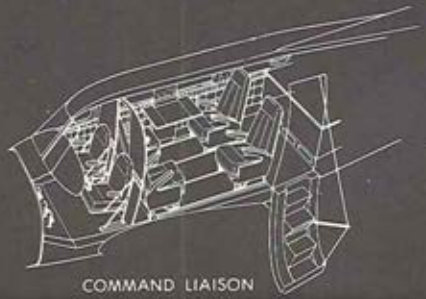
ARMY AVIATION

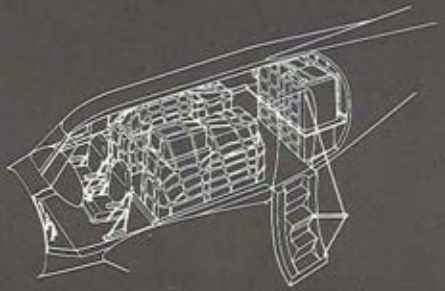
JUNE ★ 1960

Air Mobility

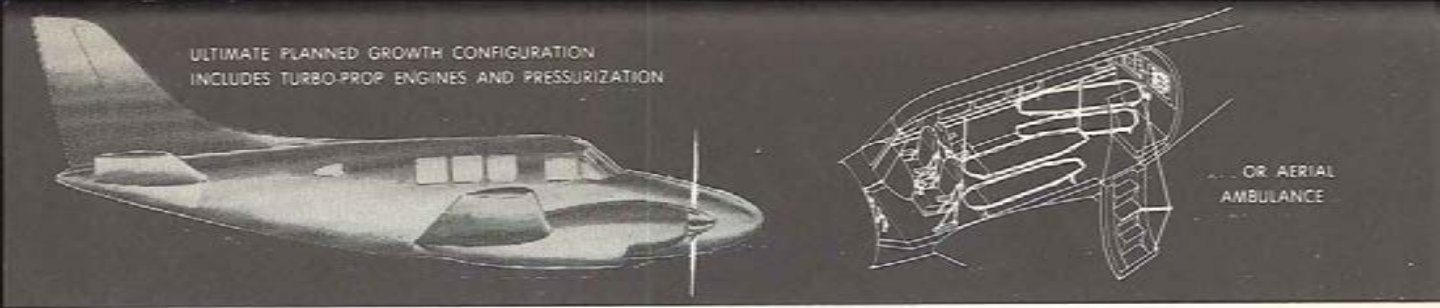
POTENTIAL FOR
FUTURE DEVELOPMENT
ALREADY DESIGNED IN



COMMAND LIAISON
TRANSPORT



CONVERTS QUICKLY
FOR HIGH-PRIORITY
CARGO



The new Beechcraft L-23F . . .

Meeting the U. S. Army's requirement for a modern high-performance, low-cost transportation system

Already serving the U. S. Army, the versatile new Beechcraft L-23F is the latest in a long line of high-performance training and utility aircraft which Beech Aircraft Corporation has designed, developed and produced for the military services since 1932.

With supercharged fuel injection engines, the L-23F combines high altitude cruise power with exceptional short field performance, rugged durability and low operating costs to meet a wide range of needs . . . as a command liaison or personnel transport, a carrier of high-priority cargo, an aerial ambulance, or a multi-engine instrument trainer with a "big plane" feel. Designed and engineered for future pressurization and turbo-prop modification.

Beech Aerospace Division

BEECH AIRCRAFT CORPORATION • WICHITA 1, KANSAS.

Beech Aerospace Division projects include R&D on manned aircraft; missile target and reconnaissance systems; complete missile systems; electronic guidance systems; programs pertaining to liquid hydrogen propellants and cryogenic tankage systems; environmental testing of missile systems and components; and GSE. May we help you? Write, wire, or phone Contract Administrator, Beech Aircraft Corp., Wichita 1, Kansas—or nearest Area Office.

ARMY AVIATION MAGAZINE
Volume 8 — Number 6
June 30, 1960

BRIEFS

LEICH

WILLIAMS

EXTENSION

■ **Heeding the request of unit commanders, industry officials, and individual AAAA members, *Col. Robert M. Leich* (left, above), Chairman of the *National Awards Committee, AAAA*, has extended the Committee deadline for the submission of nominations for AAAA Awards to July 15, 1960. Submission details are found on page 336.**

TURNOUT

■ Encouraged by a widespread response to last month's clip-out coupon, *Annual Meeting Chairman Col. Robert R. Williams* (right, above) expects the '60 Meeting to eclipse '59 in attendance. Returns from military and industry members throughout the U.S. have been heavy and indicate *"a big turnout."*

ADDITION

■ ***Electronics*, a vital facet of the month-to-month Army aviation story, will be covered in future issues in a new section of the magazine. Through coordination with the *Office of the Chief Signal Officer*, Signal Corps authorities are being invited to submit articles on current topics of professional interest to all AA readers.**

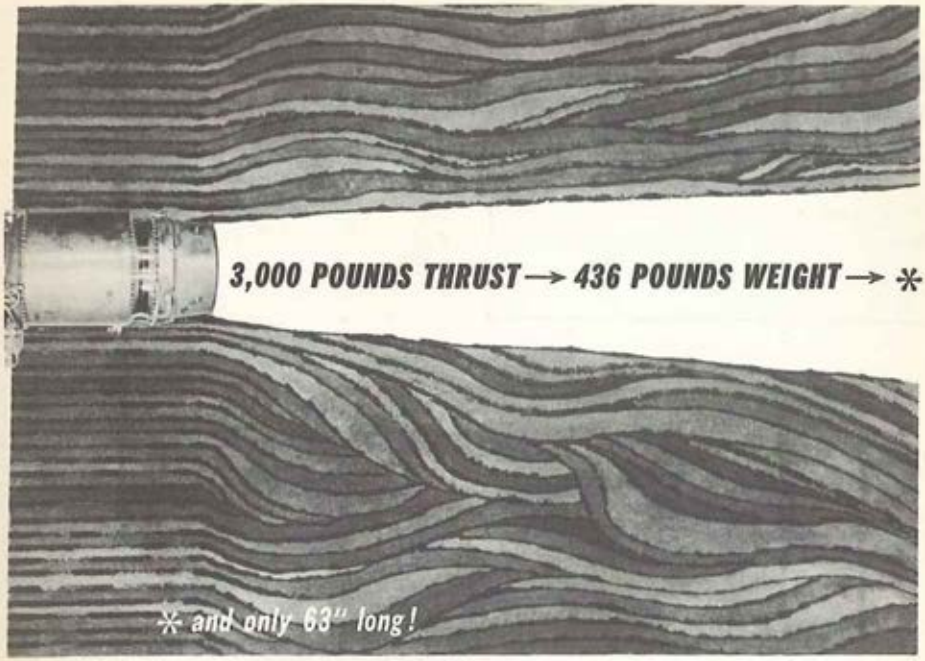
POCKETBOOK

■ The *"Equipment Issue"*—from Cub to Caribou—first mentioned in the April issue received its official *"concept clearance"* and has an August-September publication date. This issue, an historical pocketbook of hardware during the '42-'60 period, is intended to serve as a handy reference tool for AA's 6,600 readers.

CHANGEOVER

■ **With the departure of *Col. Warren R. Williams* for USAAVNS, *Maj. Kenneth D. Mertel* of the Operations Division, Headquarters, USAREUR, assumes the authorship of the *USAREUR Report* series. His first Army-wide report appears on page 297.**

"ARMY AVIATION IS PUBLISHED MONTHLY BY ARMY AVIATION PUBLICATIONS, 1 CRESTWOOD ROAD, WESTPORT, CONN. PHONE, CAPITAL 7-8266. SUBSCRIPTION: US, APO, AND US POSSESSIONS, $3.50 PER YEAR; ALL OTHER COUNTRIES ADD $0.75 PER YEAR FOR POSTAGE. INCLUDED AS A PART OF AAAA MEMBERSHIP. DISPLAY RATES ARE LISTED IN SRDS, BUSINESS PUBLICATIONS, CLASSIFICATION 88-A. SECOND CLASS POSTAGE PAID AT WESTPORT, CONN. AND NEW YORK, N.Y.



New Pratt & Whitney Aircraft JT12 jet engine is built around proven design concepts for high thrust to weight ratio, ruggedness, reliability and low maintenance.

The JT12 delivers heavyweight thrust in comparison to the light weight of the engine itself. At maximum cruising speed the thrust specific fuel consumption is only .890. A new jet engine designed on a proven principle, the JT12 is an axial-flow, medium-pressure-ratio turbojet. Behind the JT12 stands all the research, manufacturing and testing facilities that produced the renowned Pratt & Whitney Aircraft J-57 and J-75 designs—the new standards of aircraft engine reliability in commercial jet transportation. Because of the sound basic design of the JT12 and its relatively simple construction, it's an outstandingly reliable and easily maintained engine. The JT12 now powers such aircraft as the Lockheed JetStar transport, the North American Sabreliner and the Canadair CL-41 military trainers, and two U. S. Army drones. Today, the JT12 is establishing new flight performance records of its own.

PRATT & WHITNEY AIRCRAFT
East Hartford, Connecticut
A DIVISION OF UNITED AIRCRAFT CORPORATION

Chinook PROGRESS

COMPONENT TESTS

VERTICAL HINGE FATIGUE

The Chinook vertical hinge assembly has been subjected to 10,000,000 cycles of fatigue loading. This testing under simulated flight loads is equivalent to 775 flight hours. Tests are continuing at increased loadings to verify computed ultimate fatigue strength.

BLADE ELEMENT FATIGUE

A Chinook blade spar specimen with bonded nose cap is being subjected to fatigue testing under simulated flight bending moments and centrifugal loads. The specimen will be subjected to 10,000,000 cycles of simulated flight loading, after which loading will be increased for additional test runs to vertify computed ultimate fatigue strength.

HYDRA

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HINGE BEARING ENDURANCE

In this test Chinook horizontal hinge bearings are being subjected to simulated flight loads and oscillating motion at rotor speed, covering the complete spectrum of aircraft flight conditions.

NOTE: The subjects pictured here are representative of many other Chinook component tests that are in progress.

SUMMARY

June, 1960

ARE PROGRESSING

PHOTOELASTIC STRESS ANALYSIS

By subjecting clear plastic scale models of the Chinook rotor hub to simulated flight loads, areas of stress concentration were determined by examination under polarized light. Such examination permitted refinement of actual hub design for minimum stress concentration and weight.

ULIC ACTUATOR

ype of the dual upper control has been subjected to simulated gue loads while actuator motion edly cycled. After 100 hours of is testing without failure, the has been removed for detailed ion. Tests of greater duration onducted to evaluate seal life bstantiation of fatigue strength.

CHEMICAL BLADE DE-ICING DEVELOPMENT

By whirl testing an H-38 rotor system, de-icing fluid flow patterns are being investigated at various combinations of de-icing fluid viscosity and flow rate, rotor rpm and pitch settings. Findings will permit optimization of blade de-icing system for Chinook.

VERTOL DIVISION BOEING

MORTON PENNSYLVANIA

INSTRUMENT PICTURE FOR THE MOHAWK

Army Mohawk pilots can fly the true picture, whether instrument or contact, with Collins Integrated Flight System. The natural forward view of flight (top) combined with computed steering direction allows precise attitude control and simplified navigational course following. The map-like presentation of the lower instrument presents the complete navigational situation at a glance.

Already proven on the world's airlines, business and military aircraft, the Collins FD-105 saves important panel space in the Mohawk by incorporating the information previously displayed on four instruments into only two internally lighted, easily interpreted presentations.

Collins FD-105 is a "now in production" system involving no time and fund consuming development for the Army — another example of how advanced planning and analysis of existing systems is paying off in improved electronic systems for Army aircraft.

Write Army Aviation Products, Collins Radio Company, Cedar Rapids, Iowa, for additional information about the Collins FD-105 and other advanced communication, navigation and flight control systems for Army aircraft.

COLLINS

COLLINS RADIO COMPANY

CEDAR RAPIDS • DALLAS • BURBANK

LET'S MEET AT AAAA

By
Brig. Gen. Clifton F. von Kann
Director of Army Aviation
ODCSOPS

Dear Army Aviator,

May I again urge every aviator who has the opportunity to plan to attend the *Annual AAAA Meeting*, 7-8 August. Via the grapevine I hear that the program committee is making every effort in insure that this year's affair will be particularly significant.

One of the highlights of this event will be the *AAAA Honors Luncheon*, 8 August. At this luncheon three major awards will be presented:

JAMES H. McCLELLAN SAFETY AWARD — "Sponsored by the many friends of Senator John L. McClellan in memory of his son, James H. McClellan; will be awarded to a person who has made an outstanding contribution to Army aviation in FY 1959. James H. McClellan was a former Army Aviator who was killed in an aviation accident in 1958."

AWARD FOR THE ARMY AVIATOR OF 1959 — "Sponsored by the AAAA; will be awarded to an Army Aviator who has made an outstanding contribution to U.S. Army Aviation in FY 1959."

OUTSTANDING AVIATION UNIT AWARD — "For the Aviation Unit that has, as an organized unit effort, demonstrated an outstanding capability of employment of aircraft in furtherance of the Army mission."

I hope every commander who is contacted for nominations will give the maximum emphasis to the importance of these awards as they represent one of the best means of recognizing our outstanding aviators and aviation units within the professional circles. I know the *Awards Committee* will have a very difficult time making their final selections (and, personally, I am glad to be on the sidelines of these decisions).

Recent developments have emphasized the need of aviation units in the field for instructional material which is available from the Aviation School. Two

of these new requirements which will particularly affect aviation personnel, and further increase the need for unit training, are the recent changes in the aviation maintenance MOS structure and the fact that *all* aviators will take the instrument version of the 1961 Annual Written Examination.

Both programs will necessitate considerable local training and review to insure adequate preparation for the forthcoming *MOS Proficiency Tests* for maintenance personnel, and for the instrument flight ramifications of the annual exam next year.

An important aid in preparing classes in these areas is the *Master Lesson Plan system* which is in operation at the Aviation School. These *Master Lesson Plans* cover a complete block of resident instruction and include a lesson outline, full content manuscript, copies of all student handouts, and a photographic reproduction of each training aid used in the class.

A point which I should note here is that these publications were originally called *Vault Files*, but the title has been changed to make it a little more descriptive than previously. The School publishes a catalog listing this material which is revised monthly, and is sent to major commands, MAAG's, Missions, other service schools, and aviation units which have expressed a desire to receive it.

However, there is an excellent chance that all interested agencies are not included on the mailing list simply because they don't know that the catalog exists. If you are in this category, and would like to receive the catalog, drop a line to the School and they will be glad to add your unit to the list.

One gratuitous copy of each applicable *Master Lesson Plan* can be furnished organizations having a legitimate requirement for the material. Additional copies can also be purchased from the *Book Department* at the Aviation School for a nominal fee. I strongly suggest that all commanders seriously consider utilization of this excellent aid to your unit training program.

Col. John J. Tolson (right), Deputy Director of Army Aviation, ODCSOPS, chats with an active helicopter pilot, Maj. Gen. Normando A. Costello, ACofS, Hq, USARPAC, during his recent visit to activities in Korea and Hawaii. (U.S. Army photo).

Failure of responsible individuals to comply with the provisions of *AR 95-14* recently has been the cause of embarrassment to the Army. It seems that other agencies, such as the U.S. Air Force/U.S. Navy Aeronautical Chart and Information Center, are receiving notices of changes to Army airfield equipment or services, and upon attempting to verify the notices, are finding that the Army, specifically the *U.S. Army Aviation Flight Information Office (USAAFIO)* has no knowledge of the changes involved.

A number of Army facilities at this time may not warrant a direct teletypewriter line for *NOTAMS* but the Army's regular teletypewriter system is available for transmitting *NOTAMS* to *USAAFIO*. This is in addition to notifying (1) the *nearest Federal Aviation Agency Flight Service Station* and, (2) the *nearest Military Flight Service Center*.

When a *NOTAM* is sent to *USAAFIO*, it is put into the *Army Aviation Flight Information Digest* for distribution to all Army air operations offices. The *Digest* also goes to other flight publication agencies (Federal Aviation Agency; Coast and Geodetic Survey; Air Force/Navy) and is the official vehicle for recording changes in

XVIII ABN. CORPS

4TH INF. DIV.

82ND ABN. DIV.

101ST ABN. DIV.

BELL "IROQUOIS" JOINS FAMED STRAC DIVISIONS*

*The turbine-powered "Iroquois" offers commanders and field forces bold new tactical advantages. Assault divisions, their missile, medical, and signal-support units have received production-line HU-1A's in quantity.

FEATURES OF BELL **HU-1A** . . PROVED IN THE FIELD BY **STRAC**

- ***Air Transportability*** – *loading and movement operations in C-124, C-130 and C-133 aircraft.*
- ***Tactical Troop-Lift Tests*** – *up to nine fully-equipped men.*
- ***External Cargo Carry*** – *up to 2,700 pounds (standard Army jeep).*
- ***Medical Evacuation*** – *including actual emergencies, day and night.*
- ***Air-Mobile Command Post*** – *places commander at the point of decision.*
- ***Minimum Helicopter Maintenance*** – *high availability, proved in testing, upheld in field.*

For operational turbine-powered firsts, look to **BELL** HELICOPTER CORP.

Fort Worth, Texas Subsidiary of Bell Aircraft Corporation . . in its 25th year

Army aviation facilities. These agencies do not accept Army data for their publications *until* it has been verified through this media *or* by direct contact with USAAFIO Air Navigation Specialist.

Every competent aviator needs and wants to know the status of all aviation facilities he intends to use. Distribution of flight operational data in suitable form to satisfy this need is accomplished by the joint effort and coordination of all interested and responsible civil and military agencies. The Army derives full benefit of the results of this joint effort and obviously should contribute its share. This can be done only when those who are responsible for preparing and forwarding Army NOTAMS fully recognize and accept this responsibility.

Last month we gave a word of caution on *thunderstorm activity* and today the local weather people astounded me with the fact that there are nearly 44,000 thunderstorms daily around the world. The reason I was astounded was that the other night on an attempted flight to Buffalo, New York, *Col. Lyle Wright* and I thought we counted at least that number just along our flight path.

There is always a temptation to follow the example of the commercial airlines and file IFR through areas of thunderstorm activity, but remember their ability to do this depends on their airborne radar. Night time has the additional hazard of inadvertent penetration of a thunderhead before one realizes it. A careful weather briefing and attention to pilot reports is the best preparation for flights where thunderstorms are a possibility.

Another hot weather consideration is *density altitude.* The load you start with this morning may be the straw that breaks the back by noon. Close attention to the -1 is essential. Freezing temperature is not the only prerequisite to being "snowed."

Hope to see you at the AAAA Meeting!

Sincerely,
CLIFTON F. VON KANN
Brigadier General, GS
Director of Army Aviation, ODCSOPS

Many Units Join in Summit Airlift

Supporting the President of the United States and his party during the recent ill-fated Summit Conference in Paris, U.S. Army helicopter crews from four widely separated areas joined forces to provide rapid, high-level airlift transportation.

Two helicopters from the Executive Flight Detachment, Military District of Washington, along with a third which was dispatched to Lisbon, Portugal, to await the President there on his arrival after the Summit Conference, made history when they were shipped from Norfolk, Va., to Rota, Spain, above deck on an attack craft.

Three choppers were tied down to hatches and mantled in special protective covers as they were brought overseas on the USS Alcor, this shipment marking the first instance wherein helicopters have been transported over the ocean above deck.

The specially equipped presidential aircraft were joined in the support mission by an H-34 from the USAREUR Flight Detachment at Heidelberg, two Choctaws from SETAF's 202nd Transportation Company at Verona, Italy; and three standard H-34's from the 8th Transportation Battalion at Munich.

BY
Major General
Ernest F.
Easterbrook
COMMANDING GENERAL
U.S. ARMY AVIATION
CENTER

USAAC REPORT

. . . 8,000 aircraft planned for future

The announcement that the Army plans by 1970 to increase our operational aircraft from 5,500 to 8,000 is of profound interest to Army aviators.

This increase in aircraft together with a reduction in number of aircraft by type from 15 to 7 were reported in May by *Lt. Gen. John C. Oakes,* Deputy Chief of Staff for Military Operations, to the *Aviation Writers Association* in Los Angeles.

With fewer aircraft types to operate and to maintain, real progress will be made in the areas of training, development of proficiency, maintenance, supply of parts, aircraft availability, and utilization.

A cycle of problems in these areas accompanies each new aircraft type when it is adopted. Stated simply, the tasks are to master the machine and to maintain it in order to use it in the most effective ways for the supported comanders. Thus, proficiency as pilots and ability as officers are mandatory.

In Army aviation today, we must stand ready for such operations as may be assigned. But our preparedness must also reach beyond the ability to move in travelled paths. Any future campaign will no doubt place a premium on imaginative tactics, spontaneous techniques, and resourceful leadership. With continued ingenuity and initiative, the present and future strengths of Army aviation will afford a supporting force far out of proportion to its numbers.

ol. Glenn Goodhand, (now on PCS) Deputy President of the *U.S. Army Aviation Board,* recently encouraged a graduating class of pilots here to keep abreast of new developments in aircraft and equipment as they pursue their careers.

As *Col. Goodhand* said, it is easy to "get away" from the intimate relationship with aviation as officers attain seniority, receive promotions, and assume more responsibilities which seem—at the time—to outweigh their motivation for aviation accomplishment. In this light, the selection should be not the one or the other but the satisfactory blending of attention to both areas of duty.

In every senior officer's life, there is necessarily much history. Whether it is predominately in aviation or in the combat arms or in the technical services or perhaps even an invaluable combination, his history can serve as a reflective basis for evaluation of the present and for projecting into the future. His contributions can be meaningful.

LEFT: Capt. George Thayer, commander of the U.S. Army Surveillance and Target Acquisition Platoon (Experimental), presents Governor John Patterson of Alabama with an aerial photo of the state capitol taken from a Mohawk aircrcaft. Gov. Patterson accepted the photo and promptly requested three more for the House and Senate Chambers. RIGHT: Col. Delk Oden (r.), Assistant Commandant of the Army Aviation School, and Lt. Col. Gordon Corgould, Deputy Commandant of the Canadian Joint Air Training Center, inspect an honor guard of Army, Navy, and Air Force personnel stationed at the Rivers Camp, Manitoba, Canada.

Perhaps we should look around and give due appreciation for the many efforts of our fine enlisted men. All good commanders know that proper recognition of a soldier's faithful service is a part of the pay justly due him.

Recently at Fort Rucker *PFC Thomas C. Martin*, assigned to the *U.S. Army Aviation Board for Aviation Accident Research* developed "break-away" fuel tanks for the H-13 aircraft. Working under the direction of *Col. James F. Wells* in furtherance of safety measures to give greater protection to our aviators, *PFC Martin* designed and installed new tank mounts which cause the fiberglass crash resistant fuel tanks to leave the aircraft forward and outward (away from the engine and exhaust of an H-13) during impact of 4½ Gs or greater. With quick disconnecting fittings provided, the fuel flow in the lines to the engine will stop immediately as the tanks break away.

The *Mohawk* created the expected intense interest when it visited the *Army Aviation Center* for two days following its appearance at *Project MAN* at Fort Benning. The visit was arranged by *Lt. Col. Gerald H. Shea*, the commander of the *Transportation Aircraft Test and Support Activity* at fort Rucker.

The orientation for the officers of the *Army Aviation Board* and the *Army Aviation School* and *Center* included a flight demonstration and orientation rides for key officers who will be testing it and providing transition instruction in the *Aviation School.*

An impressive airplane and one for an imposing function, the *Mohawk* represents the beginning of a new era in the use of advanced technological equipment for reconnaissance and target acquisition by Army aviation. The *Mohawk* is a far cry from the L-4, which provided aerial OPs in World War II. Professional technicians in equipment and in tactical techniques must now be trained to employ it. The L-4 pilots' skills and courage served us well in World War II. Now we must extend those skills and retain their courage.

The initial tests of the *Mohawk* at Fort Rucker will be conducted by *Col. Jack L. Marinelli* and his staff at the *Army Aviation Board.* Tactical testing for development of doctrine and techniques will be performed by *Capt. George E. Thayer's*

NEW LIGHT ON RELIABLE DRIVE SYSTEMS

Go potential and grow potential, basically, are what make the Army's ***H-23D's*** *entire drive system a valuable investment in helicopter technology and production.*

GO*—the entire system is rated for 1,000 hour life between major overhauls by both the U. S. Army and the Bureau of Aeronautics. Army H-23D Ravens, currently logging more than 7,000 hours per month at Camp Wolters, alone, are the first light helicopters ever to receive such confidence of the Military.*

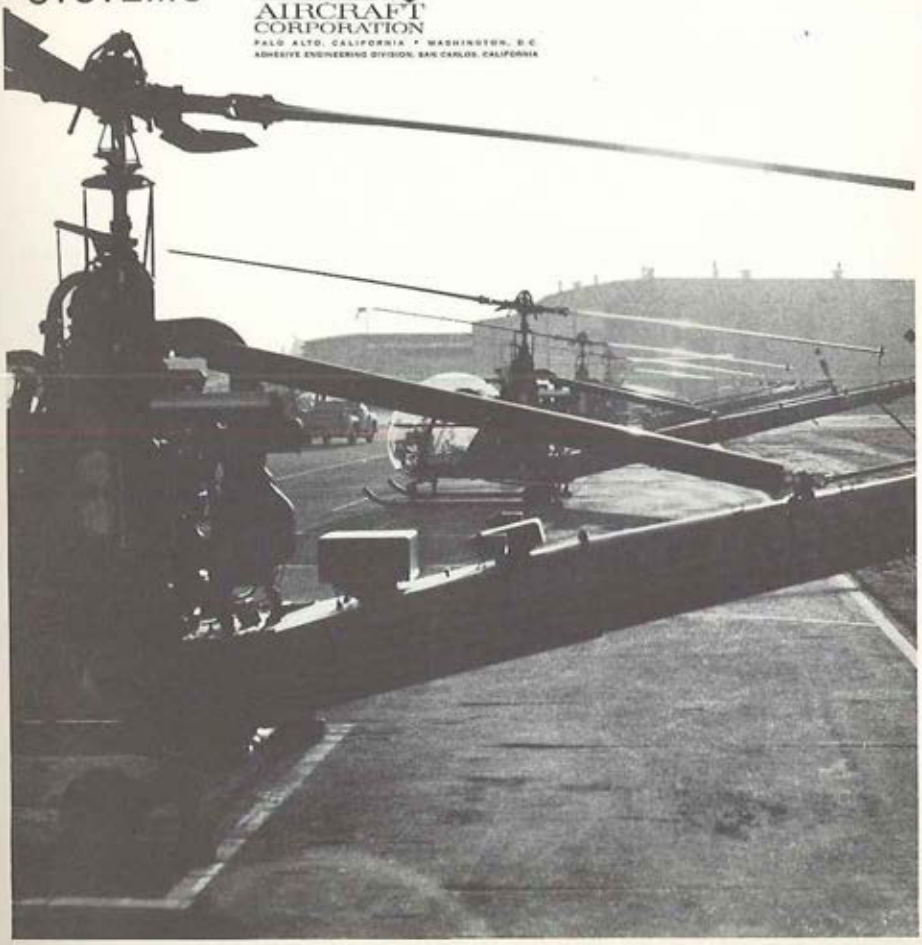
GROW*—because the H-23D's drive system is presently loafing, the limits of its growth and development lie in helicopters yet to come—helicopters that will bring even further economies of production, integration and operation.*

Designs are one thing. Deliveries another. Both come from

HILLER AIRCRAFT CORPORATION

PALO ALTO, CALIFORNIA • WASHINGTON, D.C.

ADHESIVE ENGINEERING DIVISION, SAN CARLOS, CALIFORNIA



Awarded the Sixth Army Flying Safety Award for a year of accident-free operations, the Aviation Detachment, Dugway Proving Ground, Utah, is shown in a group photo. L-R: Col. S. G. Fries, Deputy Post Comdr; Capt. H. N. Roach, Chief, AA Branch; Capt. C. B. Smith, Exec; 1/Lt. C. F. De Amaral; CWO A. H. Hill, and Maj. T. J. Bembry. Capt. E. B. Bookman was absent at the time of the photo: (U.S. Army photo).

U.S. Army Surveillance and Target Acquisition Platoon under the supervision of *Lt. Col. John W. Oswalt*, Director of the *Combat Developments Office*, Army Aviation School.

While attending the Chemical Warfare Weapons Orientation Course at Dugway Proving Ground, Utah, it was my pleasure to inspect the *Aviation Detachment*. This top-notch unit, composed of alert and competent aviators, is commanded by *Capt. N. H. Roach*. The unit received the *Sixth Army Flying Safety Award* for one year of accident-free operations. This was a truly splendid achievement in view of extensive flying at high elevation with the various inclement weather conditions there. Though a small detachment, it is doing a magnificent job in supporting the Chemical Corps at Dugway.

Col. Delk M. Oden, Assistant Commandant of the Army Aviation School, recently visited the *Canadian Joint Air Training Center* at Rivers, Manitoba, to participate in graduation exercises and to award wings to newly commissioned aviators. The Canadian training program is unique in that pilots of the Canadian Army, Navy, and Air Force receive the same basic course in the L-19.

Maj. Sam Pinkerton, the Canadian Liaison Officer at Fort Rucker, and *Maj. R. G. Culbertson*, of the Department of Advanced Fixed Wing Training, accompanied *Col. Oden*.

ERNEST F. EASTERBROOK
Major General, GS
Commanding General
U.S. Army Aviation Center

Army Crews Set Cross-Country Record

■ *Two H-34 Choctaws of the U.S. Army Transportation Environmental Operations Group recently completed a flight from Thule AFB to Camp George Cohn, a distance of 650 miles, the feat believed to be the first crossing of the Greenland Ice Cap by Army helicopters. CWOs Michael J. Madden, Michael V. Mayville, Ulysses Morton, and David H. Lindsey were the record-making pilots.*

By Captain Frederick B. Weller

USAREUR COMPETITIONS

A highly-successful Army aviation field meet and banquet, which brought over five hundred aviators, wives, and guests together, was held on the 4th of June in Heidelberg, Germany. The occasion marked the eighteenth anniversary of the year in which Army aircraft took their places alongside the howitzers, rifles, and bayonets on the equipment tables of the U.S. Army Ground Forces.

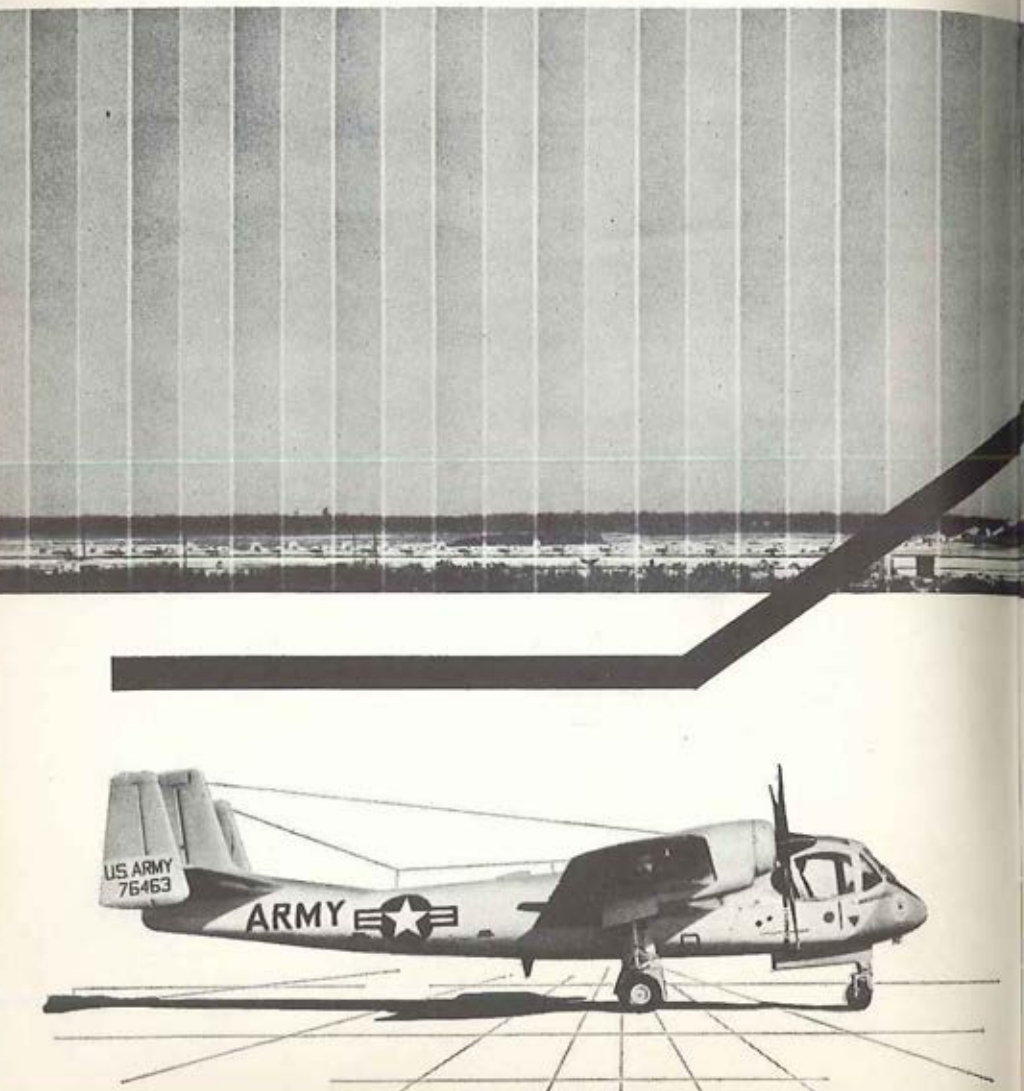
A crowd of several thousand gathered at Heidelberg AAF to watch Army pilots from all sections of Europe compete for winner places in spot-autorotations, sling load pick-up and transport, engine quick-changes, barrier landings, helicopter precision flying, and cross-country navigation. The *Competition*, which began at two in the afternoon and ended at five o'clock, was followed by a Banquet that evening in the huge ballroom of the Heidelberg Officers Club.

Lt. Col. Richard L. Long, CO of the 54th Trans Bn, narrated the three-hour affair, with the help of one of the airfield's civilian controllers, *Mr. Sueske*, who served as translator for the thousands of German guests who came to the meet from surrounding communities. Through prior coordination with the German press, the public was invited to witness the *Competition* through the local newspapers.

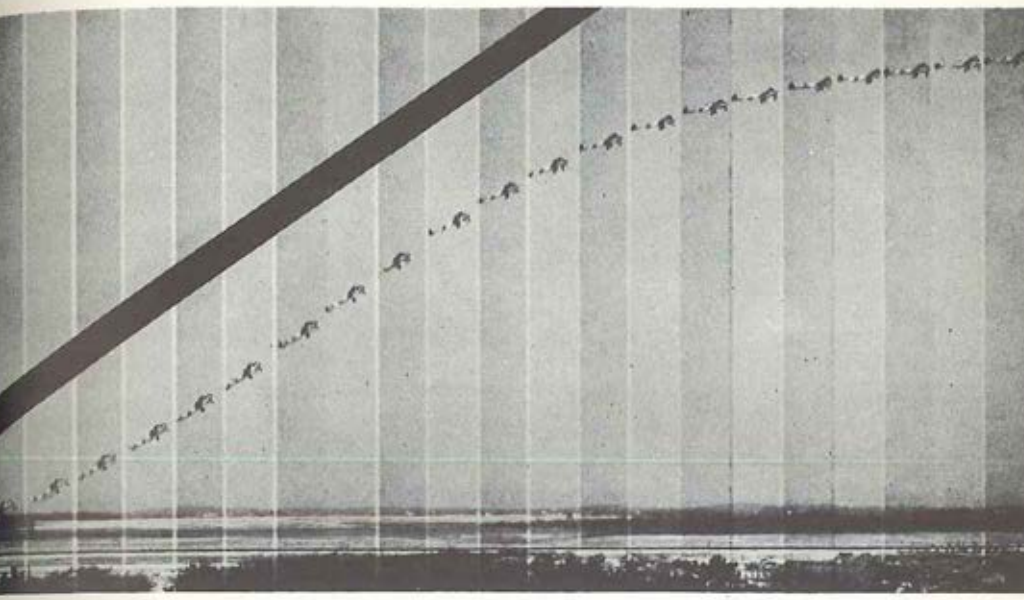
The idea and outline of the Competition was formulated by *Col. Robert B. Neely*, Logistics Division, USAREUR. His enthusiasm for the project was evident in '58-'59; his long-term efforts culminating in a highly-successful *Competition* just prior to his new assignment at Ft. Eustis, Va.

At the Banquet, Master-of-Ceremonies *Col. Warren R. Williams* cited the cooperation of the fifteen units participating in the meet in making it a success in spite of the short planning time allowed this year. Planning for next year's meet will begin shortly, he said, providing units in the field

SHORT ON TAKE-OFF, LONG ON



PERFORMANCE... ARMY MOHAWK!



The sequence photo above shows the extraordinary short take-off capability of the "Mohawk"—new Army plane which utilizes Grumman's know-how in the design and development of STOL type aircraft.

It carries the electronic and photographic gear essential to its prime role in tactical observation and surveillance. It will literally "live" in the field with our modern pentomic Army. It's at home in the rough-going terrain of forward areas. It's a twin turboprop, all-weather aircraft that has unsurpassed maneuverability, speed, climb and range.

All that—and the Mohawk has been designed with such simplicity that field servicing is a cinch, and a revelation. For instance, all equipment items are accessible from the ground, *without the need of work stands.* And all major assemblies are interchangeable. Power plants, landing gear components, stabilizers, elevators, fins and rudders are all interchangeable on the same airplane or on any other Mohawk. *Quickly and easily, just with hand tools!*

Short on take-off, long on performance—and now on active duty with Army Aviation.

GRUMMAN

AIRCRAFT ENGINEERING CORPORATION

Bethpage • Long Island • New York

with an opportunity to outline and to carry out their own elimination meets before sending competitors to the Army-wide *Competition* next year.

He introduced the distinguished guests including *Maj. Gen. Thomas F. Van Natta*, USAREUR Deputy Cheif of Staff for Intelligence, and an Army Aviator, representing *Gen. Clyde D. Eddleman*, USAREUR Commander-in-Chief. *Gen. Van. Natta* also congratulated the completely-filled ballroom of aviators and guests on the tremendous success of Army aviation's first competitive field contest to be held in Europe.

Col. Williams then announced the winners of the different events, who, at the termination of the *Competition* that afternoon, had each received a trophy award donated by the *Army Aviation Association of America*. In a concluding birthday cake-cutting ceremony, he called upon two aviators from the ballroom floor—one the longest rated, and the other the most newly rated—to blow out the eighteen candles and cut the cake.

The awards were presented by *Gen. Van Natta*. Also present at the meet were *Maj. Gen. William H. Nutter*, USAREUR Chief of Staff; *Maj. Gen. T. L. Sherburne, Jr.*, CG, 7th Army Support Command, and *Brig. Gen. A. W. Lyon*, USAREUR Transportation Officer.

—*Capt. Frederick B. Weller*

INDIVIDUAL AWARDS

Individual trophies were awarded to the following winner competitors with the 3rd and the 8th Infantry Division pilots and mechanics tieing for total unit honors:

L-19 Engine Quick-change: 1st Place — *Sp4 Victor T. Myers* and *Sp4 Jackie W. West*, 42nd TAAM Co; 2nd Place — *Sp5 Richard L. Pope* and *Sp5 C. D. Thomas*, 245th TAAM Co.

H-13 Tail Rotor Quick-change: 1st Place — *Sp5 Raymond S. Cabanban* and *Sp4 Maurice A. Bradley*, 29th TAAM Co; 2nd Place — *Sp5 James Newman* and *Sp4 Edward N. Baker*, 30th TAAM Co.

L-19 Maximum Performance Take-off: 1st Place — *1st Lt. J. C. Frack*, 3rd Inf. Div. Avn Co.; 2nd Place — *Capt. Bobby J. Walser*, 503rd Avn Co.

L-20 Maximum Performance Take-off: 1st Place — *1st Lt. Ivar W. Rundgren*, 8th Div Avn Co.; 2nd Place — *1st Lt. John S. Scott*, 245th TAAM Co.

Navigation (less than 500 hours flight time): 1st Place — *1st Lt. John R. Nun*, 3rd Div Avn Co.; 2nd Place — *1st Lt. George W. Sibert*, 8th Div Avn Co.

Navigation (more than 500 hours flight time): 1st Place — *1st Lt. Paul Kessler*, USAREUR (Rear) Com Z; tied for 2nd Place — *Capt. Larry Baughman*, 3rd Div Avn Co.; and *Capt. Don E. Finney*, 503rd Avn Co.

Supply Drop-Precision Free-fall: 1st Place — *Capt. William Edwards*, 8th Div Avn Co.; 2nd Place — *1st Lt. J. C. Frack*, 3rd Inf Div Avn Co.

H-34 Crew Hookup: 1st Place — *CWO Warren C. Carste* and *CWO Raymond C. Wilde*, 110th Trans Co (Lt Hel); 2nd Place — *CWO Milton B. James* and *CWO James C. Treadway*, 18th Trans Co (Lt Hel).

H-13 Autorotation: 1st Place — *CWO Charles N. Allred*, 30th TAAM Co.; 2nd Place— *Capt. Arthur J. Junot*, 8th Div Avn Co.

H-34 Autorotation: 1st Place — *CWO Theodore J. Dexter* and *CWO Charles E. Holloway*, 11th Trans Co (Lt Hel); 2nd Place — *CWO William L. Thornton* and *CWO John W. Patterson*, 36th Trans Co (Lt Hel).

H-13 Precision Flying: 1st Place — *1st Lt. Robert F. Henley*, 8th Div Avn Co.; 2nd Place — *1st Lt. Leonard T. Brown*, 503rd Avn Co.

Photo strip at right shows Competition events in top grouping; Lt. Col. Long and Mr. Sueske providing English-German narration; Gen. Van Natta presenting dead-heat trophies to Capts. Baughman and Finney.

USAREUR REPORT

BY MAJOR KENNETH D. MERTEL

The previous author of this report, *Col. Warren R. Williams* ("Dutch" to most), will soon leave for the Army Aviation School at Fort Rucker. In the past four years, *Col. Williams* has moved from the job of USAREUR Aviation Officer to Chief of the Organization & Training Branch of G3, and finally to Assistant Deputy Chief of Staff for Operations.

During this entire period, and in spite of various reorganizations of USAREUR aviation elements, our chief aviator has continued to lend guidance to aviation activities. His success is amply demonstrated by the tremendous progress in this theater, particularly in the fields of air space and air traffic control; communications; maintenance; tactical and instrument training; armed helicopters; and aviation safety.

In addition, he organized the first birthday celebration four years ago. Each celebration has improved and this year's one was even more of a success for it included the first *USAREUR Annual Army Aviation Competition.* All USAREUR aviators as well as your other friends and associates join in wishing you the best of luck, *Dutch,* in your new assignment. We shall miss you.

As part of *Col. Williams'* preparation for departure in August, he asked that I assume the authorship of this monthly

report. I shall try to continue his policy of passing the word to USAREUR aviators as well as to other interested persons.

The 1960 *Birthday Party* and the first *USAREUR Annual Army Aviation Competition* were a tremendous success, thoroughly enjoyed by all. *Capt. Frederick B. Weller,* USAREUR Flight Detachment, has provided a complete report on both the *Party* and the *Competition* elsewhere in this issue.

The initial details outlining the *Competition* reached the field a bit late and did not provide as much time for preparation as desirable. Despite these handicaps, the majority of units joined in and participated in most events. Congratulations and thanks are due the USAREUR Flight Detachment members, who were the hosts and who organized both the *Party* and the *Competition.*

Maj. Carl A. Colozzi, Detachment Commander, rates first mention for outstanding cooperation and assistance while *Capt. Weller,* assisted by *Lt. Russell E. Rumney* and *Lt. William Lewandowski,* did an outstanding job in handling the *Party* and the billets. *Capt. William G. Rutherford,* who was responsible for the *Competition,* assisted by a number of project officers from the USA TC Depot at Sandhofen, the 17th Signal Battalion, and Seventh U.S. Army, accomplished a difficult task in a superior manner. *Lt. Col. Richard L. Long,* 54th Trans Bn (Trans Acrft) proved to be a smooth-tongued narrator in taking over from *Lt. Col. Morris G. Rawlings* who departed for the ZI on an emergency leave a few days prior to the *Competition.*

The proficiency of the competitors was demonstrated by the fact that the *Competition* was completed without accident or incident. Judging was efficiently conducted by *Col. Warren R. Williams; Col. Robert B. Neely,* USAREUR Logistics Division; *Col. Russell E. Whetstone, CO of the* Seventh Army Aviation Group; *Col. Ford E. Allcorn,* Hq, Seventh U.S. Army; and *Lt. Col. Robert D. Dearth,* VII Corps Aviation Officer. Thanks are also due to the *AAAA* for sponsoring the individual awards.

We are determined that next year's *Competion,* to quote *Col. Williams, "will be bigger and better."* A memorandum will be published in Sep 60 outlining the details. This will give units adequate time for practice and unit level eliminations, if desired. Ideas pertaining to the *Competition* are welcome from all, units or individuals. Address your comments to: *USAREUR Headquarters, Aviation Section, Operations Division, APO 403,* or *to the author personally.*

It is possible that USAREUR may have another "first." A recent accident report on an L-19 that ground looped was accompanied by 8 mm movie film covering the accident from start to finish. Some alert soldier in the tower or on the ramp had his camera handy and caught the whole action on film. The Accident Board had little doubt as to the cause—*lack of directional control.* No injuries, although the U.S. is out several thousand dollars.

Speaking of ground loops, the V Corps Aviation Officer has published an excellent memo on this subject. Extracted in part: *"Ground loops are generally attributed to pilot errors in technique. Make every landing as though it were a final check ride and the check pilot had warned that the class was too large."*

The revised USAREUR *Circular 95-5 (Regulations for U.S. Army aircraft and Army aviators)* will be published about 1 July 60. It includes new regulations on helicopter instrument flying, to include weather requirements for alternate airports.

KENNETH D. MERTEL
Major, GS
Aviation Section, Operations Branch, Hqs, USAREUR

Looking down at Fujiyama with one prop feathered

EVALUATION TESTS IN JAPAN PROVE AERO COMMANDER'S SINGLE ENGINE CAPABILITIES

The scene is an unretouched photo taken at 15,000 feet of Mt. Fujiyama, (alt. 12,388 ft.) Japan, through the cabin window of an Aero Commander 680E. Right engine dead, prop feathered, the Aero Commander easily circles the peak on one engine. Aboard are six men, full fuel load, complete radio equipment including HF—the 680E is a 7,500 lb. gross weight airplane.

This feat was one of many tests in an evaluation program for the Japanese navy. Routine Aero Commander demonstrations have included similar single engine flight, under full load, *looking down* at Pike's Peak, Mt. Blanc, Matterhorn, Jungfrau, Popocatepetl and many others. Deliberate cross country flights with *one prop removed* have further proved the single engine capabilities of the Aero Commander.

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The SURV

Brig. Gen. C

Many recent articles in *ARMY AVIATION* have highlighted the Aerial Reconnaissance concept and the mobility provided to the ground commander through use of organic Army airlift. Brig. Gen. Clifton F. von Kann, Director of Army Aviation, ODCSOPS, details the important surveillance mission of Army aviation in a brief question and answer interview:

Q. The facts concerning the initial use of an aerial OP by Army units are not generally known. Before we discuss modern day surveillance, can you provide our readers with a brief background on the Army's first attempt to utilize an aerial observation post?

"There is an airport at Fort Rucker, Alabama, called *Lowe Army Air Field,* which memorializes the Army's *first* interest in the use of aviation for combat surveillance.

It is a reminder of the troubled days during July of 1861 when the North trembled under the threat of a strong Confederate force in the area of Manassas. Every indication pointed to an attempt to occupy the Capitol with a good probability of success. A complete unprotected route of attack was available if the Confederate Army moved up the Potomac, crossed into Maryland and made a surprise attack from the north.

It was imperative that the defending forces have immediate knowledge of any Confederate movement to allow them to redistribute their troops. It was at this time that *Professor Thaddeus C. Lowe* arrived in Washington with the message a TV writer would translate to *"Have Balloon—Will Travel—Up."*

Under our current complex bureaucracy it seems impossible that *Lowe* was able to quickly see the President and make arrangements for the governent to finance a demonstration. (*This feat alone would make him deserve a place in history*). The demonstration proved effective as *Lowe* ascended to 500 feet and telegraphed *Lincoln* that his aerial observation post commanded a view for 50 miles.

The success of this and another ascent from the White House grounds prompted *General McDowell* to ask him to view the Confederate camp from the Virginia side of the Potomac. *Lowe* made a good map of the enemy disposition and the force was kept under balloon surveillance throughout the fall and winter. Finally, in the spring, a balloon observer reported that the rebels had withdrawn from the Manassas area and Washington was safe.

Professor Lowe had provided a new solution to a problem as old as war itself—*knowing where the enemy is, where he is moving,* and *in what strength.*"

Q. This was the problem as it existed in 1861 . . . that's just about 100 years ago. Has this problem changed in the century following Professor Lowe's flights?

"In this day of the nuclear armed missile this problem has new dimensions. Commanders at all levels must have information on the current situation accurately and rapidly to form a sound basis for their tactical decisions. Each level of command must have a surveillance capability that

EILLANCE Mission

A Candid Interview With
fton F. von Kann, Director of Army Aviation

matches the range of its weapons for effective employment. It is evident that an adequate combat surveillance capability is one of the most important problems facing the U.S. Army."

Q. You've briefly covered the need for surveillance under nuclear war conditions. Are you preparing for other contingencies?

"We have found it useful to analyze this problem under three broad conditions of war:

An all-out nuclear war against a sophisticated Army, such as the Soviets;*

A non-nuclear war against a sophisticated enemy;

And, finally the variety of possible wars against an unsophisticated enemy.

**The term "sophisticated enemy" may not be the best, but it implies an enemy which possesses a technology equivalent to our own and presumes they have all the weapons systems which depend on this technology.*

Q. I presume that the approach to surveillance differs under each condition of war. How do you envision surveillance operations during a nuclear war?

"In a nuclear war the timing of military operations becomes critically important. Ground units will assemble and disperse rapidly. They will no doubt have some organic air-mobility potential. Targets will be fleeting at best. Camouflage and night movement will receive added emphasis.

Under these fluid conditions the need for timely location of target coordinates coupled with the need of our own forces to continually shift, creates a tremendous demand for *accurate, rapid,* and *complete* intelligence. Few targets in the combat zone will be fixed for any length of time. Both we and the enemy realize that tieing oneself to a terrain feature invites destruction. A profitable target will remain "profitable" for only a brief time.

Aviation offers the best means of reducing the reaction time between finding and firing. The advantages of aerial surveillance have long been recognized. From the balloon of *Lowe,* through the *Piper Cub* of World War II, to the *L-19* of Korea, the Army has capitalized on its air observation posts.

Another vital function in atomic war is that of *nuclear surveillance.* All nuclear detonation, both hostile and friendly, must be pin-pointed and assessed. This data, coupled with meteorological data, will allow damage assessment of both our own and the enemy's shots and provide a basis for fallout warning. It is apparent that

the aerial combat surveillance mission in a nuclear war is one of great magnitude—complex—but vital to the Army."

Q. How do our present capabilities compare with our L-19 surveillance operations in Korea?

"Now we have a list of new airborne sensors that will add to this capability, including radar, infra red, and new camera systems. These airborne systems are essential to overcome surface line-of-sight limitations and to give the wider coverage necessary on the dispersed battlefield.

We must recognize that the addition of these new sensor systems brings added problems as well as capabilities. We must be able to process and disseminate this vast quantity of data that will be accumulated by these sensors if it is to be useful. Surveillance information is only valuable to the extent it is presented to the commander who requires the information at the time he requires it.

Further, it must be presented in a form that is meaningful to him. For close-in surveillance, our systems must be simple and easy to maintain at low levels of command, otherwise their responsivesness will suffer. This need points up the fact that no electronic gadget can entirely replace the judgment made on the spot by a trained observer."

Q. One of today's most frequently asked questions concerns the enemy's defensive capability against Army surveillance aircraft. In your opinion, can manned aircraft survive in a war against an enemy utilizing ground-to-air missiles?

"We must attribute to him the capability of employing surface-to-air missiles similar to the *Nike, Hawk,* and *Red Eye.* Such missiles will play the major role in controlling the airspace over the combat zone. High speed and extreme altitude do not offer the airplane any defense. The kill probability of such systems is extremely high."

Q. If, as you say, the kill probability is extremely high, how does Army aviation expect to live in such an environment?

"Our own air defense people would be the first to admit that firing at a drone target under ideal conditions at White Sands Proving Ground is somewhat different than establishing an air-tight, air defense system over a widely dispersed field Army under combat conditions, with the terrific confusion that will no doubt be associated with a nuclear war.

At times there are certain to be gaps in this defense, identification will be a continuing problem, saturation could be effected, and there will not be an unlimited supply of the missiles themselves.

It will be up to Army aviation to develop equipment and the techniques of employing this equipment to exploit the air defense gaps in the battlefield. Low level flight, electronic countermeasures, suppression of the enemy's weapons systems, and the use of drones are some of the possibilities that will enhance aerial surveillance."

Q. Major consideration is being given to drone systems. What role will drone aircraft play in surveillance operations and to what extent will they replace manned surveillance aircraft?

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"Unmanned systems for surveillance deep in enemy territory are needed when intensive enemy air defense precludes the operation of manned aircraft. These drones must have performance characteristics that give a reasonable rate of survival. The Army hopes to develop a family of low performance, medium performance, and high performance drones to be used at the various echelons to *supplement* their surveillance capability.

I say *supplement* because there is no possibility of the drone replacing manned observation aircraft. There will be times when only a drone can be risked for special missions. However, we must remember that all drone systems are complicated and expensive, and require an extensive ground system for effective use. *It takes many little black boxes to replace the one 180 lb. whiskey-drinking vacuum tube.*"

Q. How does the surveillance mission change in a war against a sophisticated enemy where nuclear weapons are not utilized?

"Since our large missile systems will be relatively ineffective without the nuclear warhead, most of our firepower will be concentrated at the shorter ranges of conventional artillery and free rockets.

Therefore, the depth of the battlefield reconnaissance necessary for target acquisition is somewhat reduced. Aviation will provide the aerial OPs as it always has, but its ability to penetrate very deep into enemy territory will probably be limited.

We must still assume that *both* sides possess a very highly technical air defense system. But now neither force has the ability to radically interfere with these systems through the use of nuclear fires. This will tend to make continued flight over enemy territory non-habit-forming. The battlefield will still be dispersed because there will remain the continual threat of possible nuclear attack."

Q. What is our capability under this condition of war?

"The Army hopes that the development of the *Mohawk* and its associated electronic and camera systems will be an important step in solving some of the problems associated with this type war. *Side-looking radar* may enable an observer to scrutinize an area deep in enemy territory, while he flies parallel to our forward area.

Techniques must be developed for very low level navigation to a precise point where this aircraft could then rise for a brief photographic look and return to the deck on its escape route. Staying below the radar horizon appears to be the *best protection* under these conditions.

Close-in surveillance will receive a large supplement from the operations of the *Aerial Reconnaissance and Security Troop.* This cavalry type unit, which is completely air-mobile including its support weapons, will be invaluable in any future war. But it has particular usefulness to a commander who is forced into wide dispersion but deprived of his atomic punch. This hypermobile troop can keep him posted not only on activities to his front, but the equally important flanks and rear areas. The combat surveillance capabilities of this type of unit have been only partially explored.

Thus, the application of Army aviation will change as we change the conditions of war. Fortunately the flexibility of aircraft allow effective use of their capabilities under a variety of situations, so that Army aviation does not have to focus its program on any narrow band of the broad spectrum of war."

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MEMO TO ROBERT:

I am in receipt of your recent letter in which you say in part:

When I got the pictures that you sent me I was very happy and brought them to school with me and on my way home I had a fight with another kid I put books and the pictures on the ground and while I was fighting somebody took the pictures. I swear on the Bible that is the truth so could you please send me some more pictures of Kaman Helicopters.

..

Your new set of pictures is on the way. Robert, I hope that as you grow older and become a young man you will keep your interest in helicopters and aviation in general. When you and the boys of your generation take over the responsibility of running our great country, I hope you will find it strong and prosperous. Our National Defense effort right now is dedicated to that purpose, and with boys like you who are willing to fight for what is right, we know that our country will be in safe hands in the future.

Sincerely,

Charles H Kaman

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**Facsimile of actual letter received

Q. What are your thoughts concerning surveillance under the third condition of war, a limited war against an enemy who is essentially equipped with World War II equipment?

"In the spectrum of limited war against an enemy who is essentially equipped with World War II equipment, Army aviation can greatly expand its range of operation.

In this type of war guerrilla type raids will be much more common. The Army commander will have to detect the presence of these raids immediately and react with air mobile forces to destroy them. Those of you who saw the Korean action from the air realize the difficulty of detecting such an enemy's movement. This enemy relies on the cover of darkness for the majority of his logistics effort. Increased capabilities for night surveillance coupled with infra-red detection equipment should give Army aviation the tools necessary to thwart such operations.

The main enemy weapon against our aircraft would probably be standard small arms. We can reduce our vulnerability very markedly by evasive action, self-sealing fuel tanks, and light armor. Aircraft such as the *Mohawk* should be able to penetrate to any extent the Army requires."

Q. As a final question can you provide a broad picture of the organizational assignment of surveillance aircraft?

"I have tried to show that the battlefield surveillance mission of Army aviation will be essential in any type of war, *but will have different characteristics and capabilities depending on the change of situation.* The organization of this capability envisions reconnaissance capabilities at all levels of command.

For example, four *Mohawks* will be organic to each division. Low-performance drones will be employed by division while medium and higher performance drones are used by corps and Army. This is an example of one of the guiding principles of Army aviation—organic assignment to the lowest echelon which can profitably employ it on a continuing basis.

Units Complete Carrier Training

Operating from one of several fields in the Pensacola complex in late June, thirty-two Army helicopter pilots completed the final week of an intensive four-week training program in aircraft carrier operations. Marine instructors provided selected pilots of the 82nd Avn Co (Inf Div), 8th Trans Co (LH), 101st Avn Co (Abn Div), and 19th Trans Co with the first 3 weeks of instruction at Ft. Bragg.

The group, which also included 16 Landing Signal Enlisted men (LSE) and 23 crewmen, then moved to Pensacola under the command of Lt. Col. Raymond G. Jones, XVIII Abn Corps Aviation Officer, where in the final week they flew 50-75 miles out into the Gulf of Mexico to continue their training on the carrier Antietam. Utilizing four H-21s, H-34s, H-37s, and HU-1As, the pilots each completed ten daylight and five night landings in the first two days, spending the rest of the week in tactical flying, night formation flying, and in a general "polishing up" of techniques learned during the training period.

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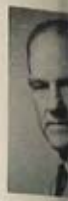

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The helicopter has come a very long way since first proving its mettle as a respected Army workhorse and medical evacuation vehicle in the difficult days of the Korean conflict.

Korea, being a country which was virtually built on end, proved to be made to order for these versatile machines and it was not long before they were being utilized for all sorts of emergency missions running the gamut from command liaison and observation to limited troop and cargo transport. It was almost inevitable that some of these missions which were handled so well under emergency circumstances would one day be legitimized as accepted doctrine.

Experiments were started at the *Aviation Center* several years back which, despite the small amount of funds expended, soon proved the feasibility of the *Suppressive Fire concept* and paved the way for further progress in exploiting the principle.

Gun mounts, hand made in many instances, were fastened to helicopters and 30-and 50-caliber machine guns, designed originally for tanks, were installed. Later, rockets were even fired successfully from several helicopters.

There were a number of problems and I am not attempting to minimize them. Some of these were: the high noise levels created; dangerous effects of escaping gases on pilot and crew; effects of blasts on structures; stability and weight problems; and the problem of devising a triggering system which would enable the pilot to fire the weapons without impairing his ability to fly the aircraft at the same time. But despite this inauspicious beginning and the many problems encountered, the worth of the concept came through "loud and clear."

CONARC has now established broad qualitative military requirements, and with the backing of the *Rogers Board* report,

SUPPRESSIVE FIRE CONCEPT MATURING INTO FIRM ARMY PROGRAM

By MAJOR GENERAL RICHARD D. MEYER
DEPUTY CHIEF OF TRANSPORTATION FOR AVIATION, OCT

the Army is now attacking development on a weapons system concept in this area, to encompass not just the weapons alone but allied equipment as well. Inclusion of the latter is especially significant in that the solution of one problem often creates another, i.e., a splendidly designed weapon which supposedly meets all operational requirements might later be found to affect adversely the electronic stabilization or navigation equipment in the aircraft.

Also, with the tremendous scientific advances in recent years, it is not at all inconceivable that some light weight armor protection can be developed for added protection to pilot and crew. And, since anything hung on the aircraft can significantly change its operational characteristics, it becomes imperative that a system exist for the examination of the interrelationships of all aspects of the system. Just as any other sub-system is evolved, the eventual goal is to design the firepower for the specific helicopter at its origin. This is admittedly some years away but it is significant that the Army now has a firm

The author (center) with Maj. Gen. Ernest F. Easterbrook, Commanding General, USAAC, and Brig. Gen. J. W. Cave, Chief, Office of Program Coordination, Office Chief of Ordnance at a recent armament conference at Ft. Rucker (U.S. Army photo).

R&D program and has begun to set up the R&D machinery to achieve the goal of equipment in the hands of troops.

As systems manager for aircraft, the *Transportation Corps* has been assigned responsibility as overall *R&D* monitor and responsible agent for programming the suppressive fire system and allied equipment.

Management Group Established

To handle better these responsibilities, an organiaztion has been established which provides for grinding in all interested parties from concept to hardware. A systems management group has been established to facilitate close coordination at each phase of the program and its membership reflects the efforts which have been made to assure that all interested parties are represented.

To look out for the all-important requirements of users, there is a *CONARC representative*. From the control standpoint, the *Chief of R&D* is represented. Operational aspects are the concern of the *DCSOPS representative*. *DCSLOG* has a representative who concerns himself wtih logistics matters and the *Chiefs of Technical Services* and their respective field agencies engaged in performing or directing research and development in any aspect of Army aviation also have members assigned.

Chaired by the *Transportation Corps*, this *Ad Hoc Committee* now holds regularly scheduled quarterly meetings as a means of assuring a wel-coordinated program. While the group does not supplant the staff actions which must be taken in conjunction with the program it does function as an expediting element and a means for communication between interested agencies. The immediate concern of this committee is the job of adapting the work already accompished to the helicopters presently in the system. Another major role is the gathering and disseminating of

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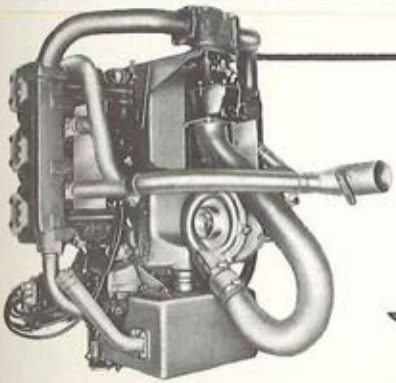

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With this helicopter and this engine, you can forget the old problem of how much you can lift at a given altitude. You can lift the rated payload of 1,111 lbs. at *any* height from sea level to 15,000 ft.

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information on previously accomplished research so that duplication of effort may be avoided.

Charts Portray Organization

Chart #1 shows the tentative organization for *R&D* programming with respect to *requirements*. As you can see, the User requirements generated by the field commands are channeled to *CONARC* and thence to *D/A*. *D/A* approves and channels the requirements to *Chief of Transportation* for implementation. *TC* funnels these out for study and comment to *TC Field Commands* and to other *Technical Services* who in turn pass to their field commands.

Meanwhile, close coordination and technical liaison is maintained all along the line via the *Ad Hoc Committee* and working level people of the appropriate Army and Technical Service field commands. To strengthen further this coordination *Chiefs of Technical Services* are being asked to establish liaison officers with the *Transportation Materiel Command* at St. Louis which exercises development responsibility for Army aircraft. Conversely, *TC* is planning for the possible establishment of resident aircraft engineering support at key weapons test sites.

Following the receipt and approval of requirements in *Office of Transportation* the programming is accomplished, again with close coordination and liaison with *CONARC* and other *Technical Services (Chart #2)*.

Upon completion and approval of programming, *D/A* funds the program and *TC* then sub allocates these funds to *TC field commands* and to other applicable *Technical Services* engaged in carrying out the work *(Chart #3)*. As you can see, this chart again calls for close coordnation and liaison all along the line at both staff and working levels.

The effect of the program, aside from establishing a working organization to exploit the suppressive fire concept as a system, is to enable technical support to

Tentative Organization For R & D Programming Suppressive Fire Army Air Vehicles and Allied Equipment

Dotted lines below indicate TECHNICAL LIAISON.

Chart 1 Requirements

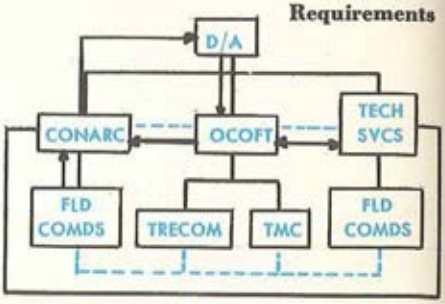


Chart 2 Programming

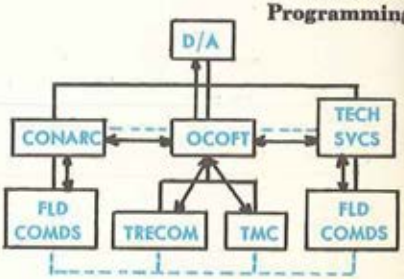
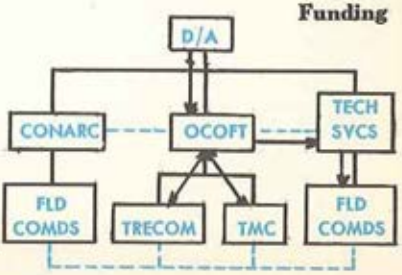


Chart 3 Funding



IN PLOWED FIELDS OR DESERT SAND THE CARIBOU IS STILL STOL

At Mansour and Bahrein Island in the Persian Gulf, the Caribou is seen – in the photo at left centre – taking off from unadulterated desert sand. Photo, lower right, shows depth of furrows ploughed in sand by aircraft's nose wheel gear.

A supreme test of STOL ability was staged at Fort Rucker, Alabama on a mud strip soaked with water for hours, then ploughed to a depth of 14". Photo – upper right – shows mud compacted ahead of wheels. Right centre, deep ruts etched in mud by Caribou take-offs and landings.

The Caribou

Designed and Built by

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DOWNSVIEW

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ONTARIO CANADA

be ground in *before*, rather than *after* the fact.

It also establishes a firm program for research and development of allied equipment. It is uneconomical to take an aircraft and add existing armor. It can also be dangerous. Instead of being weapon-oriented as in the past, the new organization is system-oriented, i.e., weapons will be applied to the specific helicopter at the design stage where all technical aspects such as hard points, weight and balance, structure strengthening, etc., can be considered and designed into the aircraft.

In accordance with existing *CONARC* requirements several significant suppressive fire projects are already being developed jointly by the *Transportation Corps* and *Ordnance Corps*.

Ten *HU-1 Iroquois* helicopter ambulances are now participating in the Army's mercy mission to quake-damaged Chile. In one of the largest airlifts since the Lebanon crisis, more than 230,000 pounds of food and medical supplies, two complete 400-bed field hospitals, two water purification units, two small laundries. and a transportation aviation maintenance detachment were also shipped from the United States in addition to the two medical helicopter ambulance units.

Shipment of the helicopters was expedited since they offer the only means of reaching many of the severely devastated areas. Six of the *HU-1s* were airlifted from Fort Bragg and the other four from Andrews Air Force Base near Washington. A special support package to sustain the operation of the aircraft while in Chile was prepared by the *Transportation Materiel Command* and accompanied the aviation maintenance detachment.

Reports available to date indicate the equipment is performing well. The rapidity with which operational units were able to respond shows that we now have Army aircraft which are both strategically and tactically mobile.

It was with considerable pleasure that I administered the oath of office recently to an ex-Air Force and Navy flyer who for the past eight years has been doing his flying for the Army.

36-year-old *Captain Jack Brown* (above right) received his Regular Army Commission last month after about 16 years of aviation experience encompassing tours with all three services. During World War II, he served with the late General Claire Chennault's 14th Air Force in China. From 1948 to 1951 he was on duty with Nava aviation and then joined the Army and engaged in aviation research and development activities with the *Transportation Research Command* at Fort Eustis, Va. For the past 16 months, *Jack* has been serving as an Army Liaison Officer with the *Bureau of Naval Weapons* where he has had a part in the development of the Grumman *AO-1 Mohawk* and the Vertol *YHC-1A* transport helicopter, among others.

A pilot of both fixed and rotary wing aircraft and instrument rated, *Jack* has logged more than 4,000 hours in the air. A graduate of the Transportation School and the Command and General Staff College, he is also an experienced maintenance officer and once commanded an H-19 helicopter field maintenance detachment in Korea.

RICHARD D. MEYER
Major General, GS
Deputy Chief of Transportation
For Aviation, OCT

BASIC MAINTENANCE CONCEPTS 1942-1960

By BRIGADIER GENERAL WILLIAM B. BUNKER
Commanding General, Transportation Materiel Command

The proper basic philosophy and procedure for the performance of higher level maintenance of aircraft is a subject of considerable discussion and difference of opinion. The systems used in the military services and commercial enterprise vary considerably, depending upon the basic maintenance philosophy adopted by the organization. Each aircraft user has endeavored to establish a system which most economically meets the operational requirements of his aircraft and his fundamental maintenance pattern.

Basic Concepts

The Army, in its intimate association with the Air Force, has in the past seven years operated under four basic depot maintenance concepts: the *Depot Inspection and Repair (DIR) Program*, the *Inspection and Repair as Necessary (IRAN) Program*, the *Standard Configuration and Modernization Program (SCAMP)* and *Inspection and Repair Only as Necessary (IROAN) Program*.

During the scope of the first three of these programs, each underwent considerable modification in an effort to improve the level of customer satisfaction.

From 1949 to 1952, Army aircraft, primarily observation fixed-wing type, were provided depot overhaul under the *DIR Program*. In this program, the aircraft was brought into an Air Force Depot or contractor's site and all the scheduled time-compliance maintenance operations were performed. The program's objective was to return to the

user an aircraft in as near-to-new as possible condition and to insure that no additional maintenance operations would be required when the aircraft was returned to the user.

Such an operation is quite normal in commercial practice where the maintenance facility is controlled by the owning organization and rather few aircraft involved. However, when contractors are used for large fleets of aircraft such as those maintained by the military, it was quite normal for contractors to change engines and components which still had a high portion of their useful life remaining, and to perform other maintenance operations purely because they were chronologically indicated as necessary.

Many in Air Force maintenance management felt that this program was somewhat expensive and resulted in over-maintenance of the aircraft. However, there were many who felt that proper flexibility in the contractual document and careful judgment by the maintenance technicians at the contractor's site could easily have avoided such duplication or unnecessary work.

1952-1955

In 1952, the Air Force went to the *IRAN* concept of maintenance. Under this concept, the contractor determined the specific items needed for maintenance and performed only that which was required. If a component was functioning properly, it was not changed even though it would have to be replaced in a few more operating hours. During the past six years, this concept was modified considerably, primarily by fiscal limitations. As a consequence, today there is a tendency in the Air Force *IRAN Program* to perform only that maintenance for which funds have been allocated without regard to requirement of such maintenance.

1955-1958

In FY 55, when maintenance money was quite critical in the Air Force, Army users often received their aircraft from *IRAN* with a long list of additional maintenance operations to be performed at the field maintenance level. Contractors prepared the lists to demonstrate to the user that the primary reason for not performing those operations was the contractual limitations of the *IRAN* specifications. In general, an austerity program in this type of operation tended to restrict the basic *IRAN* contract purely to the disassembly and reassembly of the aircraft and performance of the necessary painting.

Army Concept

At the start of fiscal year 58, the Army became responsible for depot level maintenance of its own aircraft. In an effort to overcome the difficulties previously experienced in both the *DIR* and *IRAN* programs, a new concept was formulated. It was the *Standard Configuration and Modernization Program (SCAMP)*.

Basically, the program was a modified *DIR* operation in which all time-compliance was performed with certain limitations on the residual life of components to insure that they were not replaced when only 15 or 20% of their service life had been utilized. This was one of the savings realized from the *SCAMP Program*.

It also served to bring the aircraft to a high degree of operational serviceability and to eliminate accrued deficiencies or discrepancies resulting from unsatisfactory lower levels of maintenance. Through utilization of the time cycle and the maintenance scheduling, it was possible to obtain more economical benefits by installing modification kits during *SCAMP*. Secondly, the number of aircraft variations was reduced and, in turn, improved the support of the spare parts system.

It is considered that the objective which was desired when the *SCAMP Program* was initiated, has been reached. The level of Army field maintenance proficiency has improved, and fleet standardization has increased at a minimum of possible cost.

IROAN

In recognition of our advancement, it was the time to progress to a new system compatible with present requirements. This system is *Inspection and Repair Only as Necessary (IROAN).*

The concept of *IROAN* is to select aircraft for depot maintenance on a basis of condition rather than by selection by time cycle. Introduction of this program was planned to be in two phases so that orderly transition could be effected. Phase one was introduced in July 1959. At that time, a re-evaluation of aircraft programmed for *SCAMP* was made to insure that their condition met interim criteria which was established. This method of selection was to remain in effect until 31 December 1959, when the full *IROAN Program* would be implemented.

The mechanics of this system are intended to be activated by discrepancies noted in Command Maintenance Inspections and spot check inspections. When the using personnel feel that the deteriorated condition of an aircraft warrants its nomination as an *IROAN* candidate, a notification will be furnished the supporting fourth echelon maintenance shop. The fourth echelon maintenance shop will, upon receipt of such a request, provide to the using activity qualified technicians within three working days. They will assist in performing a special inspection to determine the scope of maintenance required.

Results of their findings will be placed upon a maintenance requirement form which will be attached to *DA Form 598 (AR 750-1500-4).* The fourth echelon shop will then review the complete end item maintenance requirement and determine if the capabilities exist at that level to accomplish the necessary work. If capabilities do exist at fourth echelon level to effect repair within 30 days, the aircraft will be repaired and returned to the user.

If they do not exist, the maintenance requirement will be referred to the next level for disposition. When the work requirements reach *Transportation Materiel Command (TMC),* they include listing of outstanding modifications, accessory and component replacement requirements, inspection requirements, known material requirements, estimated man-hour requirements, and a listing of applicable publications.

Accountability and Transfer

Aircraft being reported to *TMC* for disposition will normally have accountability transferred concurrently with the reporting. The general exceptions are those cases where the aircraft has special equipment installed, requires more than 30 days to repair, or it belongs to the National Guard.

In those cases where accountability is transferred to this command, the aircraft is also physically transferred to the TC section of applicable general depots. This serves as a two-fold useful purpose. One is that the using unit will not be required to requisition a replacement for that aircraft which went to *IROAN,* and the second is that it provides for a pool for providing the high priority user a better opportunity for immediate aircraft replacement.

Repair Parts

Experience has proven that it is, in many cases, more practible for the government to furnish long-lead-time-high-dollar-value parts for performance of depot maintenance. This has been particularly significant in dealing with smaller independent contractors.

First, it appears that they are hesitant to stock adequate supplies on the premise that they would be awarded a contract.

Secondly, if they did stock the items they could have a surplus since their stock was based upon an anticipated demand. This is especially critical when their contract is nearly terminated. On the other hand, they cannot wait to procure an item until they have an actual demand. If so, the manfacturing and administrative lead-time would far exceed the period in which they could forecast in their workload.

After observing the situation for some time, it was determined that it would be practical to provide government furnished parts. At least, repair parts would be available for whoever performed the work. This picture is brightened somewhat by the *IROAN* concept. Repair parts requirements are predetermined to the maximum extent practicable. By this means the parts requirements are an *actual demand*, rather than an anticipated requirement.

Recently, Transportation Corps was directed to develop organic depot maintenance capabilities. To accomplish these, depot bits and pieces must be stocked; therefore, it is envisioned that greater repair parts support can be provided the *IROAN Program*. In addition, capabilities should soon be available for expeditious overhaul of those critical items used in supporting the program.

Conclusion

Sufficient funds must be allocated to support the program. These aircraft are reported because they do not meet the standards of serviceability. They are the worst aircraft in the fleet. In fact, they will be carried on a red "X" condition when reported to this command for disposition.

It is felt that if this program is properly supported by all, the Army has the most logical and economical method of providing aircraft depot maintenance.

Mike

Box 209, Main Off

Do Smell As Sweet?

In *Mike's* March column, I talked about the interchangeability of helicopter and fixed wing main landing gear tires which were of the same size and listed in DA publications under the same FSN.

During my research on the problem, certain facts were revealed:

First of all the *DA TM1-4T-1-4*, 9 August 57, now in the hands of field personnel, was copied from an *AFTO 4T-1-4*, May 57, which listed the *same FSN* for 1100X12, 6 ply, main gear tires used on *Choctaws* and *Otters*.

However, some 1100X12, 6 ply tires had *"Helicopter"* stamped on the sidewalls and some had *"Aircraft"* on them. That's when it started—Somebody ordered replacement tires and—yes, you guessed it got 1100X12, 6 ply *"Helicopter"* tires as a replacement.

So, they returned them to supply because they had access to a later dated *AFTO 4T-1-4*, 28 September 58, which stated that: *"Tires with 'Helicopter' marked on the sidewall have a maximum speed rating of 35 knots (40 mph)."*

With this intelligence, *Directorate of Engineering, TMC*, stated that, *"the correct replacement tire for the U-1A is a 1100X12, 8 ply tire under FSN 2620-174-1746 and the 1100X12, 6 ply tire marked "Helicopter" had been designated for helicopters only."* Also, they stated that action had been taken to revise the -20P and -34P which will incorporate the new FSN 2620-174-1746 for U-1A main tires.

With these facts at hand and at the

Button

St. Louis 66, Missouri

request of the *Directorate of Engineering*, old *Mike* wrote it up in the column for everyone's information 'cause if this problem is DA wide, everybody should know about it.

Now, after complete engineering evaluation by the *Directorate of Engineering*, the picture on the "Helicopter" vs "Aircraft" tire business is as follows, and I quote from their directive:

"After consulting WADD the Directorate of Engineering has made the following determinations:

"a. The 6 ply tire for "Helicopter" and "Aircraft" are similar as to design and construction.

"b. 6 ply tires marked "Helicopter," under FSN 2620-141-8813, are suitable for use on U-1A Airplane.

"c. The restrictions cited in the subsequent AFTO's, September 58, 11 May 59, and 22 December 59, do not apply to the 6 ply tire used on U-1A Airplane.

"d. This directorate (Directorate of Engineering) initiated a worldwide TWX on 9 May 60 approving the 6 ply tire marked "Helicopter" and "Aircraft," and recommended its use.

"e. The 8 ply tire is considered a suitable substitute for use on the U-1A Airplane when 6 ply tires are not available," end quote.

Now, old *Mike* must tell everybody of the change so that the field won't get confused.

When *Mike* went to press in the March edition that information disseminated was the official reply on the release date, but today when we go to press the picture has changed officially.

*(*Ed note from Mike: When this official action is taken by TMC in controversial issues of this nature, everybody, including Mike, must abide by it.)*

Your Move?

"Check the Queen;" that's the best move you ever made. So, all you chess players have transferred your affections from the board to the hangar because you know that the *Queen* is the most powerful piece.

In this case having a *Queen* in the hangar is as bad as getting your *Queen* captured.

"Hangar Queens" are a million dollars' worth of parts, bits, and pieces stuck in a corner to be used later. Take the *Mojave* for instance. It costs Uncle, plus or minus a few bucks, a cool million crackers! Boy, that sure is an expensive parts store!

These *"Hangar Queens,"* philosophically speaking, are great big expensive aircraft that don't fly any more and are used as a portable supply bin of "bits & pieces" to support their counterpart.

In other words, these aircraft are *known* as an additional source of aircraft supply parts. This practice must be discouraged at any cost, because the regulation *(AR 750-1500-8)* prohibits stripping of aircraft to get parts. The action which is a must on your list is supply action, *not strip action.*

Uncontrolled "borrowing" of parts from an aircraft down awaiting other requisitioned parts, leads to wholesale cannibalization and money down the sewer. Now let's get with the AR and read it over thoroughly because it clearly defines the circumstances under which you can "rob" parts from other aircraft to keep your birds flying.

We realize perfectly well that many

times it is necessary to use the parts from homogeneous machines, which are down for maintenance, to maintain your availability rates; however, should you not control these removals, you soon get to the "point of no return."

It's a proven fact that these aircraft when performing duty as *"Hangar Queens"* might as well be in indefinite storage because they deteriorate at a very rapid rate—"O" rings begin to leak; seals give way; dirt accumulates; and corrosive action quickens.

Also, facts have proved that aircraft that are used as *"Hangar Queens"* for extensive periods have deteriorated to a point where they need major overhaul before they can be returned to the flight line in an operational condition.

So it boils down to this:

- Get rid of *"Hangar Queens."* Give them an honorable discharge "for the good of the service."
- Should an aircraft's part be borrowed, control it rigidly.
- When you borrow a part use it as a last resort or reserve it for extreme emergency purposes and then for only very short periods of time.

One last thought to keep in file:

When aviation maintenance activities establish accurate stockage lists and maintain authorized stockage levels like it says in *AR 711-16,* under Army Field Stock Control, then and only then will the requirements for a *"Hangar Queen"* to keep availability rates up be infinitesimal and eventually completely eliminated.

Check-mate!

Does Your Shoes Fit?

About 6 months ago all *Sioux* outfits at FM level or above, got a copy of *TM1-1H-13-203* which did not take into consideration that the skid cross tubes of the H model were a little different in design than the Ds, Es, and Gs. If you got a copy of the *TM1* handy, add this to the *"NOTE"* under, *"When To Accomplish," "except H-13H."*

Upon complete engineering study here at *TMC,* the *Directorate of Engineering* has come up with a fix to take care of all Hs, because the -5 abrasion shoe was not designed to fit on the H models.

This peculiar H has angular mounting bolts on the forward cross tube so you can't use the -5 shoes without reworking them. So, modify the shoes so they'll fit, and you'll cut down on that excessive skid gear wear you've been raisin' cain about.

So, here's the fix: modify the -5 shoe by trimming a bit of its aft ears and reweld the ears to line up with the existing angular mounting holes on your H's tubes. In some cases, the Es and Gs may require some reworking too (of these -5 shoes), before installing, due to drilling variation during installation of the skid tubes.

Actually, all you're doing is elongating or reworking the ears so when you tighten down the ears you got something that the bolt can hold on to. It's not very difficult; however, should anybody get in a bind, get in touch and we'll help, but by using your own initiative, I am satisfied that you can do it without anyone's help. Oh, almost forgot—compliance with *TM1-1H-13-203* is not mandatory.

Above info is to be included in a revision to the TM1 very shortly.

About "Mike"

"Bill" Bickham (alias Mike Button) is one of those rare individuals who thrives when he's at his busiest. From his copy and his personal correspondence, this editor can sense Bill's genuine desire to serve you. If you have a particular maintenance problem that irks you, pass it on to his alter ego. You'll get a prompt reply from Mike.

Classroom on Wheels

Literally bringing the classroom to the student, the U.S. Army Transportation School's latest development—*a mobile instruction unit*—will provide on-the-spot familiarization training in aviation maintenance to Reserve and National Guard units during their coming summer encampments.

Everything about the new *Mobile Aviation Maintenance Instruction Team* is mobile. A large yellow van with red lettering, an Army green 2½-ton truck, a staff car, and a station wagon will transport the *Team's* 12 personnel and their training gear. *Capt. Lloyd A. Watland*, project officer for the *Team's* development, reports that the group will be "on the road" 102 days and will make 11 instructional stops covering 7,000 miles in the eastern and central U.S.

Following a June 6-10th visit to *Fort Bragg*, the *Team* will instruct at *Ft. Stewart, Ga., Camp Breckenridge, Ky.; Indian-*

town Gap, Pa.; Camp Grayling, Mich.; Camp McCoy, Wisc.; Camp Ripley, Minn.; and *Camp Drum, N.Y.*, with three of the posts to be visited on two separate dates.

Some 40 hours of familiarization instruction on third and fourth echelon maintenance will be provided to each Reserve and ARNG unit. Additional materials will be issued to carry out further instruction in home groups upon completion of active duty. L-19, L-20, H-13, and H-23 aircraft are the subjects of maintenance instruction.

Work on the mobile unit began in early October under the supervision of *Lt. Col. William F. Knoll* of the School's Aviation Branch. Noteworthy assistance to the project in the form of seven large training aids was provided by the Training Aids Division under the command of *Lt. Col. J. E. Feliz. Capt. Gerald D. Burroughs* serves as Officer-in-Charge of the Team.

FT. EUSTIS

65th Trans Co Receives CAB Commendation

■ The *65th Transportation Company* (Lt Hel), Ft. Eustis, Va., was praised recently by the Civil Aeronautics Board as a result of the outstanding cooperation the board received from the unit while conducting an investigation of an airplane crash on May 15, 1960 at Newport News. Va, *CWOs Robert B. Harr* and *Richard C. Grant*, pilots of the Army *Shawnee*, were commended for their proficiency under extremely difficult air-evacuation conditions.

Orientation

■ Recent visitors to the U.S. Army Transportation School are shown above during a brief orientation on the H-19 helicopter. L to R: *Lt. Cols. Manuel Pinte, Antonio Rivas,* and *Hugo Medina* from Ecuador; *Lt. Jack Serig*, escort officer; and *Lt. Col. Julio Gargon* of Ecuador

Gyrocopter

■ Winging over Felker Heliport, Ft. Eustis, Va., during a recent demonstration, the Bensen *Gyrocopter* is shown being viewed by *USATRECOM* officials. The low-cost, one man gyrocopter is powered by a 72 hp McCulloch engine and weighs 230 lbs.

Another mile-stone in inter-service cooperation was passed when pilots of the *U.S. Army Transportation Training Command,* Fort Eustis, Virginia completed special courses of instruction presented by the *Air Force's Physiological Training Unit* at nearby Langley Air Force Base.

Originally, the course was set up to assist Army pilots in the transition to multi-engine fixed-wing aircraft. The training was so effective and so well received that

High Altitude Training

subsequent courses were opened to pilots, both officers and warrant officers, of all types of Army aircraft. A wide range of subject matter was covered in this intensive course. Included were: the physical effects of altitude at all levels on the human system; the importance of a good physical condition and a balanced diet for the pilot; and the use of the oxygen mask, different types of parachutes, the ejection seat and other safety devices. Particular emphasis was given to vertigo, the malady that has constantly plagued the aviator.

The first day of the course was spent in the classroom covering the theoretic aspects *(top left).* The major part of the second day was devoted to their practical applications. First, the students were taken on a simulated flight in the altitude chamber to a height of forty-three thousand feet to demonstrate the altitude effects on the body *(second left).* During this flight, students, using the "buddy system," were required to remove their oxygen masks at twenty-five thousand feet. Thus, each experienced the symptoms of anoxemia (oxygen starvation).

Next, the class experienced rapid depressurization when pressures in the chamber were suddenly changed from those of eight thousand to twenty-three thousand feet. This produced the effect of losing low level cabin pressure at a relatively high altitude. Students were also drilled on the ejection seat trainer *(third & bottom left)* which demonstrated the forces that are exerted on the human body by this safety device. It provided the student with an opportunity to learn and apply the proper procedure in its use. Prior to being awarded certificates of completion of the course, students were subjected to a written examination. Students were also given cards authorizing them to participate as passengers in jet aircraft.

—Capt. John W. Thomas

PHOTOS

Orientation Team

Maj. Gen. Normando A. Costello (l.) ACofS, G3, Hqs, USARPAC, discusses the status of instrument pilot training and re-qualification in the command with Capt Jean L. Baker and Eugene T. Boyd. As members of a DA sponsored Instrument Examiner Orientation Team from Fort Rucker they spent three weeks checking other flight examiners in Hawaii, Japan, Korea, and Okinawa on an annual standardization visit.

Radio-Controlled

Packing a big wallop, a Marine Corps/Sikorsky HUS-1 helicopter is shown in flight over the Naval Test Center at Patuxent River, Md., prior to firing a Bullpup missile at a target thousands of yards offshore in Cheasapeake Bay. The Bullpup was the largest missile ever fired from a helicopter as well as being the first radio-controlled missile to be fired from a rotary-wing aircraft.

Briefing

Lt. Gen. Gordon B. Rogers, Deputy Commanding General for Developments, USCONARC, is shown with E. J. Ducayet, Bell vice president, on his arrival at Bell Helicopter factory at Ft. Worth, Tex. During his visit, General Rogers received a first hand briefing on the Army's turbine-powered HU-1 utility helicopter

Pinned

Lt. Col. Jean L. Chase, Commander of Simmons Army Airfield at Fort Bragg, N.C., is pinned with Master Army Aviator wings by his wife, "Middie," and Brig. Gen. Clifton F. von Kann, during a Fort Bragg Aviator Ball on June 6th. (U.S. Army photo)

THREE DIAMONDS

By CAPT. ROBERT F. LITLE, JR.

Working in *SHAPE* in Paris as a helicopter pilot for *SACEUR* has been a stimulating and interesting experience in many ways. One unusual facet of this has been an opportunity to become a member of a French gliding club near Paris.

Flying with this club I have been working toward my *International Glider Ratings*, the ultimate or *"Three-Diamond"* rating naturally as my goal. For this rating it is necessary to accomplish three special flights: a climb of 16,410 feet above the point of tow release, a flight to a predesignated goal of 187 miles or more away, and a flight to any point 312 miles or more away.

Accomplishment of any one of these authorizes the pilot to wear a small diamond inset in his soaring badge. This winter, through my club, I received a quota to the *French National Gliding Center* at *St. Auban* in the Alps Mountains about 100 miles northwest of Cannes.

The French government furnishes some support to the gliding movement here, and *St. Auban* is actually a government flying school. Their quota of students is twenty per month and only advanced glider pilots are admitted. They accept up to four foreign students in each class and I felt very honored to be included.

I arrived in St. Auban during the month of December with the hope of finding the right met conditions for a mountain wave to form. This is the condition on the lee side of a mountain range which will allow a glider pilot who understands it to climb very successfully in the rising currents of air and is called *MISTRAL* by the French in St. Auban.

Rates of climb of 2,000 feet per minute are not unusual in the wave—but since *"what goes up, etc."* there are also places where the rate of *descent* is about 2,000 feet per. This, of course, resolves the problem into a simple question of spending more of your time in the rising currents than in the down drafts.

The first step of the training is to teach the student a special *hi-speed landing technique*. Since the wave is best when the winds are strong this means that it is not unusual to be flying the glider which cruises at 50 mph, into a wind of about the same speed.

Thus, in order to be sure of hitting the field on approach and maintaining a suitable reference angle, an approach speed *above* cruise is used (about 65) and a rate of descent on final approach of about 2,000 feet per minute which is held all the way to final roundout for touchdown. This makes a rather interesting variation from the normal final approach letdown speeds of more nearly 200 feet per minute.

The original checkout is made in a *Breguet 904*, a fabulous high-performance 2-place machine. Then the pilot goes to

the single-place *Javelot, AIR 100,* and *Breguet 901* in that order.

The early part of each morning is devoted to ground school, with the primary emphasis, of course, placed on *wave soaring techniques.* Then the ships are put on the line and the two *Storch* tow planes are brought out.

The day we were all looking for finally arrived—*MISTRAL!* Luck was with me and I had soloed by this time, and was listed as second to fly one of the *AIR 100's* that day.

Everyone working feverishly, so that the maximum number of people would have a chance to fly in the good conditions; we got the first wave of gliders off. Then it became a case of listening to the ground radio station mounted in the control truck to learn what progress the ships were making; and secondly, trying to keep warm. It was the 13th of January wtih a 30 knot wind on the surface and a temperature of about 18 degrees Fahrenheit.

"ST. AUBAN Starter this is Quebec Quebec 2 miles downwind from the peak of the mountain at 6,000 feet climbing 200 FPM."

"ST. AUBAN Starter this is Alpha Yankee 2 miles south of the field at 4,000 feet unable to climb."

"ST. AUBAN - - - - " and so it went, each of us trying to estimate the probable time of return of his ship and the chances of earning that diamond height when it did come in.

The prospects are discouraging. No one seems to be doing well and the instructors are considering releasing the next ships in a different area where the lift might prove to be better.

Now one of the *901's* is back and my friend, *Marcel Cartigny,* a Belgian who has represented his country in World Gliding Championships is getting in and fitting his oxygen mask. If *Marcel* can make it he will be the first Belgian ever to earn three diamonds. He is also hoping for a altitude record for Belgians. *"Good luck, Marcel."*

Back to the truck and the pilot of my ship radios that he's on the way in. *Marcel* has just released at 5,000 feet so this means he'll have to climb to about 22,000 in order to record the required gain in height.

Time to get the helmet and mask out, put on my flying boots; my ship is downwind. Willing hands pull the *AIR 100* back to the line and a disgusted pilot crawls out. He didn't even get high enough to use any oxygen. Well, that will save refilling time anyhow.

Climb in, strap down, oxygen check, radio check, we're off behind the *Storch.* Up to 6,000 feet. *Nuts!* That means 23,000 or better total height required. Well no help for it, if we must go this high to get into the wave, we must.

Then a good solid bump and the needle of the variometer swings to 800 FPM climb. The towplane is signalling for a release and I pull the knob dropping the tow and turn toward the mountain. Almost immediately the vario swings to 1,000 FPM down. This will never hack it! At this rate I'll be back on the ground in six minutes. I've got to get back in that lift.

A fast spiral to the left and we're back in lift, but what a struggle to stay in. I've never seen lift like this before. It's supposed to be *smooth* in the wave. Suddenly I realize I'm not in the wave but in the rotor below it—a turbulent area not unlike the roll-cloud area of a thunderstorm —but since we have a dry day there are no clouds to help analyze this.

The only answer is to put the ship in the lift more of the time than in the downdraft and claw my way up. After about twenty minutes of this it happens, 9,000 feet and suddenly the air is smooth and lift is steady, though it is only 200 to 500 FPM climb; *in the wave at last!*

Now the key is to hold a steady position

over the ground and maintain zero ground speed. The wind is apparently right at 45 knots at this altitude because this speed of cruise holds our position. The cockpit starts to frost badly on the inside and I open the two small storm windows to improve visibility. Have to stay VFR because the flight instruments are not connected on this ship.

Now at 18,000 feet but the rate of climb is *zero*. I talk to the chief instructor on the radio and he suggests a change in area. *Marcel* has passed 20,000 and is still climbing. Accordingly, we turn crosswind and shift to the northwest a mile or so downwind of the peak of the *Montagne de Lure* and find—800 FPM sink enroute to the new position.

We increase our speed to get through the area of sink as rapidly as possible. and at last the hand moves back up to zero and finally to plus 300 FPM again. However, it is soon lost and it takes a few seconds to realize that the problem is a stronger wind at this altitude which is moving us back to the down side of the wave. An increase of speed of about 5 MPH shows this to be correct and now the lift is steady again. It's really getting cold now with the windows open; someone radioes that it is -40 degrees Fahrenheit at 25,000 feet according to a recent radiosounde.

About this time an *Air Force C-130* comes lumbering by and as I listened to his engines I couldn't help but wish that I could hear the crew's comments as well. It must have been something of a surprise to see a glider climbing through their altitude when they were cruising at about 20,000 feet.

By this time the ice is quite heavy on the inside of the canopy and I can't do much scraping at this temperature for it isn't safe to leave a hand out of a glove for long. However, all the other problems seem to be over and we climb in steady lift to the required altitude and then on to a little above 25,000 feet just to be *sure* that the diamond altitude is recorded on the barograph. Still climbing at 240 FPM, I then roll her over and start down, scratching ice all the way down to get a clear spot for landing.

Back on the ground I found *Marcel* there ahead of me with a successful flight and all my other friends most pleased at the results. You can be certain I slept peacefully on the night train to Paris.

"AS YE SEW . . ."

► *Practical jokesters are quite prevalent throughout Army aviation, the layman often reasoning that the aviator's zany actions on the ground are a result of his over-inhalation of "rarified air." The latest "roast" on record is one that was, as we were told, precipitated by the delivery of an unwanted horse and a sizable pile of manure to the well-manicured surburban home of an unsuspecting Pentagoner. (What does one do when the front doorbell rings and one finds a delivery truck with this kind of a drop shipment?)*

The massive retaliation was swift. Plotter No. 1, having swept the shelves of a Supermarket clean, returned with his family after a full afternoon to his equally well-manicured suburban home. Front door painted orange? Garage doors nailed tight? Nothing so mundane as that.

Cemented into dead center of his driveway was an object from the City of Brotherly Love—a large, authentic, forboding, stolen Philadelphia fireplug, later to be surrounded by chuckling (but incommunicado) neighbors, and interested (but equally silent) dogs . . . As ye sew, so shall ye reap. ◄◄

CANDIDATE FLY BURIED AT WOLTERS WITH FULL MILITARY HONORS

Honorary warrant officer candidate *Willie W. Fly* was laid to rest recently in one of the most elaborate burial ceremonies held to date by warrant officer candidates undergoing rotary wing training at the U.S. Army Primary Helicopter School at Camp Wolters, Texas.

Candidate Fly, according to Class 60-2W, met his end when he miscalculated a routine autorotation maneuver and tail-spinned into a *can of metal polish*.

Upholding the tradition set forth by former classes, *WOC Fly* lay in state in the tactical section of Student Company Headquarters for one week prior to the burial. By consent of the class members, the deceased was cremated before being entombed.

Buried in Butt Hill

All 29 candidates of the Class 60-2W, equipped with crying towels, participated in their fallen buddy's funeral procession and grave-side services. The procession began at Student Company Headquarters and ended at Butt Hill Cemetery. A military funeral, *complete with honor guard, durm rolls, ceremonial firing, and the playing of taps*, was held in honor of *Candidate Fly*.

Attending the services in addition to the candidates were *Maj. James R. Emerson*, USAPHS executive officer; *Lt. Ronald W. Metzger* and *WO John D. Johns*, tactical officers; *Sfc's Harry Mitchem* and *Harry Edgin*, tactical NCO's; wives and children of the bereaved candidates; and friends of the deceased.

Engraved on Willie's headstone is this epitaph: *"Here lies Willie W. Fly, In autorotation he did die, Laid to rest 'neath Texas blue, By the best—60-2."*

A Wolters Tradition

The Butt Hill ceremony is traditional with warrant officer candidates at the *USAPHS*. It all started approximately three years ago when tactical officers at the school discovered a cigarette butt on the school premises and ordered the candidates to bury it.

They did just that, and for the fun of it, the students placed a marker on the "grave." Succeeding classes picked up the spirit of the burials and for several months thereafter, tiny graves dotted the school area. School officials then decided to *centralize* the location of the graves, so graves and markers were moved to what is now known as *"Butt Hill Cemetery."*

Butt Hill is a well-kept miniature sized cemetery, encircled by a picket fence, and is a popular attraction with visitors touring the helicopter school. Each student class either buys or makes markers to be placed over their "deceased." The markers range from simple wooden crosses to elaborate marble headstones.

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Proud Moment

Honor Graduate, Maj. Susumu Yamasaki of the Japanese Army, (r.) the second foreign national student to graduate USAPHS as an honor student, is shown receiving his diploma from Col. John L. Inskeep, Camp Wolters commander, in recent ceremonies. Present to extend their congratulations to the Major are Raymond Thomas, general manager of Southern Airways and Brig. Gen. William B. Bunker, Command General, TMC, the guest speaker at the graduation exercises. (U.S. Army photo).

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A "First"

Maj. Joseph M. Bowers (r.), commander of the 64th Trans Co (Lt Hel), Fort Knox, Ky., is shown receiving a Superior Performance Award for a STRAC unit from Maj Gen. Ralph J. Butchers, CG of USATCA, Ft. Knox In accepting the Award Major Bowers had the honor of commanding the only aviation unit of its kind to receive such an Award in CONUS. To qualify, units must maintain an excellent or higher rating in all activities during a calendar year.

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APO 29, N.Y., N.Y.

PROBST, Joe M.
720 West Ash
Junction City, Kansas

SCOTT, Delmont H.
Off Stu Det, Box S-74
Ft. Rucker, Alabama

CWOs (Continued)

ULM, Arthur J., Jr.
36th Trans Co (LH)
APO 165, N.Y., N.Y.

WILSON, Harvey W.
1825 N. 22nd Street
Lawton, Okla.

WOODBECK, C.F.
Hq, USA Msl Comd
Redstone Arsenal, Ala.

WOs

RODGERS, Ronald D.
269 E. Romic Lane
Salinas, Calif.

SFCs

REIERSON, Raymond J.
1st USA Flt Det, Floyd Bennett NAS, Bklyn, N.Y.

FRIENDS

CHAIRES, William R.
2071 Linn Blvd, S.E.
Cedar Rapids, Iowa

JEWETT, Toby
1853 Van Dorn
Lincoln, Nebr.

McCORD, Thomas B.
1013 Skyway Blvd.
Colo Springs, Colo.

McHENRY, Douglas B.
P.O. Box 186
Yorktown, Va.

WRIGHT, Mrs. M. R.
Route 2, Box 66
Prairie Grove, Ark.

AAAA News

Suspense Date for Nominations Advanced by Awards Committee

Acknowledging several requests for postponement of the suspense date for the submission of nominations for AAAA Awards, *Col. Robert M. Leich,* Chairman of the National Awards Committee, extended the closing date for submissions to *July 15, 1960.*

In advancing the date, he also reported to the 5-member Committee that he had received a "most rewarding return" of nominations from Army Area aviation officers, industry members, and individual members.

The Awards are to be presented at the Annual Awards Luncheon held on August 8th during the AAAA Annual Meeting.

Members desiring to submit nominations for the *JAMES H. McCLELLAN SAFETY AWARD,* the *AAAA AWARD TO THE ARMY AVIATOR FOR 1959,* and the *HUGHES AWARD TO AN OUTSTANDING AVIATION UNIT* are asked to refer to the awards criteria listed in the April, 1960 issue, and to submit their nominations, together with brief documentation, to:

Colonel Robert M. Leich
Chairman National Awards Committee
P.O. Box 869
Evansville, Indiana

Oklahoma Region Sponsors Birthday Ball

"The 18th Anniversary Ball sponsored by the *OKLAHOMA REGION* was a *BALL!* Well over 300 persons attended the June 4th Birthday Dinner-Dance held at the Lawtonian Hotel in Lawton, Okla.

Honored guests at the celebration were *Representative Toby Morris; Brig. Gen. Clyde J. Watts,* CG, XIX Corps Artillery; *Lt. Col. Bruns Meeker,* Post Aviation Officer; *Lt. Col. James Hill, Jr.,* CO, 3rd Howitzer Battalion, Ft. Sill; and their wives.

Representative Morris, in delivering the principal address of the evening, recalled the history of Army aviation and the relative importance of Fort Sill in its growth, concluding with comments on the roll of Army aviation in the nuclear battlefield.

In other highlights, *Lt. Col. and Mrs. James Hill* (see below) cut the *Anniver-*

PLAN TO ATTEND

AAAA ANNUAL MEETING
AUGUST 6-7-8
SHERATON-PARK HOTEL, WASHINGTON, D.C.

Advance Get-Together, August 6th

Business Sessions, August 7th

AAAA-Industry Co-Sponsored Reception, August 7th

Annual Honors Luncheon, August 8th

AUSA Annual Meeting, August 8-10th

REGISTRATION COUPON

AAAA ANNUAL MEETING
P.O. Box 1528
Washington 13, D.C.

Enclosed please find $..... in payment of my registration for the AAAA Annual Meeting and tickets indicated below:

FUNCTION	QUANTITY DESIRED	UNIT PRICE MIL	UNIT PRICE CIV	AMOUNT
Registration (Includes Reception)	.....	$2.00	$3.00	.....
Honors Luncheon	.....	$5.00	$5.00	.....

Name .....
(Print or type) (Rank or Title of Position)

Address .....
(Street) (City or Station)

FULL PAYMENT MUST ACCOMPANY THIS REGISTRATION

sary Cake with a symbolic propeller. Though disclaiming the title of "oldest Aviator" present, *Col. Hill* did serve as a member of the original 1942 test group that fostered modern Army aviation.

In another ceremony, *Representative Morris* (right below) presented Master Army Aviator wings to *Capt. Leo Bergeron* while *Maj. Norman V. Goodwin* (Pres., *OKLAHOMA REGION*), *Lt. Col. Raymond Johnson*, and *Capt. Raymond McLaughlin* (l-r), all Master AAs, looked on.

The attendees also viewed the appropriate film parody, *"The First Fifteen Years of Army Aviation,"* and the humorous *"Gooney Birds."*

—Lt. Paul W. Bass

Monterey Chapter Members Hear Hiller Representative

Continuing their Luncheon Meeting Programming, members of the *MONTEREY CHAPTER* heard *"Bud" Chaney* of the Hiller Aircraft Corporation outline Hiller efforts during the course of a recent "business-educational" meeting.

Prior to viewing the movies and slides presented by the Hiller representaive, Chapter members reviewed their coming programming, to include a *"cookout"* and a later *"Casino Night,"* and took Chapter action to submit Award nominations.

—Capt. Donald I. Hobbes

Lapel Insignia Available From National Office

Distinctive 3-color *AAAA lapel insignia* may be secured by members through direct purchase from the National Office. The *lapel pins* (with screw-type clasp) are standard size and have white, red, and gold inlays. Members should forward $1.00 or a check made payable to AAAA, together with a stamped, return-addressed envelope.

NEW OFFICERS

USAREUR Region

President: Maj. Gen. Thomas F. Van Natta
Exec. VP: Lt. Col. Rowan P. Alexander
Secretary: Lt. Col. James H. Lee
MEMBERS-AT-LARGE
4th Trans Co Chapter: Maj. Keith J. Bauer
Stuttgart Chapter: To Be Elected.
Heidelberg Chapter: To Be Elected.

Heidelberg Chapter

President: Maj. Gen. Thomas F. Van Natta
Exec VP: To Be Elected.
VP, Army Affairs: Capt. John L. Cecil
VP, Industrial Affairs: Capt. Charles W. Sills
VP, Public Affairs: Capt. Frederick B. Weller
Treasurer: Capt. Benjamin W. Waterman
Secretary: Capt. John E. Morel

Fort Meade Chapter

President: Capt. Harry E. Ziegler
Exec VP: Capt.. Jack L. Keaton
VP, Army Affairs: Maj. Paul R. Kaster
VP, ARNG Affairs: Capt. Thomas V. Murphy
VP, Reserve Affairs: Lt. Col. Roy B. Southworth
VP, Industrial Affairs: Capt. Lawrence J. Wangerin
VP, Public Affairs: Capt. Fred W. McGowan
Treasurer: Lt. Donald L. Naylor
Secretary: Lt. Gennaro J. Iacomino

AAAA CALENDAR

June 7 — PIKES PEAK CHAPTER. Educational Meeting. Golden Boot NCO Club, Ft. Carson, Colo.
June 10 — HEIDELBERG CHAPTER. Social-Business Meeting. Mannheim, Germany.
August 7-8 — AAAA Annual Meeting. Sheraton-Park Hotel, Washington, D.C.

SITE SUPPORT IN MINUTES WITH ALOUETTES!

ALOUETTE

AND THE "MINUTES PHILOSOPHY"

Our defense and offense complex must function in a matter of minutes. Reliable missile site support in "minutes" can be maintained by instant-starting, jet-powered Alouette helicopters, world's only time-proven turbine copter. An Alouette Site Support Program is immediately available to the military—with tested reliability, and low maintenance and operational costs — at ONE-HALF THE COST of comparable programs.*

The Alouette MEANS reliability, ease of maintenance and minimum operational budgets with the advantages of turbine power.

*Designed by Sud Aviation

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FARMINGDALE, LONG ISLAND, N. Y.

ARMY AVIATION MAGAZINE
Westport, Connecticut

THE FORMAT...

Since its inception in 1953, this magazine has relied upon the professionals within this field to tell the month-to-month "Army aviation story." We feel that those career personnel who are involved in *daily* actions in operations, logistics, testing, and the many other facets of Army aviation are the *most informed sources* in this field.

We're not permitted the luxury of an editorial staff. Even if this were possible, it is doubtful if a civilian staff could improve upon the lucid, factual presentations made by full-time professionals.

It is important that we stress this fact from time to time so that our "new" reader will understand that the format of any given issue is determined by the submissions received from those directly concerned with Army aviation. Where the "new" reader does not find a particular "section" that he would like to read, or where he finds that several "sections" vary in coverage from month-to-month, he is asked to understand that voluntary editorial submissions and their type are a "variable" over which the editors have no control. We've found that there's only one "constant" in this pursuit: some 150-225 *Change of Address Notices* are submitted each month.