW** (Left to Right) are: Major Edward P. Lukert; Lt. Colonel Orval H. Sheppard; Col. George W. Putnam; Lt. Robert S. Gordon; Captain A. Conlon; Major Paul E. Griffin; Col. J. Elmore Swenson; Major Terry C. Salt; Col. Alexander J. Rankin; and Lt. Colonel J. Newman. **SECOND ROW:** Major R. Ellsworth; Maj. D. Money; Lt. Byard F. Peake; Capt. B. Doty; Capt. Robert L. Roby; Capt. Harold J. Lansing; Major John D. Rieser; and Major Donald J. Ritz. **THIRD ROW:** Capt. Dennis H. Boerner; Capt. Arnold R. Pollard; Lt. D. Cunningham; Capt. Donald L. Winters; Capt. Roger J. Shields; Capt. N. Dempsey; CWO David W. Guthrie; Major G. Theisman; and CWO J. Wildman. **FOURTH ROW:** Capt. W. Hensley; CWO C. Rooney; Lt. Calvin M. Fowler; Major Harry E. Zeigler; Major Max E. Young; Maj. Donovan M. Beadle; and Capt. Karl C. Ritz. **FIFTH ROW:** Capt. Emory W. Bush; Capt. James A. Wall; Capt. John L. Cecil; CWO P. Yowell; Capt. John M. Grasmeyer; Capt. Ronald L. Baker; and Capt. Bradner. For details on the Conference, see the lead paragraphs on page 15.

A word of commendation for a job well done must be given to Lt. Col. J.Y. Hammack, Aviation Officer, USAAMC for setting up the course and effecting over all supervision. Also "hats off" to Capt. Paul E. Kemp, CO of the 54th Transportation Company (MH) and Capt. William H. Smith, Maintenance Officer, for their day-to-day efforts in making the program work.

### **CARRIER TRAINING**

During the period 1-4 April, XVIII Airborne Corps Aviators and crew chiefs from the 82nd and 101st Airborne Divisions participated in helicopter-aircraft carrier training conducted by the U.S. Navy.

On 1 April, the helicopters boarded the carrier in groups of five. After routine maintenance and assignment of quarters for the crews, the Army group was given a ship's orientation. During the remainder of the period, 27 Army pilots qualified for carrier operations completing 735 carrier landings and 92 external load pickups, with 217 of the landings on the aircraft carrier being performed at night.

Captain Walter E. Parker, XVIII Airborne Corps Aviation Section,

was the Army project officer. His outstanding liaison work and the cooperation and interest of amphibious forces personnel resulted in an excellent training period.

Throughout the operation the spirit of cooperation shown by the Army-Navy shipmates was outstanding. Personal thanks have been extended to COMPHIBLANT and the Commander, Oceana Naval Air Station, for making this valuable training possible.

### **SWIFT STRIKE III**

With Exercise COULEE CREST getting underway at Yakima, our planning thoughts should turn to another big exercise coming up in July and August of this year. This joint exercise will take place in the Southeast part of the United States.

In light of the extensive part Army aviation will play, pilots, mechanics, and aircraft from all parts of CONUS will be pulled in to help support this exercise. Not only will many of these crews and aircraft be used in the tactical play, but requirements for administrative support will be substantial. Aviation officers can therefore expect the usual heavy demands on their assets this summer.

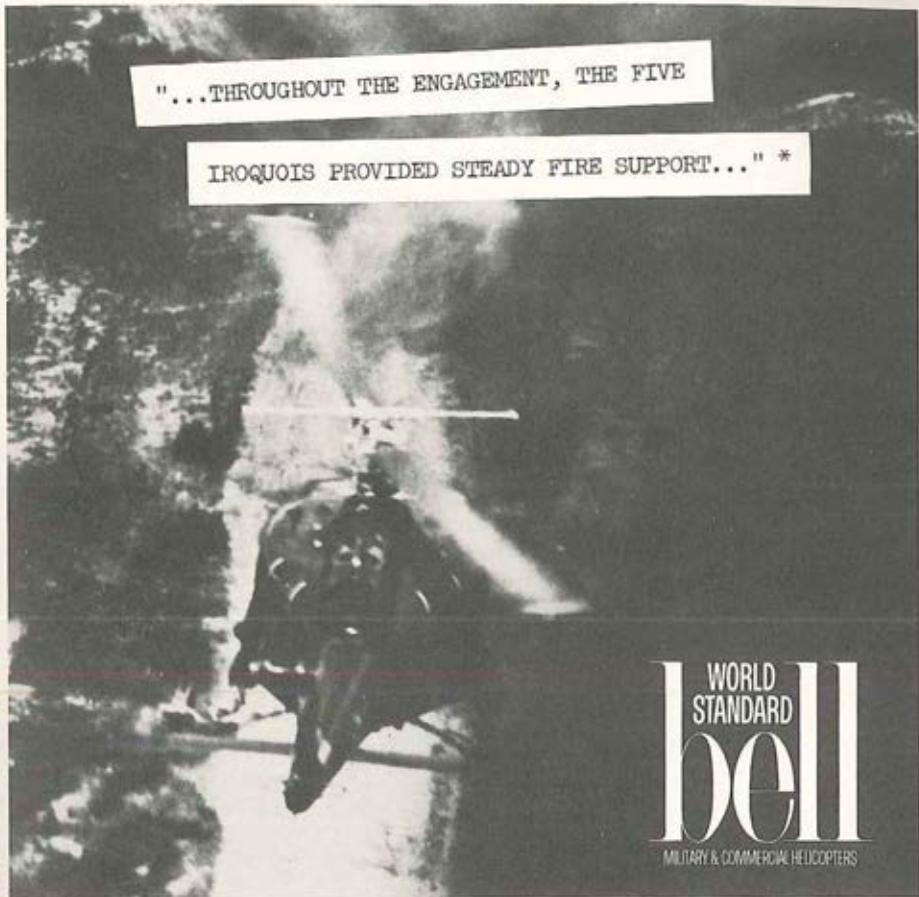
### **VERTOL, HILLER RECEIVE FY63 CONTRACT AWARDS**

■ A contract for the fiscal 1963 production of Army CH-47A transport helicopters has been awarded to the Vertol Division of the Boeing Company. Preliminary funding of the contract amounted to \$6,550,000. A quantity of these Army helicopters are already on order with the division and a number of them have been delivered to the Army for user tests. The Hiller Aircraft Company also received a contract for the production of 137 observation helicopters, with first deliveries to be made during the latter part of this year. The OH-23G helicopters will be produced by Hiller to meet current Army "interim" requirements. The "G" has a 305 hp engine, 55 more hp than the "D."

# COMBAT PROVEN

"...THROUGHOUT THE ENGAGEMENT, THE FIVE

IROQUOIS PROVIDED STEADY FIRE SUPPORT..." \*



WORLD  
STANDARD  
**bell**  
MILITARY & COMMERCIAL HELICOPTERS

\*Army Press Release — January, 1963

Today, the UH-1 Iroquois is "writing the book" on helicopter combat tactics. Equipped with rockets and machine guns, these hard-hitting choppers are decisively proving Army Aviation's air mobility concepts in Vietnam. Hitting hard and fast they escort troop-carrying helicopters and provide protection in objective areas with heavy firepower. On mercy missions, the Iroquois evacuates combat casualties. ■ Iroquois are designed and built for combat service. High performance, compact silhouette, all environment proven, the UH-1 is matched to the task of guerrilla warfare. And in Vietnam its combat record is the record of Army Aviation.



**BELL  
HELICOPTER  
COMPANY**

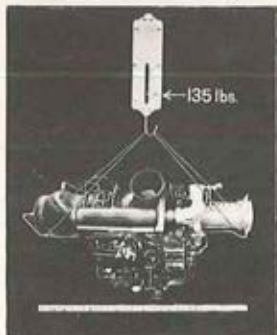
Fort Worth, Texas  
A Division of Bell Aerospace Corporation

A **textron** Company

# News about the turbine engine that powers the Army's Light Observation Helicopter

Fully qualified for military service and certificated by the FAA, this engine is designated the T63-A-5 and was developed and built by the Allison Division of General Motors.

It is currently powering the Light Observation Helicopters (LOH), built by



Weighing less than 135 lbs., the Allison T63-A-5 is a yard long and produces 250 shp.

## T63-A-5 RATINGS

50°F AMBIENT TEMPERATURE  
STANDARD SEA LEVEL STATIC CONDITIONS  
6000 RPM Output Speed

Rating	Output SHP	Rotor Speed RPM	SFC lb./SHP-hr	Max. Gas Temp °F T.O.T.
Take-off and Military	250	48,750	0.71	1260
Normal	212	47,000	0.74	1185
90% Normal	191	46,100	0.77	1143
75% Normal	159	44,500	0.82	1000

three manufacturers, as they prepare for their Army flight tests and airframe evaluations. These 4-place helicopters will be used for artillery spotting, reconnaissance, liaison, fire direction and command ship missions.

### Design Characteristics

Small, compact and rugged, the engine produces 250 shp. Its major components reflect the more than 30,000,000 hours of turbine engine flight time Allison engines have accumulated.

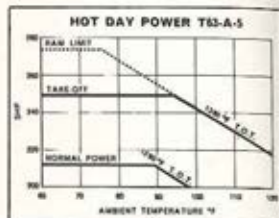


Early flight testing of the T63-A-5 engine was conducted in this helicopter at Allison's flight-test facility in Indianapolis. Soon the engine will power LOH helicopters in flight tests.

### Operating Characteristics

Pilots are impressed with the fast acceleration—less

than 3 seconds from ground idle to take-off horsepower.



### Maintainability

One man can disassemble the T63-A-5, and he can do it very quickly. The turbine, for example, can be replaced in 18 minutes. Field maintenance is correspondingly fast. It will take only 2 minutes to replace the oil filter, 3 minutes to replace the fuel filter.

### More Information Available

If you'd like more information about the Allison T63-A-5, we'll be glad to mail it to you. Just write: LOH, Allison Division of General Motors, Box XXX, Indianapolis 6, Indiana.

ON TARGET WITH LOH POWER

# Allison

THE ENERGY CONVERSION DIVISION OF  
GENERAL MOTORS, INDIANAPOLIS 6, IND.

# OLD PLANES NEVER DIE

Nor do they fade  
away—according to this account  
of the aviation program  
inventory by an “insider”

**BY BRIGADIER GENERAL ROBERT R. WILLIAMS  
COMMANDING GENERAL, U.S. ARMY AVIATION CENTER**

**A**N aircraft program like Liberty, is not a single victory - rather it is a constant battle that must be won and re-win many times. From conception to obsolescence, it must be nurtured and cared for with constant loving care.

(Strangely enough, once into obsolescence you can hardly kill it with a club. Getting rid of large numbers of old aircraft is almost as difficult as stamping out starlings. Witness the gooney bird!)

Let's examine this phenomenon as objectively as possible - meaning, "I'd like you to hear MY side of the story."

Aircraft programs, like babies, are remarkably easy to conceive - it's the delivery that is difficult. First, there are probably quite a few fathers to the project who have exceedingly different ideas of what the new infant should look like at birth. If their concepts do not pre-

vail in the final analysis they will disclaim parenthood and pronounce the result a bastard. Since almost all will eventually fall in this latter category, every aircraft that has ever come into being has been labeled illegitimate by a large group of people.

Secondly, there is no natural incubation period established for aircraft. True, there are certain physical constraints that limit premature delivery, but usually the problem is the reverse. They usually hatch too long and have a tendency to spoil in the shell.

As you know, a design that lies dormant is subject to many strange mutations. Changes in mission, electronics, weapons, size, shape and engines occur. The original concept fades into obscurity and the only predictable parameter is - a rising cost curve.

A budget sneeze at this particular

phase of an aircraft's life can be fatal. Other fatal viruses include "re-organization," "stretch-out," and a "new front office."

Assuming this project has survived these hazards, the "X" model is born. Unlike humans, aircraft baby pictures always look good - it will never look as handsome again. The roll-out of a new aircraft is an emotion-packed moment. It should be. Many millions of dollars have somehow been absorbed into a single airframe - each rivet is solidgold - and the canopy is Steuben glass.

#### °°THE FIRST FLIGHT

There is a Tasmanian legend that the Dodo bird lost its ability to fly because the mother bird would not nudge the young out of the nest. Aeronautical engineers share this instinct to a degree. There is a tendency to prolong wind tunnel tests, tie down tests, fatigue tests, and engine tests until the aircraft reaches adolescence. The charge has been made that this stems from a deep Freudian subjective fear that the thing won't fly. There have been examples in the past.

First flight in public is always preceded by a session behind the woodshed where mother has satisfied her personal doubts about Junior's ability to get off the ground. Having done this, she has a certain justifiable pride when he first performs for Uncle. The audience usually consists of 15 VIP's, 108 hangers-on and 4208 photographers. The 108 free-loaders will usually successfully block all attempts to take a clear picture of the VIP's with the aircraft in the background. Many

photographers will be fired as a result - the PR department will grow another ulcer, but this is the price of success.

Moving from the "X" state to the "Y" prototype is equivalent to puberty - always a complex transition - always a strain on the family. The word "prototype" assumes follow-on standardization. The assumption is not always warranted. Prototypes have an inherent history of acquiring "bugs" that no amount of D.D.T. can rid. The only specific that usually helps the patient is a liberal injection of money and time. The result is "slippage" or "so-what-else-is-new?"

At this time, all the advocates of "mercy killing" come forward with a series of logical reasons that this project ought to be quietly dispatched to keep the breed pure. The project engineers guard the kennel day and night for fear of poison in the water dish, with reason. All comptrollers have an instinctive proclivity toward euthanasia for economic reasons.

#### °°RUSSIAN ROULETTE

If you gather by now that the chances of an aircraft reaching full maturity are rather slim, you are not a member of the aviation family, but rather a disinterested optimist. "Slim" cannot possibly express the microscopic possibility of success. Rather, it can be compared to Russian roulette with all six chambers loaded. For every thousand rounds you may have a misfire.

Proceeding with the turbulent life and time of any aircraft program, we move into the service test program. This is an interesting exer-

cise where one discovers such startling facts as:

- A battery doesn't work too well at -65 degrees
- Buckets of sand put through a turbine engine tend to have an erosive effect
- The technique of landing in mud and plowed fields is different than landing on a ten thousand foot runway
- A temperature of 140 degrees and an altitude of 10,000 feet will usually effect the flight characteristics
- A hundred black boxes cannot replace that 100 pound whiskey drinking vacuum tube.

#### °°SERVICE TEST?

During a service test, one usually uncovers a minor deficiency or two - like an engine falling off or inadvertent snap-rolling on take-off. The customer feels inclined to suggest changes; the engineers are inclined to question test procedures; the test pilots are inclined to seek desk jobs. Eventually a "fix" is agreed upon which really satisfies no one and the end result is an aircraft that weighs more, costs more, and, generally, has a shade less performance than that specified in the original cocktail brochure.

However, actual performance can't be measured. Over the years, so many parameters, variables and imponderables have been cranked into aircraft performance charts that any real meaning has been lost. Range interlocks with payload and is further tied to speed, density altitude, temperature, external

stores, electronic configuration, available runway, the weight of the pilot and whether or not he has dandruff. Depending on viewpoint one can either cite data to prove a particular aircraft is either a technological miracle or catastrophe. What is more, you can do it using identical data.

#### °°F/F

For example, we in the Army are interested in aircraft that mostly fall (you'll pardon the expression) in the lower end of the speed spectrum. In an era that measures accomplishments in mach numbers this tends to give Army aviators an inferiority complex. It has been seriously suggested that we need no break-through in aviation, but only in semantics. We need a new measurement. The best candidate so far has been "F/F." "F/F" translates into "Furlongs per fortnight" and the lowly L-19 which used to putt along at 0.009 Mach, now zooms away at 4215 F/F. Naturally, the pilot and passenger know that this will get them to their destination sooner and happier. The cost of re-numbering a couple of dials is insignificant and the advantages are obvious.

#### °°THEY DIE HARD!

But, I digress. I would like to return to the point I made in the beginning, that once an Army aircraft reaches extreme old age, it cannot be easily moved to the graveyard. Its tenacity for life exceeds the California redwood. In an age of planned obsolescence and quick turnover, you would think we could change aircraft as easily as auto-

mobiles. Not so! The things basically won't wear out. Engines, wiring, plumbing, and wheels are replaced and modified. All is changed but the original tail number - but the ancient beast is still alive.

Part of this longevity stems from a peculiar accounting system that allows you to modify for millions, but not one cent toward replacement. A more cogent reason lies in the fact that once an aircraft has survived its growing pains, it usually has some happy combination of characteristics that are hard to replace, as well as durability and reliability. I don't intend to stand here and forecast when the last C-47 will be retired, but I suspect it will be long after my own retirement. Remember the last Ford Trimotor was built over 30 years ago, only 26 years after the Wright Brothers got out of the bicycle business, yet they are in use the world over.

### ♦♦ORDERLY CHAOS

As you might suspect, today I have no profound message to leave with you. I merely wanted to identify myself as one of the innocent bystanders in the aeronautical world - a world that moves in dark and mysterious ways. It is an interesting way of life but not noted for serenity.



To the young man searching for security and tranquility I do not recommend an aeronautical career. However, if he likes challenge and orderly chaos, along with an association with the weirdest, most wonderful people in the world, I say "Come in - the ether's fine!"

### INDIA PURCHASES 16 CARIBOUS

■ De Havilland Aircraft of Canada, Ltd., Downsview, Ontario, has announced that it has received a Letter of Intent from the Canadian Government on behalf of the government of India to purchase 16 Caribou aircraft. The value of the order, which provides for 16 aircraft and spare parts, will be approximately 12.5 million dollars, with a recent loan agreement between Canada and India providing funds for the purchase. Deliveries will commence in July, 1963 with the full order to be completed in a year. The deliveries will in no way interfere with the current Caribou production for the U.S. Army Army and other customers. The purchase by India brings the Caribou sales total to 198. ■■



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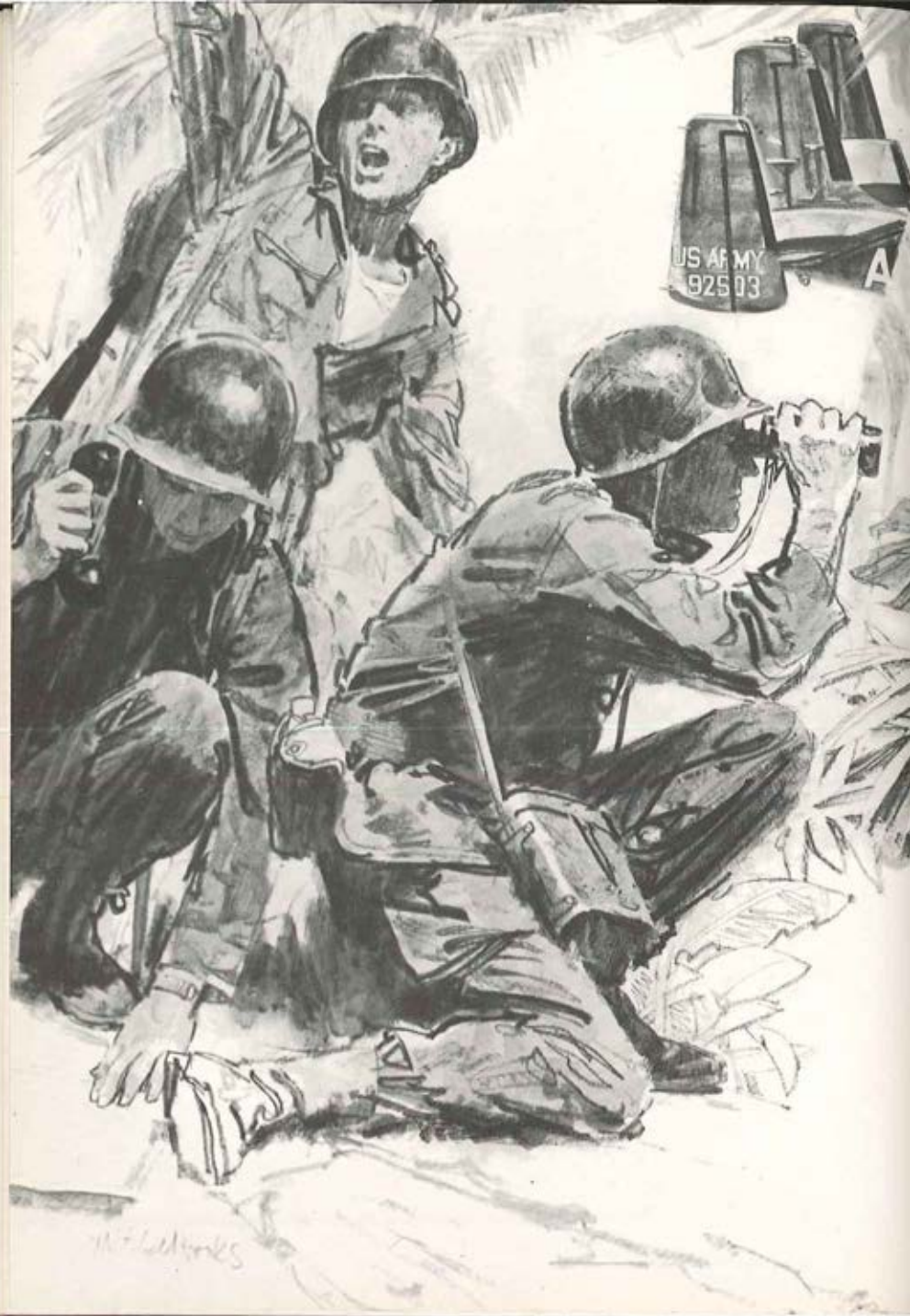
The TA-1, proved in service on Lycoming's T-53, incorporates a dual element main fuel supply pump, free power turbine governor, automatic altitude and temperature compensation, and integral emergency fuel metering system.

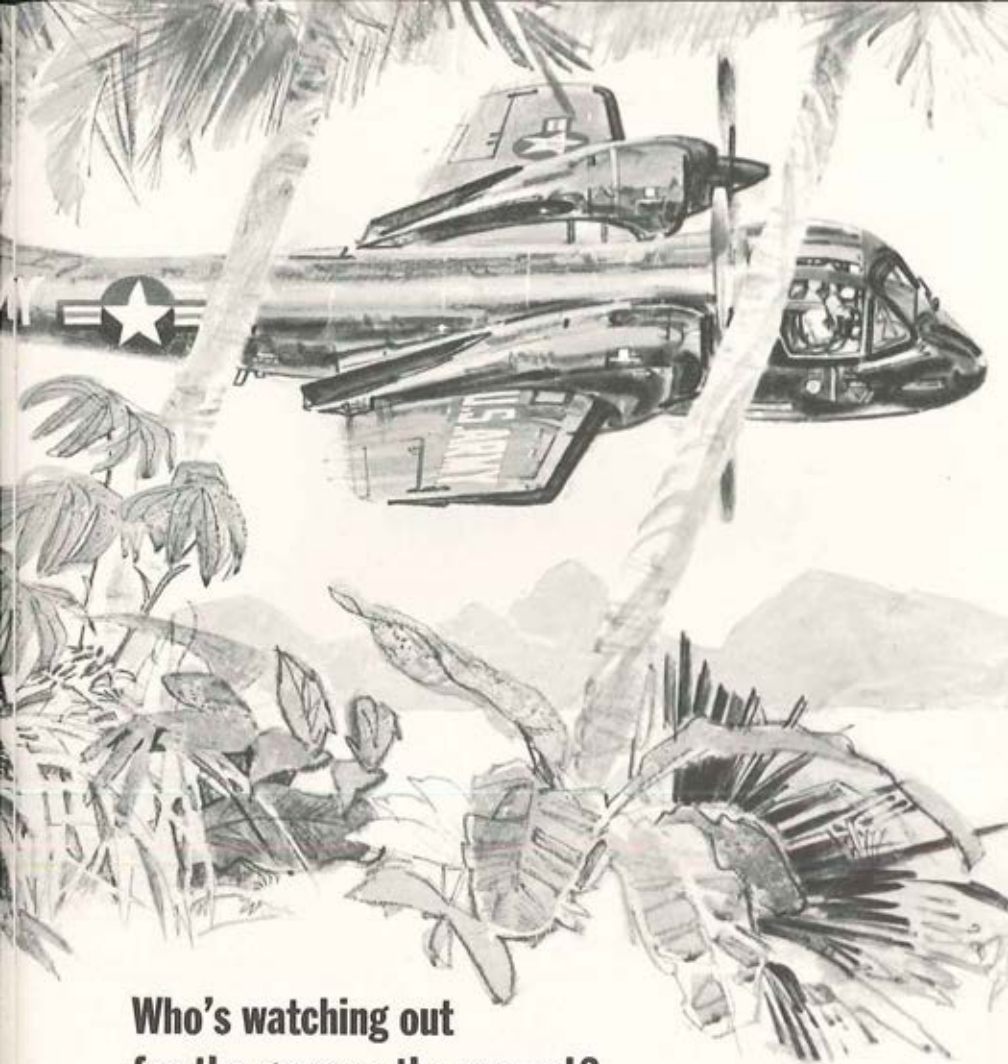
The MC-16, used on Continental's J-69 powering the Ryan Firebee drone, combines the pumping and controlling functions in one compact unit.

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# AVSCOM DEVELOPS "SHOP IN A BOX"

**T**HE Army Aviation and Surface Materiel Command (AVSCOM) has found a way to compress a trailer-truck load of tools into a box the size of several desks. The result is a helicopter-transportable maintenance shop which can be quickly placed almost anywhere for maintenance and repair of aircraft in hard-to-reach areas.

Brig. Gen. David B. Parker, commander of AVSCOM, said that the box, which collapses for easier handling, was designed to increase the mobility of the new air assault division by providing quicker maintenance. The shop conceivably could be used in guerilla warfare where maintenance shops are few and far between. A study now underway will determine the feasibility of using the new shop in Vietnam.

Still in a development stage, the

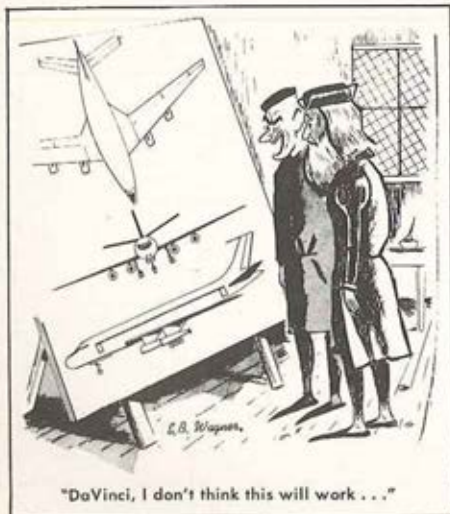


4,000 lb. box will replace a 23,000 lb. mobile van and will have the facilities to do about 70 per cent of the work. The van was dependent on roads, which don't always exist in jungle country. Several types of shops will handle electrical, sheet metal and engine repairs. Each box could support a platoon of five helicopters. When open, the shop stands eight feet high, seven feet wide, and ten feet long.

## RECENT DEMONSTRATION

At a demonstration recently at the Granite City (Ill.) Army depot, a CH-37 helicopter from the 54th Transportation Company at Fort Sill, Okla., lifted the box for the benefit of Army engineers.

Capt. Paul Kemp, pilot of the CH-37, said that despite strong gusts of wind, he could hardly tell that it was hooked to the helicopter while in the air. The Transportation Research Command (TRECOC) at Fort Eustis, Va., developed the shop and AVSCOM will keep it stocked with tools once it is in operation.



BY LT. COLONEL KENNETH D. MERTEL  
U.S. ARMY SUPPORT GROUP, VIETNAM



## VIETNAM REPORT

**A** NUMBER of Air Medals have been presented here in the Republic of Vietnam with many more to be awarded. Criteria and procedures for this award may be of interest, particularly to those who will soon receive orders for the Republic of Vietnam.

First, the Air Medal may be awarded for a single action or mission based upon the meritorious achievement or a heroic act above normal operational activities which is deserving of recognition but does not warrant award of the Distinguished Flying Cross. Examples could include an aerial reconnaissance of a well-guarded critical target or accomplishment of the assigned mission under especially hazardous conditions of enemy fire, weather, or terrain.

The Air Medal, intended primarily for aircraft crews, has been awarded to military personnel not on flying

status, but whose primary duties require frequent aerial flights over hostile areas and are not otherwise qualified.

The award may also be presented for sustained activities such as air-mobile operations, medical evacuation missions, reconnaissance, etc. An individual must have completed a minimum of twenty-five direct combat support or aerial reconnaissance missions over hostile territory in order to receive the first award. One air-mobile operation, consisting of several short lifts between loading zone and landing zone, might constitute one mission. When landing zones change to some other part of the battle area, this may be counted as an additional mission.

Cargo or airborne troop drops in enemy territory in which opposition may be received will be credited. Missions flown by aviation main-

tenance personnel accompanying an aviation unit participating in a combat support operation or in connection with repair or evacuation of disabled aircraft may also be counted. Transport of cargo, troop hauls, or administrative flights cannot be credited unless enemy fire is actually encountered.

In addition to these requirements, the individual's accomplishment and service for the entire group of missions must reflect meritorious performance and effort, and a high order of air discipline, and have brought credit to the Army and themselves in the performance of their duties in the air and on the ground.

The second, and all subsequent awards (Oak Leaf Clusters), are based upon similar criteria and the same number of missions. Administrative processing is quite simple using DA Form 638. Approving authority for awards made for sustained activities is Headquarters, United States Army Support Group, Vietnam. Awards for specific acts must be approved by Headquarters, USARYIS.

The highest number of awards received thus far in the Republic of Vietnam is the Air Medal with eleven Oak Leaf Clusters.

#### **SUBJECT OF SURVIVAL**

Survival until rescued, if forced down due to mechanical difficulties or shot down by enemy fire, is an important subject in this part of the world. It is a subject that has received little previous attention by Army Aviators, except when stationed where conditions of terrain

make it quite obvious. Survival is most important here from both the aspect of survival against climatic conditions and the terrain as well as evasion and escape from the enemy.

The terrain southwest of Saigon is largely flat delta land resulting from the many mouths of the Mekong River. A forced landing can be made without too much difficulty in almost any spot except during the rainy season. The area northeast of Saigon includes large areas of jungle and swamp within its terrain. The farther upland you go, the more and higher the mountains. These are heavily forested with few clearings.

Elevations average 5,000-7,000 feet with highest peaks up to about 10,000 feet. The South China Sea Coast side, northeast of Saigon, has a small portion of flat land extending inland for a few miles, becoming heavily forested mountains. Needless to say, clearings or openings in the jungle and mountains are scarce. Survival after a parachute jump or riding one in would be most difficult.

#### **SURVIVAL KITS**

All Army aircraft in the Republic of Vietnam are equipped with an excellent issue of survival kits. In addition, individual survival kits are available and are generally carried by each member of the air crew. These include conveniently shaped packets that will fit into pockets of the flight suit. One very fine kit is contained in one of the new style ammunition pouches.

All air crew personnel are required to wear flight suits or fatigues

with boots. A belt with canteen and first aid packet is also carried. Most personnel carry a civilian type hunting knife or issue trench knife. The individual weapons include issue .45 cal pistols, carbines, and M-3 sub-machine guns. Numerous other types of weapons are available and are carried, including the Thompson sub-machine gun, the Swedish K, and all types of pistols. Pistols are worn in shoulder holsters - low slung fast-draw or western type, boot holsters, etc.

Properly equipped and with a knowledge of first aid, survival techniques and some common sense, one has a good chance of getting out if forced down, be it jungle, mountains, or delta.

#### **CHANGE OF COMMAND**

In a change of command ceremony, the reigns of the 1st Aviation Company (Caribou) were recently turned over to a new commander. Major William G. Hooks, the departing commander was initially assigned to this unit in March 1958 at Fort Benning, Georgia. He has held almost every position in the unit, including aviator, operations officer, executive officer; followed by commanding officer since 1961.

He has lead the company through many outstanding accomplishments during his period of command. These included participation in numerous training exercises in CONUS followed by the monumental BIG MOOSE flight half way around the world from Fort Benning, Georgia, to Bangkok, Thailand, in June-July last year (Another "First" for Army aviation). In addition, this unit's

performance in carrying out its combat mission in Thailand and Vietnam has been outstanding.

A tremendous amount of work has been accomplished to prove what the Caribou can do in this part of the world. History has recorded many pages about this unit; more will be written under their new commander, Major Morgan H. Mathews. Major Hooks' new assignment takes him to Fort Rucker, Alabama. He carries with him "best wishes" and "good luck" from his fellow aviators in Vietnam. Good luck to you, Major Mathews, and your new command.

#### **TIPS**

An additional item of interest to personnel being assigned to the northern areas of the Republic of Vietnam such as Pleiku, Da Nang, or Qui Nhon. Bring your field jackets and flight jackets because it does get cool in this part of the country at night. These two items are in rather short supply over here and you might have trouble obtaining one if you don't bring it with you.

Current instrument ratings are very important due to the large amount of instrument weather or marginal type weather conditions in which you will be flying. Since opportunities for the renewal of an expired instrument certificate are somewhat remote here due to the lack of instrument-training aircraft, it would be a good idea to make certain that your instrument ticket will carry you through most of your tour, even if this means that you will have to take another voluntary check ride prior to your departure from CONUS.

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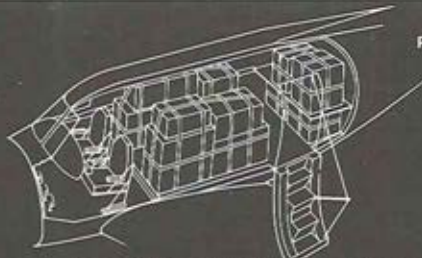
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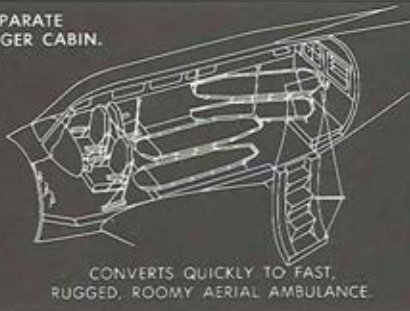
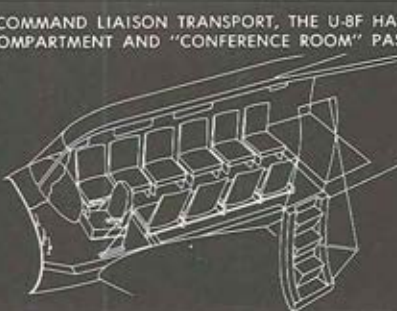
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# ARMY AVIATION

APRIL-MAY PHOTOS



■ Above: An Italian Warrant Officer helps fill the tank of a SETAF Iroquois engaged in the search for three climbers lost in the slopes of northern Italy. Below: PFC William E. Jordan (left), the first man to report for USAPHS training who enlisted for the specific purpose of entering R/W training, discusses his future with Capt. Frank A. Mariano, Student Company C.O.



■ Above: With the winds blowing at 40-50 knots, an Army O-1A involved in Alaska's EXERCISE TIMBER-LINE is manhandled and sat upon to maintain its position. Below: The Boeing Vertol Division is shown engaged in a demonstration of the practicability of loading and unloading normal cabin loads from the air while hovering. Shown is a Boeing-Vertol 107 helicopter lifting a 4,500 pound utility truck using a rear cargo hook. This newly conceived method, tested at Vertol's Flight Center at Philadelphia International Airport, would be of great value in the recovery of certain hardware from both jungle and mountainous terrain or water.



**I**N both World War II and Korea, Army aircraft relied on their slow speed maneuverability for protection against enemy fighter aircraft. Though there were losses to enemy fire in both wars, Army aircraft were not unacceptably vulnerable. The advent of the troop transport helicopter, however, created a new problem; at one particular moment in time and space the transport helicopter was considered to be unacceptably vulnerable.

This was the moment at which it was stationary, either hovering or landing, while it disembarked its load of fighting troops. Since this moment of vulnerability was, after all, very brief, the Army began to experiment with the idea of delivering "suppressive fire" from the helicopter. This was originally intended to be a large volume of es-

entially unaimed fire intended solely to force the enemy to keep his head down until the troops could disembark, assemble, and begin the fight. This idea gave birth to the armed helicopter in the U.S. Army.

In order to test the feasibility of the Army transport helicopter as a weapons platform for the delivery of suppressive fire during an airborne assault, a wide range of weapons was tested on various helicopters. The period between 1955 and 1960 was marked by many ingenious and imaginative experiments at Fort Rucker. Hampered by a lack of funds, facilities, and official encouragement, the development was spurred by enthusiasm and initiative on the part of many individuals and organizations at the Army Aviation Center. Visitors to the Army Aviation Center were, as




## AIRCRAFT ARMAMENT

BY MAJOR DONALD J. HAID

CHIEF, U.S. ARMY AVIATION HUMAN RESEARCH UNIT

FORT RUCKER, ALABAMA

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often as possible, shown demonstrations of armed helicopters.

Some demonstrations even included the simulation of tactical situations: an airmobile assault, reconnaissance by armed helicopters, and even air-to-air combat with "aggressor" armed helicopters. The larger helicopters sometimes carried more than one weapons system. During these five years, though a tremendous range of weapons was tested, it became apparent that machine guns, rockets, and wire-guided missiles offered the greatest immediate promise for use on our helicopters. The essentially unaimed character of suppressive fire remained predominant. Only in the guided missile field was any attempt made to achieve the accuracy necessary to attack point targets.

Armament systems for Army helicopters have always begun by taking some existing weapon and attempting to mount it in some fashion on the helicopter. A classic example of this is the case of the French in Algeria, who simply tied an ordinary pintle-mounted machine gun to the floor in the doorway of a Vertol 44. For the first several years of the feasibility studies at Fort Rucker, all experiments were conducted with existing ground weapons (although, rather late in the period, experiments were made with actual aircraft weapons).

As long as the principal concept was that of unaimed suppressive fire, any weapon that the helicopter could lift - automatic weapons, rockets, or guided missiles - was reasonable. Under this program,

such prosaic considerations as ammunition feeding, effect of recoil on structural members, in-flight reloading, and ammunition load capabilities posed the major problems.

Degradation of aircraft performance was accepted as a necessary evil. Quite by chance, this degradation generally manifested itself by reducing speed and payload, rather than in dangerous flight characteristics. The helicopter armament program certainly proved one thing: with an air frame already so cluttered with protuberances, a few more don't really make any difference.

The Fort Rucker pioneers had their significant success with a dual .30-caliber machine gun kit (precursor of the XM-1), the 4.5-rocket (later abandoned in favor of the 2.75-inch rocket), and the SS-11 (a French-developed wire-guided missile originally designed as a surface-to-surface, anti-tank weapon).

During the same period, the Seventh U.S. Army in Germany developed a dual machine gun installation for the OH-13H. This was never considered as anything but a field expedient though, in fact, it will have been in use for at least three years before it is replaced by the XM-2.

## **DEVELOPMENT OF DOCTRINE**

There will be three categories of weaponry: light weapons, area weapons, and point weapons. In an effort to get armed helicopters into the field in the shortest possible time, "first generation" weapons have been designated in each of the three categories.

Still unresolved are the doctrinal differences posed by the selection of these three weapons systems:

■ The fixed light weapons systems is aimed and fired by the pilot. Target location, identification, and engagement are entirely in the hands of the aviator.

■ The area weapon, the 2.75-inch rocket system, involves two people. The system is like the first in that the rockets are aimed by maneuvering the aircraft itself, but certain manual assistance from the co-pilot to operate the rocket launchers is required.

■ The point weapon, the SS-11, is completely flexible and is entirely aimed and fired by someone other than the pilot.

#### **DEVELOPMENT OF TACTICS**

The developments in radar and infra-red weapons have forced the Army to different tactics for future warfare. Except in these areas known to be absolutely secure, the Army aviator will have to fly at an altitude low enough to enable him to stay below the acquisition level of radar and infra-red weapons. In most cases, this will mean treetop level, or, if possible, below. This is the "nap-of-the-earth" flying that the Army will have to live with.

Assuming that "nap-of-the-earth" flying is operationally feasible (navigation and communication pose serious problems), Army aircraft will be fairly safe from enemy high performance aircraft and from enemy small arms fire. It is by no means possible to say that an enemy jet will never be able to fire at an

Army aircraft, nor that a rifleman or machine gunner will never have time to aim and fire at a helicopter. We can assume that the risks will be acceptable.

The one area for which no tactics have been evolved is that which finds one of our helicopters flying "nap-of-the-earth" and suddenly running into an armed enemy helicopter. In short, we may be able to rely on tactics, evasive maneuvers, and treetop flying to protect us against enemy jets. We may be able to rely on speed, surprise, and the limitations of the average rifleman to protect us against enemy ground fire. But it may be that the only tactic to use against an enemy armed helicopter will be employment of another armed helicopter.

It appears that, for the period 1960-65, the armed helicopters will be used principally to support air-mobile assaults and to perform armed aerial reconnaissance, anti-tank, and rear area security missions. Based on the weapons systems available during this period, armed helicopters will almost certainly have to fly in complementary teams. They will not only have to fly in formation in order to protect one another, but they will also have to be able to employ weaponry as the situation dictates.

Tactically speaking, it is unlikely that any of the first generation weapons systems (the SS-11 is a possible exception) will be able to play much of an offensive role on the battlefield. But certainly where accuracy and lethality are not required, the armed helicopter will play a tactical role limited only by

the imagination and the courage of the aviators and their commanders. Probably the most critical problem for the first half of the decade will be to devise some form of expedient tactics for helicopter-to-helicopter combat built around the light, automatic weapons. Neither the 2.75-inch rocket nor the SS-11 can be expected to provide any air-to-air capability.

The last half of this decade may see the evolution of airmobile assault tactics taking full cognizance of the necessity for armed escort. Perhaps a suitable escort aircraft, either fixed or rotary wing, will be available to permit the development of the tactics of rendezvous, escort, repelling an enemy incursion, probing the landing zone, neutralizing the landing zone, guarding the debarkation, and escorting the withdrawal. The ultimate goal is the development of weapons, tactics and aircraft which complement, rather than impose limitations upon, one another.

The only armed helicopter tactics which have seen the test of combat are those employed by the French in Algeria and by our units in Vietnam. Because of the peculiar character of both these wars - no enemy aircraft, no specific anti-aircraft weapons, and a primitively-trained, poorly-equipped enemy - even these tactics have a limited application.

#### **TRAINING CONSIDERATIONS**

Helicopter gunnery until recently has been taught much like a man would teach his wife to drive an automobile: calling up all reserve courage and patience, a man rides

with his wife until he is reasonably convinced that she will neither kill herself nor damage the car. At this level of proficiency, she is turned loose. The analogy breaks down here because the wife must demonstrate her driving prowess to an experienced, impartial agent of the license bureau. We have not yet developed our quality control to this point.

#### **THE REQUIREMENT**

The whole problem of helicopter gunnery training is inextricably interwoven with the types of weapons systems employed. Obviously a fixed weapons system, entirely aimed and fired by the pilot, poses different training problems than those encountered with a flexible weapons system aimed and fired by someone other than the pilot. It is not clear at this time which of these would be of a lesser order of magnitude. Judging from the extremes of opinion represented (e.g., the Marine Corps Equipment Board and the French ALAT), there is no overwhelming evidence as to which would be more accurate.

Training is dictated by tactics. If the tactics of armed helicopter employment intend for them only to deliver a volume of unaimed fire in the general direction of a real or suspected enemy, the training required will be considerably less, no matter to whom administered. If, on the other hand, tactics call for the armed helicopter to be able to accurately and effectively engage area and point targets, then training will be necessarily far more complex. Armed helicopter tactics will



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add to the training requirements over and above the weaponry. Training for airmobile assault escort missions, armed reconnaissance, rear area security, anti-guerrilla activities, and a host of others, will be required.

There are serious, and unresolved, problems associated with the physical limitations imposed by "nap-of-the-earth" operations.

Although air-to-air gunnery for 'copters is not an immediate training problem, it will eventually require resolution of a number of hitherto unexplored problem areas:

■ There is no knowledge of how to teach helicopter air-to-air gunnery.

■ There is nothing available to guide us towards effective helicopter-to-helicopter combat tactics.

■ There is no real indication as to the most effective weapon with which to shoot down an enemy armed helicopter.

Presumably some techniques and procedures now used by our sister services will be of some value in this area. But certainly development will depend upon study, experimentation, trial and error, and ultimately, combat experience.

The physical and psychological limitations with which the armed helicopter pilot may be faced deserve mention: First of all, there will be a tremendous premium placed upon his skill in operating the helicopter. His visual acuity, physical dexterity, judgment, daring, and courage will all have to be

of the highest order. With those systems fired by someone other than the pilot, these qualities will have to extend to the co-pilot/gunner, with, of course, the additional requirement for a high degree of teamwork. Teamwork will also be essential for the various formations required for various configurations of the armed helicopter (different weapons systems as well as different types of aircraft).

### **IMMEDIATE PROBLEMS**

The U.S. Army, unique among the services, gives some 500 young men initial flight training in helicopters each year. Students receive primary training (in the OH-23D) at Camp Wolters, Texas, and then are sent to Fort Rucker for advanced training in utility or cargo helicopters.

Beginning with fiscal year 1963, part of this input to initial qualification training has been diverted to the new LOH aviator training program. After completing primary training, students spend an additional 4 weeks at Camp Wolters for transition to the OH-13E and for some advanced helicopter training. They go next to Fort Sill, Oklahoma, for four final weeks of training which includes direction of artillery fire and air-to-ground gunnery utilizing the XM-1 system on the OH-13E. They then graduate as LOH aviators. Simply stated, the problem is that we have yet to find the best way to teach a neophyte helicopter pilot, with less than 100 hours total flight time, to fly "nap-of-the-earth" and to aim and fire a weapons system.

We have a big problem in the

training of presently rated Army aviators in one or more of the phases of aerial gunnery. There are about 6,000 rated aviators in the field, few of whom have ever fired any kind of a weapon from any kind of an aircraft:

■ Should they all be trained? If not all, then which ones?

■ Should they be trained in all three weapons systems? If not all, then which system?

■ What shall the criteria be for "familiarization?" The criteria for "proficiency?"

#### **THE FUTURE**

Based on present doctrine, some of the LOH and the UH-1 helicopters will be armed. Assuming that the MOA and HOA will have to be able, at least, to defend themselves against aircraft of similar capabilities, it is reasonable to expect that they will be armed. The transport helicopters may be armed for self-defense, perhaps on the order of our experience in Vietnam and that of the French in Algeria. The problem of how to protect the transport helicopters on an airmobile assault may be resolved by the end of the decade. It appears that there may be three possible solutions: arm the transport helicopter itself; provide armed escort helicopters; or provide armed fixed wing aircraft as escorts.

Aerial gunnery will probably be a standard subject in basic flight training, possibly in the form of familiarization training in all three families of weapons systems for the rotary wing trainee. The trainee

may be required to be proficient in the weapons system peculiar to the class of helicopters in which he is being trained. The fixed wing trainee may receive advanced training in either the MOA or the HOA, and logically would receive aerial gunnery training at this time.

Army aviators may carry a prefix on their MOS designating them as "tactically current." This would mean that they have received aerial gunnery training and are proficient with one or more weapons systems. Retention of the prefix would require annual or biennial proficiency firing.

#### **AIR-TO-AIR GUNNERY**

The requirement may exist for the Army to be able to devise some effective means of teaching XM-1 system air-to-air gunnery. This may involve the adaptation of gun cameras to simulate the performance of the XM-1. Techniques will have to be devised for assessment of film-recorded firing runs in terms of target location, identification, and engagement. Intervalometers may be necessary to measure the time elapsed between target recognition and the triggering of the weapon. Finally, a whole body of offensive and defensive tactics will have to be devised for helicopter-to-helicopter combat.

Proficiency criteria will have to be developed, tested, and revised so that we may have a realistic standard against which Army aviators can be evaluated. Because of the diversity of the three first generation systems, these criteria may have to be individually tailored to

each weapons system. There may have to be three levels of proficiency; familiarization; combat ready; and expert or instructor.

Some research in selection and motivation of LOH aviators will be necessary. Not every aviator will want to be a "tiger" - not all that do will have the aptitude. The heterogeneous aviation unit may not be the ideal environment for a daring and aggressive LOH aviator. Organizational problems may add weight to consideration of homogeneous LOH companies. It is far more likely that the necessary "esprit de corps" could be fostered in a unit in which all aviators have received the same indoctrination and training.

#### **STANDARDIZATION NEED**

If helicopter gunnery training is conducted at unit level, an effective, standardized training program will be required. This requirement will exist, even if it is conducted on a centralized basis in several major geographical areas. The ever-increasing manpower demands of the Army Aviation Program will require the largest possible number of well-qualified armed helicopter aviators, and random cross-training will be even less satisfactory than it is today.

The last half of the decade should be the period in which we provide a thoroughly integrated aviation training program in which the neophyte progresses logically from primary training to advanced training to the unit. It may be possible to have various career fields within the aviation program, with the in-

dividual advancing from simple to complex aircraft. It will not be as simple to move from an LOH to a CH-47 as it now is to go from an OH-13 to a CH-34. Cross-training between fixed and rotary wing aircraft will be a great deal more rare than is the case today. The presence (or absence) of weapons systems will aggravate the problem of trying to maintain proficiency in a variety of aircraft.

#### **USE OF SIMULATORS**

Sophisticated and very realistic simulators are already within the state of the art. With the high cost of both aircraft operation and ordnance, we must explore the possibility of training devices which might permit some of the gunnery training, both initial and proficiency, to be simulated. It is important to note, however, that there are many indications even today that some of these training devices may contribute little (or even hinder) the learning process.

Perhaps a multi-purpose single weapons system, effective against a very broad range of targets, can be devised. Such a weapon might have tremendous advantages, not only from a logistic but also from a training point of view. Along these same lines, a universal fire control system might enable the pilot to be trained with one set of controls and techniques applicable to a wide range of weaponry.

Since weapons systems cost less than helicopters, the aim should be to reduce the size, weight, and complexity of the weapon while, at the same time, increasing the le-



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thality, accuracy and ammunition load. Miniaturization may also permit the employment on Army aircraft of some of the target-seeking weapons systems. Either of these approaches would profoundly affect the problems associated with helicopter gunnery training.

The weapons system concept, in its ideal form, first envisions a target, then devises a weapon to destroy that target, and finally designs an aircraft around the weapon. The helicopter might be a worthwhile goal towards which this concept might be directed. Higher speeds and bigger payloads might enable our helicopters to carry not only more effective weapons, but also weapons which would be simpler to use.

In conclusion, it should be re-emphasized that this paper was intended as a generalized discussion of the many problem areas implicit in the Army's aircraft armament program. It has hardly seemed necessary to point out the tremendous significance of the armed helicopter to the Army in general, and to the Army Aviation Program in partic-



■ First Lieutenant Clayton Allen Fannin, an Army Aviator assigned to the 23rd Aviation Special Warfare Detachment, APO 40, San Francisco, California, has been missing in action in Vietnam since January 10, 1963. Lieutenant Fannin was piloting an Army OV-1 Mohawk reconnaissance aircraft and failed to return from a flight conducted over enemy territory. A graduate of the United States Military Academy (Class of 1959), Lieutenant Fannin also completed Ranger and Airborne training in addition to his pilot training in Army aviation. ■■



## ABOUT THE AUTHOR

■ A veteran Army Aviator, Major Donald J. Haid assumed the duties of Chief of the Army Aviation Human Research Unit at Fort Rucker, Ala., upon the departure of Lt. Col. Arne H. Eliasson. Since July of 1962 his unit has been conducting formal research in the field of helicopter gunnery training. This article served as Major Haid's technical "paper" during the recent technical sessions conducted at the 19th Annual AHS Forum and Exhibit. An avid cigar smoker, the affable Fort Rucker officer spends his extracurricular time "on the links" hustling his friends at a "modest ten cents per hole."

ular. Nor should we overlook the already wide and varied skills of the presently trained aviators, the vigorous research and development programs already under way, or the proven capability of American industry to respond with speed and skill to a stated requirement. It would not be over-optimistic to expect that we have the resources, both human and material, to solve the problems.

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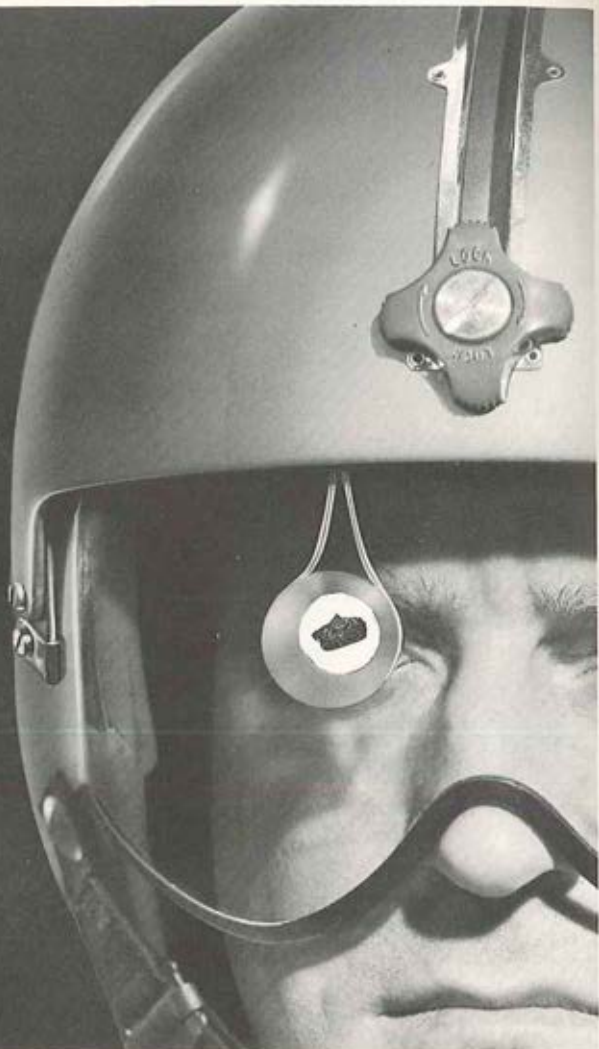
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■ MAJOR ROBERT F. CORNEIL, JR. (CENTER) IS SHOWN RECEIVING THE DISTINGUISHED FLYING CROSS FROM MAJ. GENERAL HARRY J. LEMLEY, COMMANDING GENERAL, COMBINED ARMS GROUP, COMBAT DEVELOPMENTS COMMAND, IN A CEREMONY AT FT. RUCKER. MAJOR CORNEIL, NOW ASSIGNED TO THE AVIATION AGENCY OF CDC AT FT. RUCKER, WAS CITED FOR HEROISM IN JULY, 1962, NEAR DAK RHODE, VIETNAM, WHILE SERVING AS C.O. OF THE 8TH TRANSPORTATION COMPANY (LT HEL). HE VOLUNTEERED FOR A FLIGHT UNDER ADVERSE WEATHER CONDITIONS OVER HAZARDOUS TERRAIN IN ENEMY TERRITORY AND SUFFERED WOUNDS FOR A SECOND TIME WHILE IN VIETNAM. MRS. CORNEIL IS SHOWN AT THE LEFT. ■■



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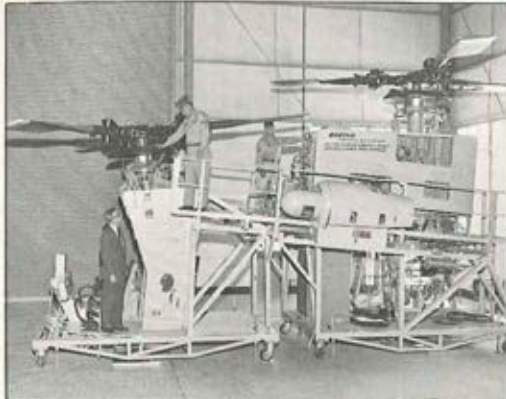
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## TRAINING AID



■ A NEW COMPOSITE TRAINER TO BE USED IN INSTRUCTION IN THE CH-47A CHINOOK TRANSITION COURSE AT THE U.S. ARMY TRANSPORTATION SCHOOL IS CHECKED OUT BY ALDEN K. NICKERSON, SFC JOHN A. MELLE, AND SFC JAMES R. MITCHELL. ONE OF TWO MONSTROUS TRAINING DEVICES, COSTING \$517,000, THE DEVICE IS NOW IN POSITION IN THE NEW ROTARY WING BUILDING OF THE SCHOOL'S TECHNICAL TRAINING DIVISION. THE BOEING VERTOL TRAINING AID WILL TEACH CONTROLS AND POWER TRAIN SYSTEMS TO FUTURE CH-47A MAINTENANCE OFFICERS AND PERSONNEL. UNDER A NEW POLICY, BOTH ORGANIZATIONAL AND FIELD MAINTENANCE WILL BE CONDUCTED AT USATSCH, FT. EUSTIS, VA.

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22	10.30	2472.00	2052.70	419.30	1.75	35	16.10	3864.00	3132.50	731.50	3.05
23	10.70	2568.00	2127.90	440.10	1.83	36	16.80	4032.00	3222.20	809.80	3.37
24	11.10	2664.00	2204.70	459.30	1.91	37	17.50	4200.00	3312.70	887.30	3.69
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28	12.80	3072.00	2526.40	545.60	2.27	41	21.10	5064.00	3679.90	1384.10	5.76
29	13.20	3168.00	2610.10	557.90	2.32	42	22.10	5304.00	3772.90	1531.10	6.38
30	13.70	3288.00	2694.90	593.10	2.47	43	23.10	5544.00	3865.90	1678.10	6.99
31	14.10	3384.00	2780.80	603.20	2.51	44	24.20	5808.00	3959.00	1849.00	7.70
32	14.50	3480.00	2867.50	612.50	2.55	45	25.30	6072.00	4051.70	2020.30	8.41
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## STRIKES THRICE!

■ EDWARD N. LOCK, RIGHT, A CIVILIAN INSTRUCTOR WITH THE DEPT. OF F/W TRAINING, USAAVNS, HAD THE DUBIOUS HONOR OF UNDERGOING THREE FORCED LANDINGS IN A 10-DAY PERIOD. HE IS SHOWN RECEIVING THE ARMY MERITORIOUS CIVILIAN AWARD MEDAL AND AN OFFICIAL COMMENDATION FROM COL. WARREN R. WILLIAMS, JR., ASSISTANT COMMANDANT OF USAAVNS. THE FIRST "MAYDAY" OCCURRED IN A U-6A BEAVER WHILE ON AN IFR FLIGHT WITH STUDENTS BETWEEN FLORIDA CITIES. HIS TWO OTHER FORCED LANDINGS, BOTH WITH STUDENTS ABOARD, TOOK PLACE ON CONSECUTIVE DAYS, AND INVOLVED RUNAWAY PROPELLERS. THE LANDINGS WERE ALL EFFECTED WITHOUT INJURY OR DAMAGE.



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## COUNTERPART

■ THE U.S. ARMY PRIMARY HELICOPTER SCHOOL AT CAMP WOLTERS, TEXAS, RECENTLY HOSTED COLONEL KUNE EBELING, SECOND FROM RIGHT, THE COMMANDANT OF THE FEDERAL REPUBLIC OF GERMANY ARMY AVIATION SCHOOL. HE IS SHOWN DURING HIS RECENT VISIT WITH HIS TOUR GUIDE, LT. COLONEL JAMES W. HILL, JR., RIGHT, ASSISTANT COMMANDANT OF THE USAPHS, DURING THEIR STOP AT THE INSTALLATION'S LINK TRAINER FACILITIES. IN THE BACKGROUND IS CONNIE SHIELDS, LINK OPERATOR. COLONEL EBELING SPENT FOUR DAYS AT USAPHS OBSERVING THE SCHOOL'S OPERATIONS. (ARMY PHOTO)

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## YUMA TEST

■ TESTING OF THE FLEXIBLE WING AIR CARGO DELIVERY SYSTEM BY RYAN AERONAUTICAL COMPANY FOR THE U.S. ARMY IS UNDERWAY AT THE ARMY'S YUMA, ARIZ. TEST STATION. IN THESE TESTS, THE FLEXIBLE WING GLIDERS ARE INSTALLED ON ALUMINUM CARGO CONTAINERS WHICH ARE LOADED WITH BALLAST TO SIMULATE PAYLOADS. TOWED ALOFT BY CH-34 CHOCTAWS AT THE END OF 400-FOOT STEEL CABLES, THE GLIDERS ARE CUT LOOSE AND FLOWN TO PRESCRIBED AREAS, UNDER RADIO CONTROL FROM THE AIRCRAFT OR FROM THE GROUND, OR BY AUTOMATIC HOMING TO A BEACON. THE GLIDER CAN ALSO BE TOWED BY THE HELICOPTER UNTIL GROUND CONTACT IS MADE, AND IS THEN DETACHED.



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### EUGENE H. PATTON

Captain Eugene H. Patton of the TOPO Training Team at Teheran, Iran, was killed when the U-1A Otter aircraft of which he was pilot crashed during a service mission in Iran on April 23, 1963. Captain Patton is survived by his wife, Mrs. Mary Patton of 9 Frost Drive, Rolla, Missouri.

### MILES H. DOWNS

Major Miles H. Downs, assigned to the 4th Aviation Company, 4th Infantry Division, Ft. Lewis, Wash., sustained fatal injuries when the UH-1B Iroquois helicopter in which

## OBITUARIES

he was flying crashed near Fort Lewis, Wash., on April 28, 1963. Major Downs was involved in a service mission at the time of the accident. He is survived by his wife, Mrs. Alicia H. Downs, of 7909 Fairway Drive, S.W., Tacoma, Wash.

### LOUIS J. STAUBER

First Lieutenant Louis J. Stauber, assigned to the 4th Aviation Company, 4th Infantry Division, Ft. Lewis, Washington, sustained fatal injuries in the crash of a UH-1B Iroquois helicopter on April 28, 1963. The fatal aircraft accident

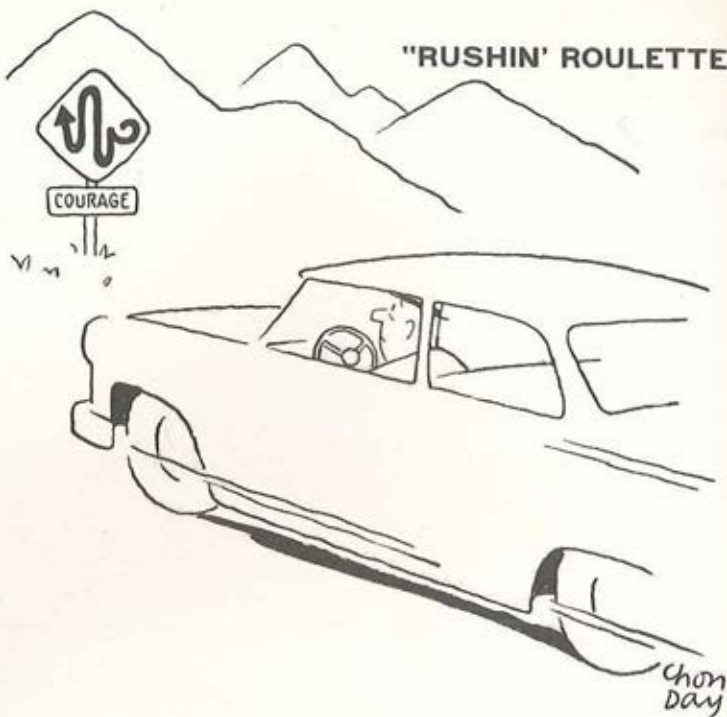
occurred while Lieutenant Stauber was engaged in a service mission near Fort Lewis, Wash. He is survived by his wife, Mrs. Janet V. Stauber of Quarters 2579-D, Fort Lewis, Washington.

### ADDRESS CHANGED?

■ The Change of Address Listings that appear on the preceding seven pages are those notifications that are submitted by individual subscribers directly to "Army Aviation Magazine." The publication makes no attempt to screen group photographs or articles with reference to verifying the correct address of readers. ■

THE LIGHTSIDE

"RUSHIN' ROULETTE"



"HELLO ... MISSILE COMMANDY"

# CDC REPORT

**BY COLONEL ROWAN P. ALEXANDER  
CHIEF, AIRBORNE & AIR SUPPORT BRANCH  
U.S. ARMY COMBAT DEVELOPMENTS COMMAND  
FORT BELVOIR, VIRGINIA**

**T**HIS is the first in what will be an erratic series of reports on the U.S. Army Combat Developments Command (CDC) activities. As an introduction, CDC is one of the new Army commands directly under Department of the Army, and on the same level with the U.S. Army Materiel Command (AMC).

The mission of CDC is simple, but monumental: figure out how the Army can best be organized, equipped, and how its operations shall be conducted.

This effort is carried out for Army aviation by a few rated and non-rated officers in this headquarters, backed principally by Army Aviators working in the Aviation and Transportation Combat Developments Agencies. We also have a scattering of "the faithful" in the Combined Arms, Infantry, Artillery, Armor, Medical, and Communications-Electronics CD Agencies.

If someone asked, "What do you do?", a typical but facetious reply

would be "Try to keep our noses above the paperwork stream which threatens to engulf us," but there is a more factual answer. We prepare aviation doctrine; TOE's and TD's; write requirements for materiel to be developed or procured off-the-shelf, and represent the user until the stuff is troop tested; conduct field experiments; prepare and manage troop tests.

## **QUITE AN ARMFUL**

We also are the principal DA action agency for continuing, expanding, and maintaining the momentum achieved by the Howze Board. Quite an armful of functions, particularly in a fast moving field like Army aviation.

Some of the important projects underway at present are the changes to doctrine for counterinsurgency operations, requirement for escort of helicopter columns, tests of the Chinook, and the airmobile troop test program to be conducted at

Fort Benning by the 11th Air Assault Division and the 10th Air Transport Brigade.

Concerning the latter, tests of the Howze Board concepts at Benning will establish a milestone in the annals of Army aviation and will absorb the energies of about 17,000 people during the next few years. Those of us who are fortunate enough to take part in this pioneering effort will be contributing significantly to the program. This is an effort similar to the organization of the first parachute infantry units early in WW II, only on a much larger scale.

#### **AATRI AGREEMENT**

One additional matter of great importance to every Army Aviator is air traffic regulation and control. Those of you who have struggled with this in the field will be gratified to know that CDC has it by the tail and is getting it squared away. In the past few weeks we have come to basic agreement with the Air Force and are writing new procedures.

At the same time, the Department of the Army has been asked to approve an Air Traffic Regulation Battalion Headquarters for the field army to manage the efforts of the AATRI Companies (TOE 1-207E, published late in February). These organizations, plus properly trained people and better communications

and navigation equipment, will give us a more workable system.

#### **THE HOME OFFICE**

Army Aviators serving in this headquarters are Lt. Colonels John Stockton, Howard Richardson ("Bootstrapping" at the moment) and Mose Lewis; Maj. Walt Banker, and Capt. Joe Shively, who work in the areas of concepts and doctrinal development. In Materiel Requirements, we have Majors Joe Cobb, Bill Worth, Pat Smith, and Earl Montgomery; in Special Doctrine and Equipment, Majors Jim Gray and Howard Blanchard. And that's all! In a subsequent report, I'll tell you about the people we have in the field.

#### **OPEN TO SUGGESTION**

One final word for this time, if any of you readers of ARMY AVIATION have a suggestion or an idea for the CD aviation program, send it to this headquarters for sympathetic consideration. Suggestions from the field are most welcome and are earnestly solicited.

Direct your correspondence to:  
Chief  
Airborne & Air Support Branch  
U.S. Army Combat Developments  
Command  
Fort Belvoir, Virginia

### **FORT RUCKER SEEKS NAMES FOR MEMORIALS**

■ The names of men who have given their lives in Army aviation are being sought by the Army Aviation Center in naming airfields, permanent buildings, and other facilities at Fort Rucker. Those knowing of individuals who should be memorialized should submit names, along with a brief biographical sketch (including the name of next of kin) and a summary of their Army aviation service, to the Information Office, U.S. Army Aviation Center, Fort Rucker, Alabama. ■■



## AAAA NEWS

### **NATIONAL AWARD NOMINEES SOUGHT THROUGH 30 JUNE**

Nominations for the four National AAAA Awards are solicited from all members and should be forwarded to AAAA, Westport, Conn., Attn: National Awards Chairman on or before 30 June 1963.

Members are encouraged to write to the National Office for the appropriate "nomination form" for each award. Nominees are sought for the "ARMY AVIATOR OF THE YEAR AWARD," the "AVIATION SOLDIER OF THE YEAR AWARD," sponsored by the Hiller Aircraft Company of Palo Alto, Calif.; the "OUTSTANDING AVIATION UNIT AWARD," sponsored by the Hughes Tool Company-Aircraft Division of Culver City, Calif., and the award for safety, the "JAMES H. McCLELLAN AVIATION SAFETY AWARD," sponsored by the James H. McClellan Foundation. The "consideration zone" for all awards is the 1 April 1962-31 March 1963 period.

The National Awards Committee is expected to meet in early July to select award winners. Colonel Robert M. Leich, the Association's President during 1957-1959, serves as the Chairman of the National Awards Committee.

### **5,700 MEMBERS RENEW MEMBERSHIP IN AAAA**

More than 5,700 Association members had renewed their 1962-1963 membership in AAAA as at the 1 June 1963 "cut-off date" for renewal. The figure represents 83.7 per cent of last year's over-all total of 6,810 members.

During the period 1 April 1963-1 June 1963 the Association received new applications for membership from 506 applicants to regain approximately half of the loss of 1,100 '62-'62 members. In previous years, the "renewal ratio" varied between 84 and 86 per cent each year.

### **ARMY AVIATION CENTER CHAPTER CELEBRATES "21ST"**

The Army Aviation Center Chapter of AAAA held a "Coming of Age" Celebration on June 6, sponsoring a post-wide All-Day Family Picnic at the Fort Rucker Officers Beach at Lake Tholocco.

The theme of the Anniversary Celebration concerned itself with "Army Aviation Comes of Age 21." Special Events included Sky Diving into Lake Tholocco, a separate Water Follies Show, a Beauty Contest, and All Day Dancing on the Lodge Patio.

Members and their wives brought their own "picnic" or bought them from the nearby Club, with the Chapter providing free suds and cokes for all.

### **GEN. BUNKER ADDRESSES LINDBERGH CHAPTER DINNER**

The Lindbergh Chapter of AAAA held a Professional Meeting and Membership Dinner at the Lambert Field Officers Club, St. Louis, Mo., on June 5. Major General William B. Bunker, Comptroller of the U.S. Army Materiel Command and the "Founding Father" and first President of the AAAA's second largest membership activity, was the Chapter's Guest Speaker for the evening.

### **NATIONAL EXECUTIVE BOARD MEETS AT FORT EUSTIS**

The National Executive Board conducted its Spring Quarterly Meeting at Fort Eustis, Va., on 10-12 May 1963, being hosted during their stay by Maj. Gen. John J. Lane, Commanding General of the U.S. Army Transportation Center and the members of the David E. Condon Chapter Executive Board. Among the agenda items were preliminary discussions on the establishment of an Association Scholarship Foundation and the adoption and endorsement of an Army Aviation Song.

# AAAA CHAPTER OFFICERS FOR 1963-1964

## ALAMO CHAPTER

President.....Major Robert B. McGhee  
Exec Vice Pres.....Captain Gerald S. Rose  
Secretary.....Major Lee E. Perdelwitz  
Treasurer.....Major Forrest W. Johnson  
VP Army Aff.....Major Michael Olijar  
VP ARNG Aff.....Major Thomas W. Loftin  
VP Reserve Aff.....Major Robert E. Blount  
VP Industrial Aff.....Major Billy B. McPhail  
VP Public Aff.....Major Harold Roy, Ret.

## ALASKA CHAPTER

President.....Captain David H. Moffet, Jr.  
Exec Vice Pres.....Major Charles E. Connaway  
Secretary.....Captain John H. Lane, Jr.  
Treasurer.....CWO Charles R. Graeber  
VP Army Aff.....Major David D. Dukes  
VP Industrial Aff.....Lt. Col. Walter S. Trapp  
VP Public Aff.....Major Richard H. Scott

## ARMY AVIATION CENTER CHAPTER

President.....Colonel Edward McMaken  
Exec VP.....Lt. Colonel Russell T. Blair, Ret.  
Secretary.....Lt. Col. Thomas J. Sabiston, Ret.  
Treasurer.....Captain Charles E. Parker, Jr.  
VP Army Aff.....Major Willie F. Dixon  
VP Industrial Aff.....Major Oran B. Jolley, Ret.  
VP Public Aff.....Major Wallace H. Martin

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Exec Vice Pres.....Captain Eugene T. Boyd  
Secretary.....Lieutenant David M. Best  
VP Army Aff.....To Be Elected  
VP ARNG Aff.....To Be Elected  
VP Indus Aff.....Lieutenant Darel S. Johnson  
VP Public Aff.....Captain Donald Bernstein

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VP ARNG Aff.....Capt. Carl L. Burlison  
VP Reserve Aff.....To Be Elected

VP Industrial Aff.....Mr. Joseph H. Shields  
VP Industrial Aff.....To Be Elected

## CHINA SEA CHAPTER

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Secretary.....Captain Joseph T. Palastra, Jr.  
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VP Industrial Aff.....CWO Richard L. Hatter  
VP Public Aff.....Major Ivan L. Slavich, Jr.

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VP Res Aff.....Lt. Col. Clarence H. Ellis, Jr.  
VP Industrial Aff.....Lt. Col. Robert J. Dillard  
VP Public Aff.....Major James F. Hill

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Secretary.....Captain James C. Mark  
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VP, ARNG Aff.....Major Robert L. Michellon  
VP Reserve Aff.....Major Richard L. Johnson  
VP Industrial Aff.....SP/5 Robert P. McNeill  
VP Public Aff.....Lieutenant Wilbur P. Lusker

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VP Reserve Aff.....Lieutenant Jack W. Crooks  
VP Industrial Aff.....Captain Billie A. Davidson  
VP Public Aff.....Lt. Rayburn D. Huckabee

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Treasurer.....Captain Robert M. Wilkinson  
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VP Reserve Aff.....Captain Wayne E. Dutton  
VP Industrial Aff.....To Be Elected  
VP Public Aff.....Captain Bobbie L. Rose

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VP Reserve Aff.....Captain John M. Weaver  
VP Industrial Aff.....Major Robert A. Bonifacio  
VP Public Aff.....Captain Robert D. Craig

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Treasurer.....Lt. Colonel William C. Edler  
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VP, ARNG Aff.....Major Erwin M. Mitchell  
VP Reserve Aff.....Captain John W. McKinney  
VP Industrial Aff.....Lt. Col. Carl A. Colozzi  
VP Public Aff.....Major James E. Martin

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VP Industrial Aff.....CWO Robert H. Holt  
VP Public Aff.....Lt. Thomas C. Eidson

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VP Indus Aff.....Captain George E. McCusker  
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VP Reserve Aff.....CWO Lawrence A. Awrey  
VP Industrial Aff.....Captain Norman C. Toso  
VP Public Aff.....Lt. William H. Luther

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VP Industrial Aff.....Mr. Lou Pulver

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VP Indus Aff.....Captain Lewis J. McConnell  
VP Public Aff.....Captain Wallace G. Blaisdell

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Treasurer.....Captain Paul E. Clark  
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VP Industrial Aff.....Major Frederick Dawson  
VP Public Aff.....Captain James O. Poulnot

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Secretary.....Major James H. Merryman  
Treasurer.....Major Thomas R. Smith  
VP Army Aff.....Maj. Raymond G. McLaughlin  
VP ARNG Aff.....Mr. H.H. SchAAF  
VP Reserve Aff.....Captain Francis J. Ripperda  
VP Industrial Aff.....To Be Elected  
VP Public Aff.....Mr. E.L. Storie

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President.....Lt. Colonel James E. Childers  
Exec Vice Pres.....Captain Floyd R. Wirthin  
Secretary.....Captain Hanno F. Welsch, Jr.  
Treasurer.....Captain George R. Giles  
VP Army Aff.....To Be Elected  
VP Industrial Aff.....To Be Elected  
VP Public Aff.....To Be Elected

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VP Industrial Aff.....To Be Elected  
VP Public Aff.....Capt. William W. Brannon, Jr.

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Treasurer.....Mr. Leland Springer  
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VP Industrial Aff.....Mr. Anthony L. Hronick  
VP Public Aff.....Lt. Col. George D. Shonerd, Ret.

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Treasurer.....Lieutenant Werner H. Schmid  
VP Army Aff.....Captain David F. Stoutamire  
VP Indus Aff.....Lieutenant Richard F. Kniss  
VP Public Aff.....Major Jesse J. Atkins

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Treasurer.....CWO David W. Chase  
VP Army Aff.....Lieutenant John D. Adams  
VP Industrial Aff.....To Be Elected  
VP Public Aff.....CWO Warren L. Custis

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Treasurer.....To Be Elected  
VP Army Aff.....Captain John S. McLeod  
VP ARNG Aff.....Major Frank J. Sutor  
VP Reserve Aff.....To Be Elected  
VP Industrial Aff.....Captain Delos A. McCooles  
VP Public Aff.....Captain Hugh C. Cate, Jr.

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VP Industrial Aff.....CWO Franklin E. Pauli  
VP Public Aff.....CWO Alvin Lee, Jr.

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Treasurer.....Captain Loren Webb  
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VP ARNG Aff.....Captain Ray V. Renegar  
VP Industrial Aff.....Captain Frederick Whiting  
VP Public Aff.....CWO Douglas W. Niles

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Exec Vice Pres.....Major Benny E. Edney  
Secretary.....Captain Danny L. Romig  
Treasurer.....SP/6 Lloyd F. Everts  
VP Army Aff.....Captain Thomas J. McAndrew  
VP Reserve Aff.....Not Applicable  
VP Industrial Aff.....To Be Elected  
VP Public Aff.....Captain Glenn A. Bracken

## PIKES PEAK CHAPTER

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## RHINE VALLEY CHAPTER

President.....To Be Elected  
Exec Vice Pres.....To Be Elected  
Secretary.....Major Charles L. Calvert  
Treasurer.....Major Paul A. Dewitt  
VP Army Aff.....Captain August Greyhosky  
VP Indus Aff.....Lt. Col. Charles V. Graft, Jr.  
VP Public Aff.....To Be Elected

## STUTTGART CHAPTER

President.....To Be Elected  
Exec Vice Pres.....Lt. Col. Melvin C. Monroe  
Secretary.....Captain Donald W. Ferguson  
Treasurer.....Captain Asa C. McCranie  
VP Army Aff.....Captain Frank O. Miller  
VP Industrial Aff.....Captain Thomas P. Berry  
VP Public Aff.....CWO James R. Eakins

## USARCARIB CHAPTER

President.....Major William H. Dill  
Exec Vice Pres.....Captain Robert E. Ainslie  
Secretary.....Captain Robert N. Cressy  
Treasurer.....Captain James H. Kitterman  
VP Army Aff.....Major Frank R. Wilson  
VP Reserve Aff.....Captain George E. Derrick  
VP Industrial Aff.....Captain Castle H. Farish  
VP Public Aff.....Major Thomas B. Steward

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President.....Major Lewis E. Casner, Ret.  
Exec Vice Pres.....Miss Billie J. Timm  
Secretary.....Captain Jesse M. Burch, Jr.  
Treasurer.....Major Thomas E. Thompson  
VP Army Aff.....Captain Rudolph D. Descoteau  
VP Reserve Aff.....Major Landon J. Reid  
VP Indus Aff.....Lt. Col. Harry T. Shiveley, Ret.  
VP Public Aff.....Lt. Col. E. Morgan Fox, Ret.

## WERTHEIM CHAPTER

President.....Captain John D. Passano  
Exec Vice Pres.....Capt. William A. Weinbender  
Secretary.....To Be Elected  
Treasurer.....CWO John Ditzler  
VP Army Aff.....Major Harold Dennis  
VP Industrial Aff.....To Be Elected  
VP Public Aff.....Capt. Byron P. Howlett

## 82ND ABN DIV CHAPTER

President.....Lt. Colonel James D. Kidder  
Exec Vice Pres.....Major Roger A. Waterbury  
Secretary.....Captain Robert E. Wilson  
Treasurer.....Lieutenant Donald A. Ostmann  
VP Army Aff.....Major Charles R. Ogle  
VP Reserve Aff.....S/Maj. Carroll R. Laudenklos  
VP Industrial Aff.....To Be Elected  
VP Public Aff.....Lieutenant Jesse S. Kennedy

This Listing of Chapter Executive Board Officers is a partial listing and does not represent the complete AAAA Chapter Activity Structure.



# D.C. CHAPTER HONORS YOUNG SCIENTISTS

Twenty budding young scientists with their minds on aviation were honored by the AAAA at a Washington, D.C. Chapter Luncheon held May 3 at the Army Navy Country Club, Arlington, Va.

Lt. General Dwight E. Beach, Chief, Research & Development, D/A, presented the individual awards to the winning students following an earlier judging of the five general Science Fairs held in the Greater Washington, D.C. area. Lewis N. Casner, President of the Chapter and one of the leading proponents for national participation of AAAA in the Science Fair Program, served as the Master of Ceremonies.

The 1963 Science Fair Project was directed by Anthony L. Rodes of the Washington office of the General Electric Company with Lt. Col. Cloyd V. Taylor of the FAA assisting the General Chairman in coordinating the judging.

Army officers and civilians who devoted their time and interest as judges included: Lt. Col. H.T. Shiveley, Ret.; Col. A.M. Burdette, Jr.; and Maj. E.K. Ball (Washington, D.C. Area); Mr. R.L. Ballard; Col. J.J. Schmidt, Jr.; and Lt. Col. P.F. Mertz (Prince Georges Area); Lt. Col. N.A. Mahone, Jr.; Col. E.L. Powell, Jr.; and Mr. G.W. Fey (Prince William-Fairfax Area); Mr. L.J. Borges; Col. L.W. Leeney; and Mr. W.T. Rockwell (Montgomery Cy Area); and Mr. D.D. Weidhuner; Col. R.L. Long; and Lt. Col. R.L. McDaniel (Arlington-Falls Church Area).

Winners of AAAA Bronze Medallions were Marshall Curtis, Washington, D.C. Area ("Effects of Configuration on Air-

craft Control"); Terry Dawson, Prince Georges Area ("The Devil on a Leash"); Jon David Weston, Montgomery County Area ("Aerodynamic Drag on Geometric Objects"); and Wesley J. Pouliot, Arlington-Falls Church Area ("The Autogyro").

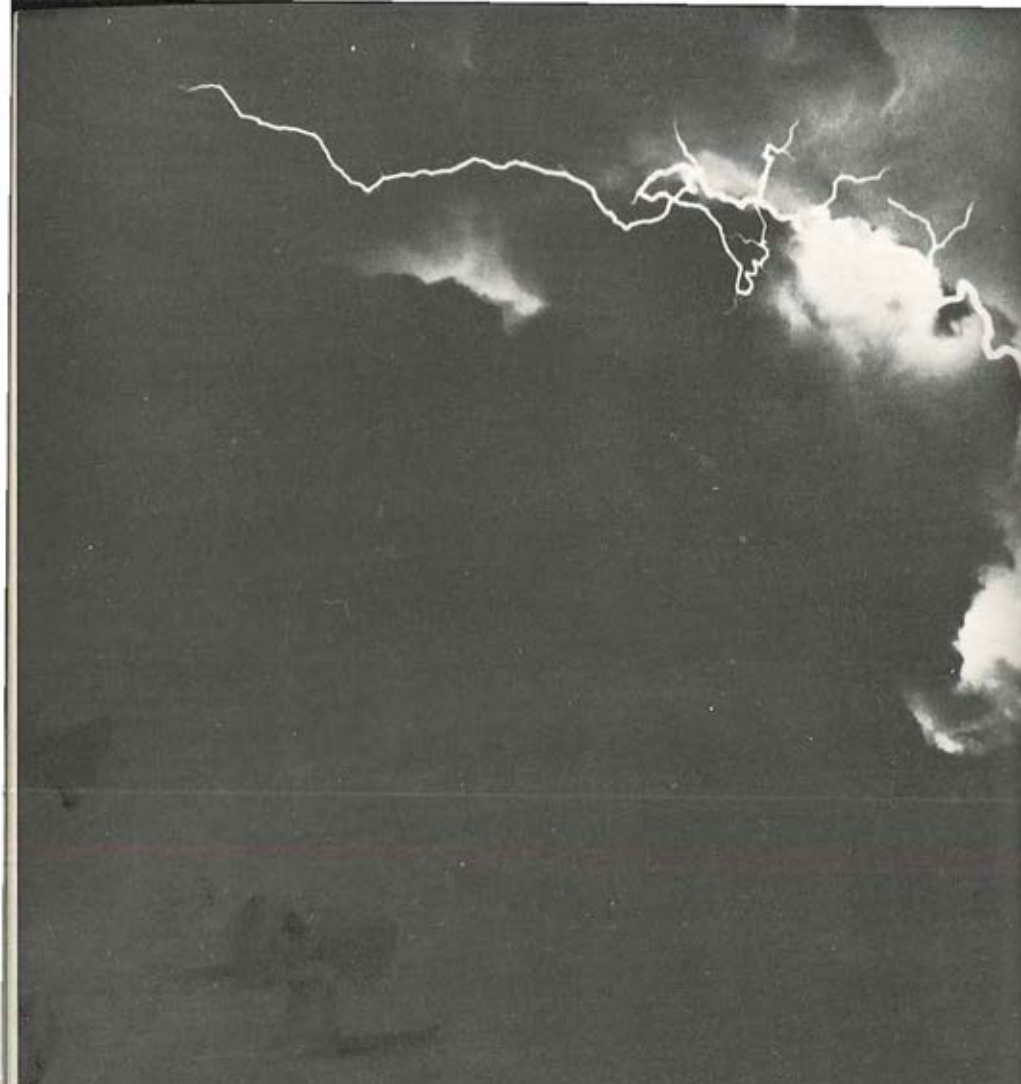
Junior scientists receiving AAAA Certificates of Achievement included Mary K. Skillman and John A. Bunce, Prince Georges Area; Gay Arnold and Curtis Witters, Arlington-Falls Church Area; Heath Warren and Milton Friedman of the Washington, D.C. Area; and Bruce I. Wilkie, Joel Breger, and Walter L. Hagen of the Montgomery County Area.

## COLONELS BURDETT, POWELL APPOINTED TO NAT'L BOARD



Col. Allen M. Burdett, Jr., above, Office of the Assistant Secretary of the Army (R&D), and Col. Edwin L. Powell, Jr., Military Assistant to the Director of Defense Research & Engineering for Combat Systems, OSD, were appointed to the National Executive Board of AAAA as "National Members-at-Large" by President James N. Davis on 3 May 1963. They join Lt. Col. E. Morgan Fox, Ret. (Civilian Member), Brig. Gen. Delk M. Oden, and Brig. Gen. Robert R. Williams to complete the 5 "National Member-at-Large" posts authorized by the By-Laws of AAAA.

**Do YOU qualify for an AAAA National Award?  
Does YOUR CREW CHIEF? Does YOUR UNIT?  
Write AAAA, Westport, Conn. for "Award Blanks."  
Suspense Date: June 30, 1963**



## Now Hercules does something about the weather

There seems to be no end to the versatility of the C-130 Hercules airlifter. Now the giant propjet transport is a weatherbird, too.

High altitude weather reporting is rapidly assuming a new strategic significance. Last-minute reports of the weather along the route of an airborne task force or of the cloud cover above the target of an amphibious assault can add immeasurably to the nation's ability to contain brush-fire wars on a world-wide basis. To meet this need, the Air

Weather Service of Military Air Transport Service is now operating five WC-130s — the new weatherbird version.

All in all, there are 500 C-130 Hercules in sixteen different versions operating throughout the free world. Most of them are in service with the United States Air Force. Others fly for the U. S. Navy, Marine Corps, and Coast Guard. Still more are in service with the air forces of Australia, Canada, and Indonesia. In addition to military airlift missions, the Hercules is a bird of peace that brings



food and medicine to hungry and homeless people all over the world when disaster strikes. Ski-equipped C-130s support the scientists in Operation Deep Freeze at the South Pole. The list goes on and on and so does the C-130 production line at Lockheed-Georgia. Production will continue simultaneously with the new turbo-fan C-141 StarLifter for years to come at the giant Marietta airlift manufacturing center.

## C-130 Hercules



LOCKHEED-GEORGIA COMPANY • Marietta, Georgia, A division of Lockheed Aircraft Corporation

# AAAA IN PHOTOS

APRIL-MAY, 1963



■ Top Left: Science Awards Medal Winner Marshall Curtis receives AAAA Medal from Lt. Gen. Dwight E. Beach, Chief, OCRD. Center Left: Wesley J. Pouliot, Medal Winner from the Arlington-Falls Church Area, stands for his "Head Table" introduction by D.C. Chapter President Lewis N. Casner. Bottom Left: Col. Allen M. Burdett, Jr., a Washington Area Judge, chats with Mary K. Skillman, Honorable Mention Awardee, as Mrs. Mary McCarthey, her teacher, looks on. Top Right: The Washington, D.C. Chapter Science Awards winners gather for a formal group photograph upon the conclusion of the 1963 Science Awards Luncheon at the Army-Navy Country Club in Arlington, Va. In the rear row among the youngsters are, left to right, Head Table Dignitaries Dr. Nicholas E. Golovin, Dr. Theodore W. Lashof, Lt. Gen. Dwight E. Beach, Anthony L. Rodes (Chairman of the Washington, D.C. Chapter Science Awards Project), Dr. Finn J. Larsen, Brig. Gen. O. Glenn Goodhand, and Col. Robert H. Schulz. Bottom Right: General Beach addresses the luncheon attendees prior to presenting the individual awards to the 1963 Science Fair winners. ■■

# NEW MEMBERS JOINING AAAA

- Mr. Roy M. Acker  
Mr. Irvin F. Amsinger  
Mr. Robert A. Andrews  
Captain Richard C. Anglin  
WOC David L. Ankerberg  
Mr. John H. Argus  
Cdr. John G. Armstrong  
SP/6 Brian R. Arsenaull  
Mr. Kenneth W. Auck  
Lieutenant Kent G. Averett  
Captain James F. Avey  
Mr. Wm. J. Balerschmitt  
Lieutenant Gary G. Bailey  
Mr. Hillard C. Bailey  
Mr. W. Baillie  
Mr. E. Baisley  
CWO Franklin Baldwin  
SP/5 William G. Baldwin  
Lt. Charles J. Banks  
Captain Wayne E. Barker  
Lt. Willard L. Barker  
Miss Mildred L. Barton  
Mr. H.W. Bauman  
Lt. John R. Baumgarten  
Lt. Charles W. Beaman  
WOC John W. Beardsley  
Mr. T.H. Beck  
Colonel W.A. Becker  
Major Ralph O. Benefield  
Mr. J. Bergstrom  
Mr. S. Berliner  
Miss Mary A. Biagioli  
Mr. William Bickham  
Mr. W.R. Bitcheno  
CWO Jay D. Blom  
Miss Connie M. Boechieri  
Mr. S.O. Bogue  
Lt. Dennis M. Boland  
Mr. J.L. Bolton  
WOC Frank Bonn, Jr.  
Lt. Warren E. Bouvier  
Mr. Lewis G. Bouwman  
Lt. Col. Leslie C. Boyd, Ret.  
Mr. Robert E. Bracken  
Mr. Robert C. Brennan  
WOC Jos. R. Brigham, Jr.  
Mr. David I. Brink  
Major Robert E. Brizee  
Miss Jame M. Brodtrick  
Mr. Robert Brogan  
Mr. Thomas A. Brooks  
Lt. Claude A. Broussard  
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# AAAA IN PHOTOS

APRIL-MAY, 1963



■ Top Left: New AA Center (Ft. Rucker) Chapter officers are, left to right, Wally H. Martin (VP, Pub Aff), Maj. Willie F. Dixon (VP, Army Aff), Col. Edward McMaken (Pres), and Capt. Charles E. Parker (Trea). Bottom Left: Fulda (Germany) Chapter officers for '63 are, l-r, Capt. George McCusker (VP, Indus Aff), Capt. William Geer (Sec), Capt. George Murry (ExVP), Maj. Lucien Benton (Pres), Capt. Leman Busby (Trea), and Capt. Orous Ellis (VP, Army Aff). Top Right: Newly-appointed National Executive Board Member-at-Large, Col. Edwin L. Powell, Jr. Center Right: Col. James V. Galloway, CO of the 14th Armd Cav Regt (Germany) is shown presenting the AAAA Bronze Medallion to Capt. James Griffen (left) for his outstanding contributions to Army aviation. The ceremony took place at a recent Fulda (Germany) Chapter meeting. Bottom Right: Capt. David H. Johnson (right), Class Leader of OFWAC 63-6, is shown receiving a "Class Membership Incentive Refund Check" from Lt. Col. Russ Blair, Ret., AA Center Chapter Executive Vice President, as Col. Warren R. Williams, Jr., (left), past President of the Chapter, looks on. ■■



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