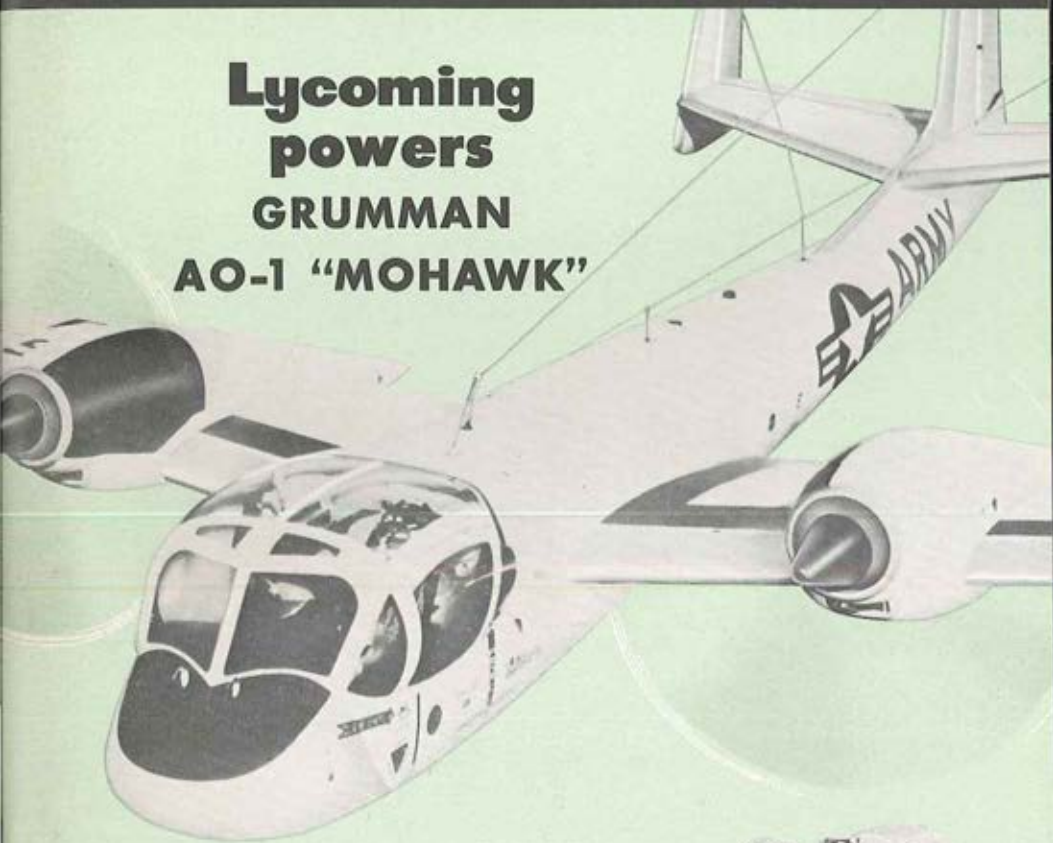


ARMY AVIATION

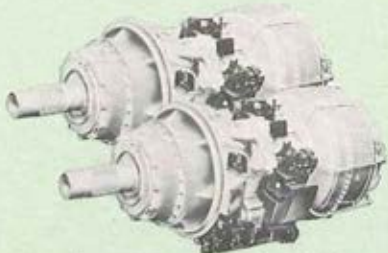
NOVEMBER, 1961

**Lycoming
powers
GRUMMAN
AO-1 "MOHAWK"**



Lycoming

Division— **Avco** Corporation
Stratford, Conn. • Williamsport, Pa.



Powered by two Lycoming T53-L-3 gas turbine engines rated 960 shp each.

chipook

PROGRESS

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SUMMARY

October, 1961

LIGHT DEMONSTRATION



On 19 October 1961, approximately 150 military guests witnessed the first official flight demonstration of the U. S. Army's new Chinook Transport Helicopter at the Philadelphia International Airport. The program, which demonstrated the envelope established during the first 15 hours of airborne testing, included sideward and rearward flight to 30 knots and forward flight at 122 knots.

The Chinook test program is continuing to expand the flight envelope and to develop performance, stability, control and equipment data.

ARMY AVIATION

VOLUME 10

NOVEMBER, 1961

NUMBER 11

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DOROTHY KESTEN, Publisher

Sworn and subscribed before me this 24th day of October, 1961. Paul Zadoff, Notary Public in the State of Connecticut. Commission expires April 1, 1962.

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MISSION ACCOMPLISHED BELL

IN 1961 LOOK TO **BELL** FOR THE FIRST STRING **TURBINE TALENT TEAM**



XH-13-F



XH-40



HUL-1-M

At Bell Helicopter, this "first-string" leadership has been earned by delivering consistently superior performance in the development of turbine-powered helicopters.

This is the Bell record: (1954) first in the world to fly a fixed turbine-powered helicopter test-bed . . . the XH-13-F, equipped with an Artouste engine . . . for the U. S. Air Force using an Army helicopter . . .

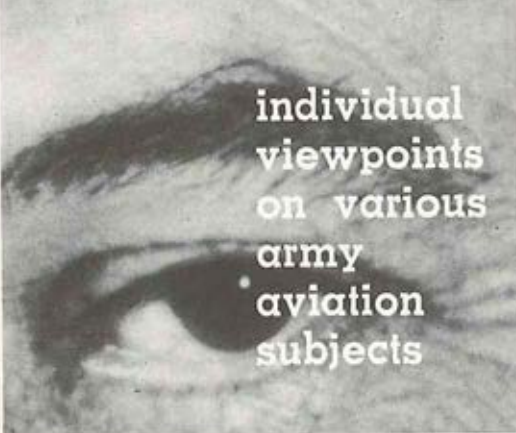
(1956) again first in development with flight of the T-53 powered XH-40, prototype of the presently operational Army HU-1 series, holder of seven world records and the first turbine helicopter designed for specific mission capability . . .

(1960) still the leader with the first T-63 turbine-powered 4-place helicopter test-bed, the U. S. Navy HUL-1-M.

(1961) one of the companies selected to develop a prototype of the Army's Light Observation Helicopter . . . an extension of Bell's know-how with the Allison T-63 gas-turbine engine/helicopter combination.

This constant pioneering desire to test-out and deliver proven turbine-powered light helicopters is typical of Bell's *turbine talent team* . . . experienced, practical minds which constantly anticipate new performance goals in Bell's dedicated policy of leadership in turbine helicopters.

BELL 
HELICOPTER
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A DIVISION OF BELL AIRSPACE CORPORATION
A  COMPANY



individual
viewpoints
on various
army
aviation
subjects

OPEN LINE

DOCTRINE - POLICY - OPINION

Armey aviation, although an advanced "teen-ager" in relative years, is still a young baby in the Army when compared to the authorized Arms and Branches. We are plagued all too frequently by expressions of opinion which are passed on to the listener or reader as "policy" or "doctrine."

IN THE ARTILLERY, for example, there are certain set methods of conducting a survey or employing weapons. The reason? Many dozens of years have gone by during which artillerymen have been able to apply the trial and error method to technical methods and operational concepts. The results become sound doctrine which is not changed without extensive staffing of the new idea and testing of the concept change itself.

IN OUR OWN Army aviation program we have perhaps been too prone, due to a sincere sense of urgency, to accept one idea based upon opinion of one person or a few individuals and call it "doctrine."

IF WE LOOK CLOSELY we will find that Webster defines "opinion" as "a belief or judgment," or "a statement made by an expert after careful study." And, of course, we are all experts!

DOCTRINE, on the other hand, sets forth principles derived from reason and experience which indicate and guide but do not bind in practice. Doctrine depends for effectiveness on intelligent application.

POLICY DIFFERS from doctrine in that policy is a course of action which governs conduct of operations. Policy and operations are most effective when they are in harmony with sound doctrine.

OPINIONS OF MANY eventually may form doctrine. Doctrine becomes flexible guidance for the commander upon which he bases a policy decision. We frequently hear the phrase "It is the Army policy that. . ." Too often it refers to opinion, rather than policy or doctrine.

IN THE ARMY we receive general doctrinal guidance from FM 100-1. It is here that broad guidelines are laid down to be spelled out in greater detail within other applicable field manuals. FM 100-1, revised to keep pace with changing times, is carefully staffed so that as published it becomes an official Army position. Other field and technical manuals should not conflict with FM 100-1, otherwise the system breaks down in a maze of contradictions.

POLICY, on the other hand, can be made official as a result of various types of actions. For example, overall Army policy relative to increasing the inventory of Army aircraft over a period of years has been determined as a result of Ad Hoc Committee recommendations as approved by the Army Chief of Staff (i.e., Rogers Board on aircraft requirements). Policy relative to the wearing of the uniform can be considered "official" simply by a statement of the Chief of Staff as reduced to a memo for record.

POLICY IS NOT necessarily restricted to high levels of command. Commanders at all echelons can express and implement their own policies within their commands as they see fit. A post commander, for example, can establish as his policy a half-day recreation per week for all personnel in his command or a specific time schedule for proficiency flight training of aviators of his command.

POLICY IS AN EXPRESSION of command decision. Doctrine for military functions and operations is a staffed position as expressed in field manuals. Opinion is an uncoordinated idea or expression of but one individual or a group of individuals.

IT IS ADVISABLE, therefore, to ask ourselves -- "Is it doctrine, policy, or opinion?" before we take too much for granted.

LT. COL. WILLIAM G. KILMER
54th Transportation Battalion
APO 165, New York, N.Y.

U.S. AVIATION LEADERS URGE ALL-OUT EFFORT ON RECORDS

■ A special committee of high-ranking aerospace leaders of government and industry called for the U.S. to step up its efforts in breaking world aircraft records now held by other countries, and to develop crack U.S. teams to take part in international aviation competitions. The Committee, headed by Jacqueline Cochran, President of the NAA and including Brig. Gen. Clifton F. von Kann, met in closed session in Washington and reviewed the aircraft files maintained by the National Aeronautic Ass'n. Since January, U.S. planes, both civil and military, have set or captured 36 records, putting the U.S. slightly ahead of Russia for the first time in several years.

The Committee was informed that the 53 nations represented in the Federation Aeronautique Internationale now hold a total of 422 aircraft and spacecraft records. Of these, the U.S. holds 115 and Soviet Russia holds 105.

The Committee gave special attention to one particular category of records held by Russia - records with payloads. More than half of Russia's records concern themselves with the "payload" categories. "It is apparent," the Committee said, "that U.S. manufacturers and the military services have concentrated on the more spectacular records, such as speed, altitude, and distance, rather than on the payload category." The Committee urged new efforts by all in the latter-area.

FACES IN THE NEWS



COLONEL L.W. LEEENEY, former President of the Georgia Region of AAAA, was elected AAAA National Treasurer, succeeding Lt. Col. Charles E. Haydock, Jr. Currently a student at the National War College in Washington, D.C., the former Lawson Army Airfield commander will serve on the Nat'l Executive Board until 1963.



BRIG. GEN. CLIFTON F. VON KANN, Director of Army Aviation, ODCSOPS, has been selected by the Pentagon to serve as the Assistant Chief of Staff for Operations at the new U.S. Strike Command at MacDill AFB, Fla. The airborne-qualified general officer has been recommended for promotion to the rank of major general.



MAJ. GEN. WILLIAM B. BUNKER, the Commanding General of USATMC, St. Louis, Mo., will serve as host for the five-day Army-Industry Aviation Logistic Symposium to be held at the Congress Hotel, St. Louis, starting Nov. 27. Some 200 Army and industry representatives are expected to attend the gathering.



CAPT. JESSE L. WILKINSON, Operations Officer, Aviation Staff, 4th Infantry Division, Ft. Lewis, Wash., recently made a Mach 1.5 flight in Lockheed's 1,500-m.p.h. F-104 Super Starfighter during a recent tour of Lockheed-California facilities in the company of Maj. Gen. William F. Train, CG, 4th Infantry Division.



NEIL P. WHITNEY, former general manager of Cessna Aircraft Company's Industrial Products Division at Hutchinson, Kan., has been appointed President of the Aircraft Radio Corporation of Bonton, N.J., succeeding William F. Sauer who resigned. A graduate of Butler University, Whitney served with the QMC during World War II.



JUST VISITING

The Army's Light Observation Helicopter will be more at home in a jungle clearing... on a desert badland... or canyon shelf. A basic specification of the LOH: liveability on the front lines. Maintenance will be radically simplified, logistical support reduced to minimum.

No quick answer, no revolutionary new idea attains this goal. The answer lies in hard-won, but proven, concepts evolved through the orderly exploration and development of vertical flight technology.

As with the LOH, there is no short cut to a solid national defense. Achieving it demands the shrewd utilization of resources whose primary values are experience... reliability... military-industry-team professionalism... and the ability to go forward with logic and order.

Designs are one thing. Deliveries another. Both come from

HILLER 
AIRCRAFT CORP.

PALO ALTO, CALIFORNIA • WASHINGTON, D.C.
Adhesive Engineering Division, San Carlos, California
SUBSIDIARY OF THE ELECTRIC AUTOLITE COMPANY



GEN. VON KANN



GEN. ODEN

A LONG OVERDUE . . .

This will be my final letter to you as Director of Army Aviation. By the time you read this, you will probably have learned from other sources that I have been assigned to the new joint headquarters which combines certain elements of STRAC and TAC, and that the Aviation Directorate is in the capable hands of General Delk Oden.

I leave with the amazed feeling that two and a half years could have gone so quickly and with the realization that much remains to be done. This has been a wonderful and challenging assignment during a period of major changes. I consider myself very fortunate to have been associated with the program so important to the Army's future.

In my previous 25 letters, I have covered many facets of our program, especially in problem areas. This, of course, is the basic purpose of these letters. At times, I realize I must have given the reaction of nit picking on minutiae. Therefore, I would like to devote this final letter to a long overdue pat on the back for Army aviation and Army Aviators.

He is expected to compete with contemporaries of his branch for promotion, schooling, and the like; yet he is asked to be an instrument pilot, an aviation staff expert, and he must be qualified in a bewildering number of complex aircraft. No one hesitates to call him after duty hours to fly someone at night or on the weekend - after all, he gets flight pay! He is expected to crawl in and out and over an aircraft all day and yet present the very picture of the parade ground soldier. And the stunning fact is that by and large he DOES do all these things and quite well, thank you! The image of the "fly boy" is fading into history, and the new image of the "flying soldier" is due to your untiring devotion.

Make no mistake - there is still a long, hard road ahead of us. We have only started to procure the proper equipment; we have only scratched the air mobility potential; and we are in the infancy of aerial armament. But I am confident of the future because I have confidence in those who will carry on this program.

In my travels to the organization in the field, I often get the impression that some aviators feel

. . . PAT ON THE BACK

"Army aviation" as a whole only exists in the spirit of dedication of the individual aviators - no branch; no command; no tangible link among 6,500 aviators and many more thousand enlisted men throughout the world. Yet I have found the strongest ties and a mutual belief in a single goal - an air-minded, air-mobile Army. I am very proud to be one of you.

I know the perils and pitfalls in the Army Aviator's career. He must be a specialist in the truest sense, yet never be tagged a specialist.

isolated and cut off from the program - that if one is not in Washington or a higher headquarters, there is no chance for positive influence. Nothing could be further from the truth. As a matter of fact, the DA staff officer has the opposite reaction. He feels that being tied to a desk has taken away some of the opportunities he might have with a unit. The basic fact is this. To move our program forward, we need effectively presented knowledge of aviation up and down the

BEECH "IMAGINITY" IN
Air Mobility



AS COMMAND LIAISON TRANSPORT,
THE L-23F HAS SEPARATE PILOT
COMPARTMENT AND "CONFERENCE
ROOM" PASSENGER CABIN.



CONVERTS QUICKLY TO
FAST, RUGGED, ROOMY
AERIAL AMBULANCE.



FOR HIGH-PRIORITY CARGO
TRANSPORTATION, PASSENGER
SEATS COME OUT QUICKLY.

The Beechcraft L-23F . . . meets the need for . . .

Air mobility that combines versatility, high performance, and low cost:

The new Beechcraft L-23F offers a combination of advantages found in no other aircraft. With its supercharged fuel injection engines, the L-23F provides fast, comfortable all-weather transportation that can span long distances in a hurry. Yet it is so ruggedly built that it can operate safely even from small, unimproved fields. The L-23F offers air mobility for a

wide range of uses at a fraction of the cost of operating larger planes. Quickly and easily adaptable to the installation of ground surveillance radar, the L-23F can also be converted quickly for liaison and cargo missions. Its versatility is further demonstrated by its rapidly growing popularity as a multi-engine instrument trainer.

Beech *Aerospace Division*

BEECH AIRCRAFT CORPORATION • WICHITA 1, KANSAS, U. S. A.

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.



SHOWN DURING A JOINT MOBILITY EXERCISE HELD EARLIER THIS YEAR IN THE PHILIPPINES, HU-1A's OF THE 53RD AVIATION FLIGHT DETACHMENT (OKINAWA) PARTICIPATE IN OPERATION LONG PASS. AFTER TAKEOFF FROM THE DECK OF THE USNS "BRETON," THE TWELVE IROQUOIS FLEW AN AVERAGE EIGHT HOURS PER DAY WITH A NINETY PER CENT AVAILABILITY RATIO. (U.S. ARMY PHOTO)

chain of command. Little can be accomplished at the staff level without the impetus from the lower echelons; the individual aviator or unit has a right to expect responsiveness and knowledgeable aviation staff support. Every person in our program has a responsibility greater than the average soldier. Even in peacetime, the mechanic is dealing with the very lives of his comrades - he is entrusted with some of the most expensive equipment in the Army - and, in the event of war, he will be asked to perform a series of minor miracles.

Our splendid group of enlisted specialists deserve special mention. They bear the largest burden in a program of growing complexity. We may preflight our aircraft conscientiously - but we do so with the full knowledge that we can only make the most perfunctory check compared to the hours put in by highly skilled crew chiefs. As a whole, Army Aviators have put their faith in these men, and this faith has not been misplaced. I am happy to report that many aviation organizations outside the Army have recognized the technical excellence of our air controllers, tower operators, GCA operators, and our other specialists. To them, along with their supervisors and instructors, I add my congratulations for a job well done.

There is another element of that intangible thing called "Army aviation" which comprises some of our strongest supporters. I am referring to our many friends in civilian life - in industry, journalism, civic associations, science, and in other governmental agencies - who have contributed so much to our progress. It has been a distinct privilege to have been closely associated with this group over the past couple of years.

In parting, I hasten to warn you that you are not getting me out of Army aviation. No matter what my future tasks may be, I hope to continue to participate as an individual Army Aviator and to watch with interest your future progress. And I will view such progress not as a limited success of a special group within the Army, but as an indication of the growing strength of the Army as a vital element in our National Defense.

CAVU,

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

LOW-LEVEL NAVIGATION

Since "Korea" the helicopter has become an important instrument within the battlefield environment. Missions that can now be accomplished are many and varied. With the increase in the number of Army aircraft, the dispersion of friendly units required by use of nuclear weapons, and the improvement in enemy air defense means, the requirement for effective low-level navigation takes on new significance.

IT IS READILY apparent to those concerned with this problem, especially to the rotary wing aviator, that new techniques must be learned and applied. He realizes that to be successful or to merely survive, he must alter his mode of flying. Army aircraft will have to operate at the lower altitudes previously reserved for foxholes.

THIS IS PARTICULARLY true of aircraft involved in aerial combat reconnaissance and helicopter assaults. Low-level operations are - and will continue to be - necessary to maximize the element of surprise, to avoid detection and, most important, to minimize the effect of enemy air defense systems.

IT MUST NOW be obvious that low-level flight will magnify the inherent problems of navigation, i.e., checkpoints, time, distance, and obstacles encountered.

CHECKPOINT ALL-IMPORTANT

WHILE THE VAST AREA of this problem is recognized, the checkpoint is perhaps the one area where the low-level navigator must focus his detailed attention. Aircraft operating at or above 500 feet use the checkpoint as confirmation of avionic equipment on board. Although not critical to the aircraft above 500 feet, it constitutes a very real problem to low-level operation.

A ROAD JUNCTION is a prime example. It appears to the aviator operating at 500 feet for



OVER THE GUN-SIGHT

approximately three to four minutes and appears only for a few seconds on a nap-of-the-earth flight, if at all. Consequently, the road junction is not always a sound checkpoint. Even though the aviator passes within 100 or 200 meters of this point, he may never see it, hence it is unusable. We will have to make do with others more discernible - those we are able to recognize at a glance.

EVEN THE OLD RELIABLE time-distance method may not be utilized to advantage. The aviator experiencing enemy fire may have to alter his entire course to avoid destruction. At best, he may only be delayed a short time. While under fire, or taking the necessary detour, the time-distance factors become unreliable and he then requires something more dependable.

DETOURS MAY BE NECESSARY

EXPERIENCE HERE indicates that prominent landmarks, terrain features, and distinguishable man-made objects will be usable. A distinctive bluff, ridge line, an irregular break in the tree line, or an isolated farm will provide the fast moving aviator with near pinpoint positioning as he scurries past. His immediate horizon is narrowed considerably during low-level flight; therefore, those features rising above the imme-

BY
COL. JACK K. NORRIS
COMMANDANT, USAPHS

diate horizon, either near or distant, and thus silhouetted by the sky, provide especially good checkpoints. By using those checkpoints above and beyond his immediate field of vision, he will be less apt to become disoriented.

DURING A nap-of-the-earth flight, the pilot will have to exert intense concentration on flying his aircraft and will be able to take only cursory glances at his map. Will he be successful, relying upon his prior knowledge of the terrain or adequate planning of his mission?

DETAILED PLANNING ESSENTIAL

FOR THE AVIATOR to plan a good mission, time must be available. He should utilize devices such as terrain models, sand boards, vinyl plastic relief maps, and large scale tactical maps as available. From these must be gleaned the very important checkpoints to be used and recognized during flight. They should be so familiar that during flight recognition is instantaneous. Thus, the key role of a checkpoint and the importance of careful detailed planning prior to flight.

AIDS WITHIN THE AIRCRAFT beyond the bulky chart or tactical maps will have to be developed. Perhaps inertial guidance systems or other electronic gear not subject to line or sight operation must be adopted. This type of equipment must be reliable and compact enough for use in the observation helicopter. It should be of such a nature as to leave the aviator free to fly his aircraft.

TESTS AT THE Combat Development Experimental Center show memory retention poor after thirty to forty minutes of flying. Tests run here at the US Army Primary Helicopter School verify those results. As stated before, the aviator has minimum time at tree top level to navigate. His instruments must be reliable. He cannot afford the mental gymnastics of elaborate computations and safely accomplish his mission.

NOT SINCE the days when T.S.C. Lowe's balloon corps gave birth to new military strategy, has there been such a vital need of review and challenge of our navigation techniques. An entire new field of "low-level navigation" lies before us.

HILLER UNVEILS TEN99

■ In a November 16 release, Hiller Aircraft Corp. revealed in-flight photographs of its new "Ten99", a six-place utility helicopter powered by a Canadian Pratt & Whitney PT6 turbine engine. The company's entry in the Marine Corps Assault Support Helicopter (ASH) competition, the "Ten99" has been viewed by many U.S. Army authorities while undergoing secret full-scale tests during the past six months.

Described as a multi-purpose helicopter, the new aircraft's 500 h.p. PT6 powerplant has passed its official 50-hour U.S. Government qualification tests.

"SMALLEST BIG 'COPTER"

In showing the new rotorcraft, President Stanley Hiller, Jr. described the new aircraft as the "smallest big helicopter flying." No larger in overall dimension than Hiller's current 12E, the production Ten99 will carry six people - twice that of the 12E.

The Ten99 features large aft-loading clamshell doors which open the ship's 100 cu. ft. box-like compartment for rapid access. Four additional side doors are also provided for side and through-loading. Payload of the Ten99 is in excess of 1,000 lbs.

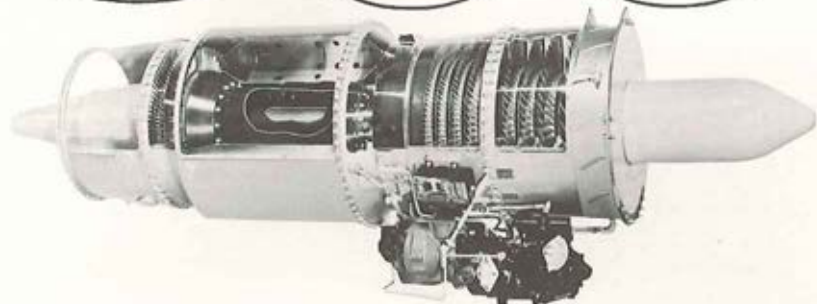
The new design was based upon extensive military and commercial market analyses begun two-and-a-half years ago by the California con-



cern. In addition to its military applications, the Ten99 has heavy duty and passenger adaptability in commercial operations.

The original program behind the Ten99 included market evaluations, wind tunnel testing, and fabrication of a full-scale mock-up helicopter which was demonstrated around the U.S. during the past two years to extract quantitative military and civilian reaction and design assistance. The mock-up was known as "CAMEL."

J60



WHAT WILL THIS VERSATILE TURBOJET DO NEXT?

Pratt & Whitney Aircraft's J60 (JT12) jet engine, which weighs only 436 pounds yet produces 3,000 pounds of thrust, has demonstrated its versatility in a broad range of applications.

For the United States military forces, it powers the T-39 twin-engine trainer, the C-140 four-engine utility transport, and the SD-5 reconnaissance drone. It supplies power for the Canadian Air Force CL-41 single-engine trainer. The world's fastest executive transport uses the J60 which also has been ordered for a West German high altitude research glider.

Add a free turbine, and the J60 becomes a turboshaft engine, developing 4,050 shaft horsepower. Two of these turboshaft engines will give advanced helicopters power to lift nine tons. This version of the J60 is also projected for VTOL aircraft.

A modified J60 for industrial uses will supply power for pumps, compressors, electric generators—and can be adapted for use in ships and heavy earth-moving vehicles.

Whatever its application, the J60's simple, rugged design ensures high reliability and easy maintenance.

Pratt & Whitney Aircraft

Division of UNITED AIRCRAFT CORPORATION
East Hartford, Connecticut



"Now everybody hover!"



DEL MAR OBSOLETES AGE-OLD 1-TO-1 PILOT TRAINING RATIO ...Puts One Instructor in Many Craft Simultaneously

Since the inception of flight, the only safe way to instruct a new pilot has been on a one-student-at-a-time basis. This has been especially true in primary flight training. And because of this, the number of students which could be safely processed has been critically limited by the number of qualified instructors available.

Now Del Mar introduces a new concept in helicopter flight training—the Whirlymite Self-Trainer. It is not a simulator, but an operational helicopter mounted on a highly mobile (GEM) air-cushion platform. The unique mounting of the platform permits full freedom to rotate in azimuth, rise vertically and tilt in all directions. Thus, the trainee practices all "in-flight" maneuvers without ever going more than inches off the ground ... with the complete security of the no-tilt, air-cushion platform beneath him.

The Whirlymite Self-Trainer is designed to move the student through initial training right up to solo flight, without requiring dual flight instruction. *This means that a single instructor can handle a number of students simultaneously through the training program.* And, when the initial training is completed, the Whirlymite may be easily detached from the platform to become a primary helicopter trainer.

For complete information on this versatile, low-cost training system write for Data File AA-1655-1.



INTERNATIONAL AIRPORT
LOS ANGELES 45, CALIF.



The one-man Whirlymite detaches from the air-cushion platform and serves as a fully operational primary trainer.



Del Mar's Whirlymite Self-Trainer system is presently programmed for evaluation by the U.S. Army.

LET'S TAKE A LOOK AT...

THE BASIC SKILLS OF AERIAL OBSERVERS

BY
LT. COLONEL ARNE H. ELIASSON
CHIEF, HRU, FT. RUCKER, ALA.

In today's battlefield, the task of the aerial observer is undoubtedly more difficult and hazardous than it was during World War II or in Korea. No longer can he remain at an altitude of several thousands of feet and survey the enemy territory in comparative safety. The enemy's air defense weapons, similar to our "Redeye", "Hawk" and others, make prolonged exposure fatal to the observer and the aviator piloting the aircraft.

AS A RESULT, the latest doctrine calls for Army aircraft to use "nap of the earth" techniques. Observation at low altitudes will be necessary for the observer to be successful in completing his intelligence mission.

THERE MAY be some who, at this point, say that in the next war there will be no need to risk the lives of human aerial observers. Instead, unladen aircraft stuffed with radar, television, infrared devices and other electronic gadgets, will be guided over the battle area to continuously feed information into the intelligence net. This may describe what will occur in the distant future.

OBSERVER STILL IMPORTANT

HOWEVER, in being dazzled by technological developments we must not forget what we can do now. The human aerial observer, today, is a vital part of the intelligence acquisition system. He will remain important for many years to come. This fact has been generally overlooked in the search for electronic devices with which to replace him.

TO DEVELOP methods for training men to observe from aircraft flying at low altitudes, the Deputy Chief of Staff for Intelligence, CONARC, approved Task OBSERVE for inclusion in the US Army Aviation Human Research Unit's work program. The first part of the research, which was

actively started in 1958 with Doctor Francis H. Thomas as Task Leader, has been completed. A report of the technical aspects, along with conclusions and recommendations will be published soon.

SINCE 1958, eight field tests have been conducted by personnel of Task OBSERVE at various Army installations. The first two tests were used to determine what special skills and knowledge the aerial observer needs to perform his duties most effectively. The skills and knowledge were determined to be primarily in the areas of visual search, geographical orientation, and target recognition and location. The next five tests were employed to progressively develop these areas.

TEST VISE, conducted at Fort Benning, Georgia, considered the problem of how to teach an observer to search an area methodically for enemy activity. A scanning technique, developed for the observer when operating from 50 to 300 feet above the ground, is to begin by looking out toward the horizon and then sweeping his line of sight in rapidly toward his aircraft. He continues to systematically scan the search area, as depicted in Figure 1, by making two or three progressively shorter sweeps before beginning the next cycle at the horizon again. By using this technique he is assured that he has covered the entire area.

CLASSROOM RECOGNITION

TEST RECON held jointly at Fort Rucker, Alabama, and Fort Benning, was concerned with increasing the speed of recognition once a target had been detected. By projecting on a screen, 35 mm color transparencies of military equipment in various settings ranging from open fields to heavily wooded areas, the student observer practiced recognition in a classroom. An evaluation of the effectiveness of recognition training

HUMAN RESOURCES RESEARCH OFFICE

BASIC SKILLS

in the classroom versus such training in the air was made in Test FLY at Fort Sill, Oklahoma.

TWO OTHER CRITICAL problems confront the observer: how to remain geographically oriented and how to report accurately the location of targets. Test TARLO I and TARLO II, conducted at Fort Bliss, Texas, and Fort Carson, Colorado, respectively, took these problems under consideration. The observer was taught to use an orientation sector ahead of the search sector (See Figure 2) to quickly look for preselected landmarks with which to keep oriented. The training was aimed at decreasing the time required for orientation so that more time could be spent in actually searching for intelligence information.

TEST WRAPUP, as the name implies, was the final test. It was run at Fort Hood, Texas, to determine how aerial observers trained by methods developed by Task OBSERVE compare with those trained under the conventional methods. Task OBSERVE experimental students each received 29 hours of classroom instruction and 3 hours of practical flight training. By contrast, most of the conventionally trained aerial observers, having been trained in accordance with AR 95-51, "Aerial observer training," had received 78 hours of classroom instruction and 20 hours of practical flight training. This latter group, in addition, had logged an average of 17 hours in the air after completion of observer training.

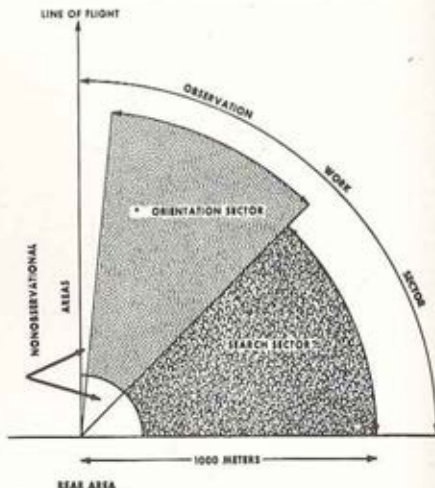
COMPARATIVE EVALUATION

DESPITE THE MINIMUM training, the experimental students identified military targets more completely and accurately than the conventionally trained observers in a practical exercise conducted during Test WRAPUP. Both groups reported target locations with equal accuracy. In a simulated combat intelligence mission of one hour duration following the practical exercise, there was no difference between the two groups in their ability to detect, identify, and locate targets from low altitudes. The results of this final test, as well as data from previous tests, are included in the Technical Report.

PERHAPS OF EVEN greater interest than the Technical Report itself, is a supplement to the report in the form of a manual that can be used by units in field training. The supplement which was compiled by Capt. James M. Hesson, Assistant Research Coordinator for Task OBSERVE, covers the basic skills of visual aerial observation. It provides the unit training officer with information on aerial observer training

FIGURE 2

TO ASSIST IN ORIENTATION, THE OBSERVER MAY USE ANY TERRAIN FEATURE REGARDLESS OF ITS DISTANCE FROM THE GROUND TRACK OF THE AIRCRAFT.



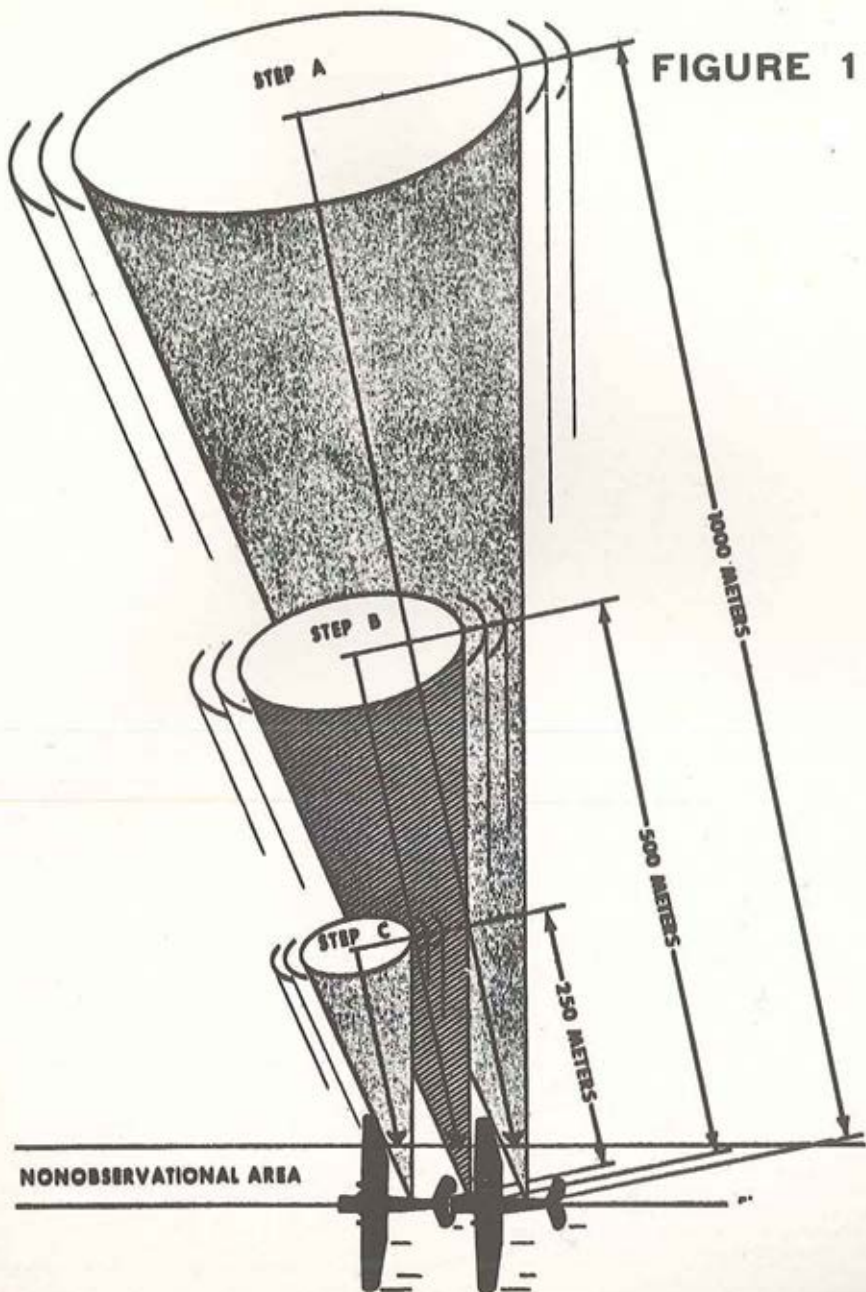
under the heading of four broad subjects: (1) visual search techniques, (2) recognition training, (3) geographical orientation, and (4) target location. Included are lesson outlines and narratives for each subject as well as guides for presenting the training material and developing training aids.

PACKAGED INFORMATION

THE SECOND PART of Task OBSERVE is scheduled to continue research on observer training by incorporating the previously developed training techniques into simple automated teaching procedures. The expected product is a "package" containing information and aids required by an instructor of aerial observation. The bulk of the training aids will consist of 35 mm color transparencies. These color slides may be used in developing search techniques, for training in recognition of U. S. and enemy vehicles and weapons, and for teaching orientation and target location.

TRAINING OF COMPETENT aerial observers must receive increased emphasis if the U. S. Army's intelligence effort is not to be let down. Technological improvements must continue but must not be allowed to overshadow present capabilities. The role that the human aerial observer plays in the gathering of intelligence for the ground commander is still vital to the successful accomplishment of the U. S. Army mission.

FIGURE 1



The CONARC REPORT is intended to inform ZI aviators about what is happening in Army aviation in the Continental Army Command and at the same time let those aviators overseas know what to expect when "Big R" finally arrives.

AS A STARTING POINT, the organization of the CONARC Army Aviation Section may be of interest to you. The Section operates as a Special Staff Section within Headquarters CONARC, under the general staff supervision of the G-3. The Section, commanded by Col. John Norton with Col. Kemuel K. Blacker as Deputy, consists of four divisions. The Training Division is headed by Col. Robert R. Corey, a recent arrival from the 82nd Airborne Division. The Organization, Plans, and Doctrine Division is under Lt. Col. Horst K. Joost. Chief of the Materiel Facilities and Armament Division is Lt. Col. Ramon F. D'Elosua. The Programs, Safety, and Airspace Division functions under Col. William H. Byrd. M/Sgt. Kenneth A. Storms is Operations Chief.

IN ADDITION TO the Army Aviation Section, there are Army Aviators assigned to the Transportation and Signal Sections of the headquarters as well as to the General Staff Sections, G-3, Materiel Developments, and Combat Developments.

SHARP UNITS AT KNOX

A RECENT VISIT to Fort Knox revealed several sharp aviation units. First is the 90th Transportation Company (MH) commanded by Maj. William E. Black. Serving with the 90th as field maintenance support is the 149th Transportation Field Maintenance Detachment commanded by Capt. Charles O. Sims. Both of these units are well trained and are in excellent condition. All officers and men demonstrated a degree of high spirits and professional competence that was gratifying to observe.

ALSO AT FORT KNOX is the 64th Transportation Company (LH) commanded by Maj. John G. Kamaras. On Sunday, 24 September, this unit celebrated its Sixth Anniversary as a helicopter company. The celebrations consisted of an open house, flight demonstrations of all types of Army aircraft including armed helicopters, a static aviation display, and a sky diving exhibition. In addition, a flying competition was conducted between elements of the Company.

THESE COMPETITIONS included autorotations, takeoff, hovering, landing, precision, and formation flying. Organizational and field maintenance personnel also participated in maintenance events. Prizes were donated through the compliments of the Sikorsky and Bell Helicopter Companies.

CONARC REPORT

By MAJOR KENNETH D. MERTEL
HQ, USCONARC

IF YOU DESIRE further information and are interested in details, drop Maj. Kamaras a line. He will be most happy to provide further information. Congratulations again to you and your men, Maj. Kamaras, for this fine idea. Activities of this sort accomplish much to enhance Army aviation and also they obtain excellent publicity and establish good will with the public.

AVIATION UNITS and elements at Fort Knox are all assigned to or are under the operational control of an Aviation Command, with Lt. Col. Earl B. Kelly as Commanding Officer. This Command is well organized and possesses superior facilities. Col. Kelly states that visitors are always welcome, including RON's. If in the area, drop in for a chat or overnight; you'll find the welcome mat out.

CARRIER TRAINING

SECOND AND THIRD Army helicopter-qualified aviators recently received some excellent training in the conduct of flight operations from the deck of an aircraft carrier. The Iroquois, Choc-taw, Mohave, and Chickasaw were used in practice landings and takeoffs from the aircraft carrier Valley Forge. Training was accomplished with the compliments of the U.S. Navy and Marine Corps, with Marine aviators providing the initial instruction. A total of 2,000 landings were executed during the 4 day training period, including day and night operations and use of sling loads. Maj. Robert Armfield, Aviation Section, Headquarters Third Army, was the chief coordinator for the operation. All participants are to be congratulated for an outstanding job, well done.

ARMY AVIATION

PHOTO STORIES



ON HAND TO VIEW THE FIRST PUBLIC FLIGHT OF THE VERTOL HC-1B CHINOOK ARE, LEFT TO RIGHT, DR. ANSELM FRANZ, VICE PRESIDENT, TURBINE ENGINEERING, LY-COMING DIVISION OF THE AVCO CORP.; BRIG. GEN. DELKM. ODEN, DIRECTOR OF ARMY AVIATION, ODCSOPS; AND LEE L. DOUGLAS, DIRECTOR OF ENGINEERING, VERTOL DIVISION, THE BOEING COMPANY.

(BOEING PHOTO)



SWIFT

FLYING AT 140 MPH ALONG A MILE-LONG COURSE FRONTING THE VERTOL DIVISION FLIGHT CENTER ON PHILADELPHIA'S INTERNATIONAL AIRPORT, THE VERTOL HC-1B CHINOOK TWIN-TURBINE HELICOPTER (LEFT) "BLURS" THE BACKGROUND HANGARS. NOW IN QUANTITY PRODUCTION AT BOEING'S VERTOL DIVISION, THE CHINOOK CAN CARRY 33 FULLY-EQUIPPED TROOPS FOR MORE THAN 200 MILES, OR AT MAXIMUM GROSS WEIGHT MORE THAN 7 TONS OF CARGO OVER SHORT DISTANCES. TWO LYCOMING T55 GAS TURBINE ENGINES AFFORD A 150 MPH CRUISING SPEED.

RSOP

AN H-37 MOJAVE OF FORT SILL'S 54TH TRANSPORTATION COMPANY (MH) POSITIONS A 105 MM HOWITZER DURING AN RSOP CONDUCTED AT THE ARTILLERY AND MISSILE SCHOOL. THE MOBILITY AFFORDED ARTILLERY UNITS BY THE HEAVY-LIFT 'COPTERS EMPHASIZES ARMY AVIATION'S UTILITY IN THE ARTILLERY COMBAT ARM. THE CLOSE SUPPORT RENDERED TO THE ARTILLERY SCHOOL BY AVIATION UNITS IS OUTLINED IN DETAIL IN AN ARTICLE APPEARING ON PAGES 666-667 OF THIS ISSUE. (U.S. ARMY PHOTO)



ASSAULT

SIKORSKY AIRCRAFT NOW HAS "IN THE HARDWARE STAGE" A NEW HELICOPTER DESIGNED TO MEET THE MILITARY REQUIREMENTS FOR A HEAVY ASSAULT TRANSPORT MISSION IN THE FOUR-TON CAPACITY. THE SCALE MODEL (SHOWN AT LEFT) ILLUSTRATES THE SIX-BLADED MAIN ROTOR, TAIL ROTOR, AND TRANSMISSION SYSTEMS NOW IN INITIAL PRODUCTION FOR THE TWIN-TURBINE SIKORSKY S-64 SKYCRANE. CAPABLE OF LIFTING 9 TONS FOR SHORT DISTANCES, THE NEW TRANSPORT ALSO FEATURES A REAR-LOADING CABIN, RETRACTABLE GEAR, AND A WATERTIGHT HULL.

TEST STAND

THE MAIN ROTOR, TAIL ROTOR, AND TRANSMISSION SYSTEMS OF THE NEW SIKORSKY HEAVY ASSAULT TRANSPORT HELICOPTER (SEE ABOVE) HAVE ALREADY UNDERGONE MANY HOURS OF OPERATION ON A SPECIAL ENGINE TEST STAND USED IN CONNECTION WITH THE S-64 SKYCRANE PROJECT. POWER PLANTS FOR THE NEW AIRCRAFT WILL BE PROVEN TURBO-SHAFT ENGINES ALREADY IN THE PRODUCTION STAGE. SIKORSKY EMPHASIZED THAT THE AIRCRAFT IS BASED UPON "PROVEN, OFF-THE-SHELF COMPONENTS" YET IS WITH THE "STATE OF THE ART" IN ALL RESPECTS.





CHECKOUTS

TWO MEMBERS FROM THE AVIATION MAINTENANCE BRANCH, T-SCHOOL, WHO RECENTLY COMPLETED THEIR CHECKOUTS IN THE U.S. ARMY'S AC-1 CARIBOU AIRCRAFT AT FORT RUCKER, ALA., ARE SHOWN BEING CONGRATULATED BY BRIG. GEN. ROBERT B. NEELY, COMMANDANT OF THE TRANSPORTATION SCHOOL. LEFT TO RIGHT ARE CAPT. NESBERT MILLER, CAPT. GARY HEFFNER, GEN. NEELY, AND CAPT. ALBERT JOHNSON, WHO ADMINISTERED THE INITIAL ON-POST CHECKOUTS PRIOR TO THE PAIR'S FINAL FORT RUCKER INSTRUCTION. (U.S. ARMY PHOTO)

COMMENDATION

CAPT. ROBERT F. STERNAT (RIGHT) RECEIVES A LETTER OF COMMENDATION FROM MAJ. GEN. N.H. VISSERING, POST COMMANDER, FORT EUSTIS, VA., UPON BEING CHOSEN THE OUTSTANDING ACADEMIC GRADUATE OF THE T-SCHOOL'S AIRCRAFT MAINTENANCE OFFICER COURSE. LT. COL. CLARENCE H. ELLIS, JR., GRADUATION GUEST SPEAKER AND NEW CHIEF OF THE AVIATION BRANCH, TRANS. ORGANIZATION, PLANS, AND EMPLOYMENT DIVISION OF THE TRANSPORTATION SCHOOL, MAKES THE PRESENTATION TO CAPT. STERNAT. (U.S. ARMY PHOTO)



MAINTENANCE

M/SGT ELMO PHEND (WITH POINTER), AN INSTRUCTOR WITH THE AO-1 INSTRUCTION UNIT AT THE U.S. ARMY TRANSPORTATION SCHOOL, ANSWERS QUESTIONS AND POINTS OUT MECHANICAL PARTS OF THE MOHAWK LANDING GEAR TO SP/5 ELGIN HAMBY, SGT. JAMES McFADDEN, SGT. PHILIP JERNIGAN, AND SP/5 MARRELL ROBINSON. THE INSTRUCTION IS PART OF THE AO-1 AIRCRAFT REPAIR TRANSITION COURSE THAT HAS GRADUATED SOME 45 OFFICERS, ENLISTED PERSONNEL, AND DA CIVILIANS SINCE ITS FIRST CLASS IN MAY OF THIS YEAR. (U.S. ARMY PHOTO)

INSTRUCTION

SGT. JAMES McFADDEN (SEATED) IS SHOWN THE PROPER METHOD IN WHICH TO BE FITTED INTO THE MARTIN-BAKER EJECTION SEAT IN AN AO-1 TRAINING AID. M/SGT. ELMO PHEND (LEFT) EXPLAINS THE CARTRIDGE DISCHARGE PROCEDURE OF THE 135-LB. SEAT AS SGT. PHILIP JERNIGAN, ANOTHER INSTRUCTOR, LOOKS ON. A PRIMARY CARTRIDGE AND TWO SECONDARY CARTRIDGES FIRE THE SEAT FROM THE AIRCRAFT. (USA PHOTO)



EUSTIS PHOTOS

FACILITIES

ANYONE COMPLAINING ABOUT THE LACK OF UP-TO-DATE AVIATION FACILITIES AT THEIR INSTALLATION? SHOWN ARE THE HANGAR FACILITIES FOR THE ARMY'S MAAG AVIATION ELEMENT IN TEHRAN, IRAN. THIS HANGAR WAS BUILT BY THE RUSSIANS IN 1942. WEATHER CONDITIONS HAVE WROUGHT CONSTANT HAVOC ON THE EXISTING STRUCTURES, BUT THE INGENUITY OF THE ARMY AVIATION PERSONNEL ASSIGNED TO THE MAAG HAVE OVERCOME ALL ADVERSITIES. YOU'LL FIND ADDITIONAL DATA ON "MAAG AVIATION" ON PAGE 652. (U.S. ARMY PHOTO)



BRIEFING

COLONEL JACK K. NORRIS, CAMP WOLTERS COMMANDING OFFICER AND COMMANDANT OF THE U.S. ARMY PRIMARY HELICOPTER SCHOOL (3RD LEFT), IS SHOWN BRIEFING MEMBERS OF THE ITALIAN ARMY (L. TO R.), BRIG. GEN. ORESTE VILIGIARDI, LT. GEN. GUIDO BOSCHETTI, AND MAJ. GEN. UMBERTO BORLA, ABOUT THE H-13 HELICOPTER USED IN TRAINING HELICOPTER PILOTS AT THE USAPHS. THE ITALIAN OFFICERS VISITED CAMP WOLTERS IN EARLY OCTOBER TO OBSERVE OPERATIONS AT THE PRIMARY HELICOPTER SCHOOL. (U.S. ARMY PHOTO)



EN ROUTE

EIGHT OF TEN HU-1B IROQUOIS 'COPTERS SHIPPED TO GERMANY LATE LAST MONTH ARE SHOWN LINED UP FOR FLY-AWAY AT THE BELL PLANT AT FORT WORTH, TEX. FERRY PILOTS TAKING THE SHIPS TO BROOKLEY AFB, ALA., FOR TRANSHIPMENT TO EUROPE (NOT IN ORDER LISTED) ARE CAPTS. V.A. LOY, W.E. ROLER, J.H. NICHOLS, AND R.J. FREYTAG; AND CREWMEN SP/5'S W.L. GILKEY AND M.E. LEIGHTON, AND PFC'S LYLE STONE AND R.D. BANYAS. ALL ARE FROM BROOKE ARMY MEDICAL CENTER, FORT SAM HOUSTON, TEXAS. (BELL HELICOPTER PHOTO)



DEMONSTRATION

MAJ. JOSEPH E. HENDERSON, CO OF FORT ORD'S 33RD TRANSPORTATION COMPANY (LT HEL) EXPLAINS AN AERIAL DEMONSTRATION TO FOUR HANDICAPPED SALINAS, CALIF., YOUNGSTERS. LOOKING ON WITH MAJ. HENDERSON ARE JANE HARTSOOK (LEFT), THERAPIST AT THE ASHTON SCHOOL FOR HANDICAPPED CHILDREN, AND THE SCHOOL'S PRINCIPAL, F.W. REIMERS. THE CHILDREN WERE TREATED TO A FULL DAY WITH ARMY AVIATION THROUGH THE COOPERATION OF THE LOCAL KIWANIS ORGANIZATION AND THE FORT ORD AUTHORITIES. HERE, THE GROUP IS VIEWING



**KNOW THE PROBLEMS
ASSOCIATED WITH THE . . .**

CORROSION OF AIRCRAFT COMPONENTS

Corrosion of basic metals and their alloys is one of the oldest observed phenomena since the beginning of the metal age and one of the least understood behaviors of metals. The present day aircraft corrosion problems are of the same type and causes that have existed since Wilbur and Orville made their flight in 1904.

THEY ARE more important today due to design trends, in which the operating loads and stresses approach the strength limits of the material.

ALLOYS USED in aircraft construction exhibit the same natural behavior as the basic metals, such as iron, in a corrosive environment; however, some alloys are more susceptible to corrosion than others in a given environment, but the relationship may be interchanged with a change in environment.

TO ADEQUATELY PREVENT corrosion with the resultant loss of strength or functional ability, and sometimes both, it is necessary to examine the causes of corrosion. Some of these causes are: the presence of salts or sulfides; a chemical (electrolytic) reaction; heat; and residual stresses. Many of the high strength aluminum alloys and all of the magnesium alloys, are particularly susceptible to corrosion when any of these conditions exist.

ISOLATION OF COMPONENT

THE ONLY POSSIBLE means of preventing corrosion is to adequately isolate the component from the corrosive environment on materials known to be susceptible. Much criticism has been directed toward the use of magnesium in aircraft components because of its susceptibility to both chemical and stress corrosion. The chemical corrosion condition may be best combated by the man in the field, adequately applying approved organic corrosion preventive compounds, which have been perfected since production; whereas, the problem of stress corrosion nearly always must be solved in the design stage by the engineers.

AN EXCEPTION to the latter would be a condition whereby maintenance personnel would press in a steel bushing or bearing on the magnesium control component when the interference was "just a little bit" over the design limits. This practice will result in a high residual stress, which aggravates a normally acceptable corrosion condition.

ONE COMMON FALLACY, which we all know, is that the aircraft must be operated adjacent to salt water before any problems exist. One major fabricator of aircraft located many miles from the nearest salt water found corrosion



Battle area Mobil

WI



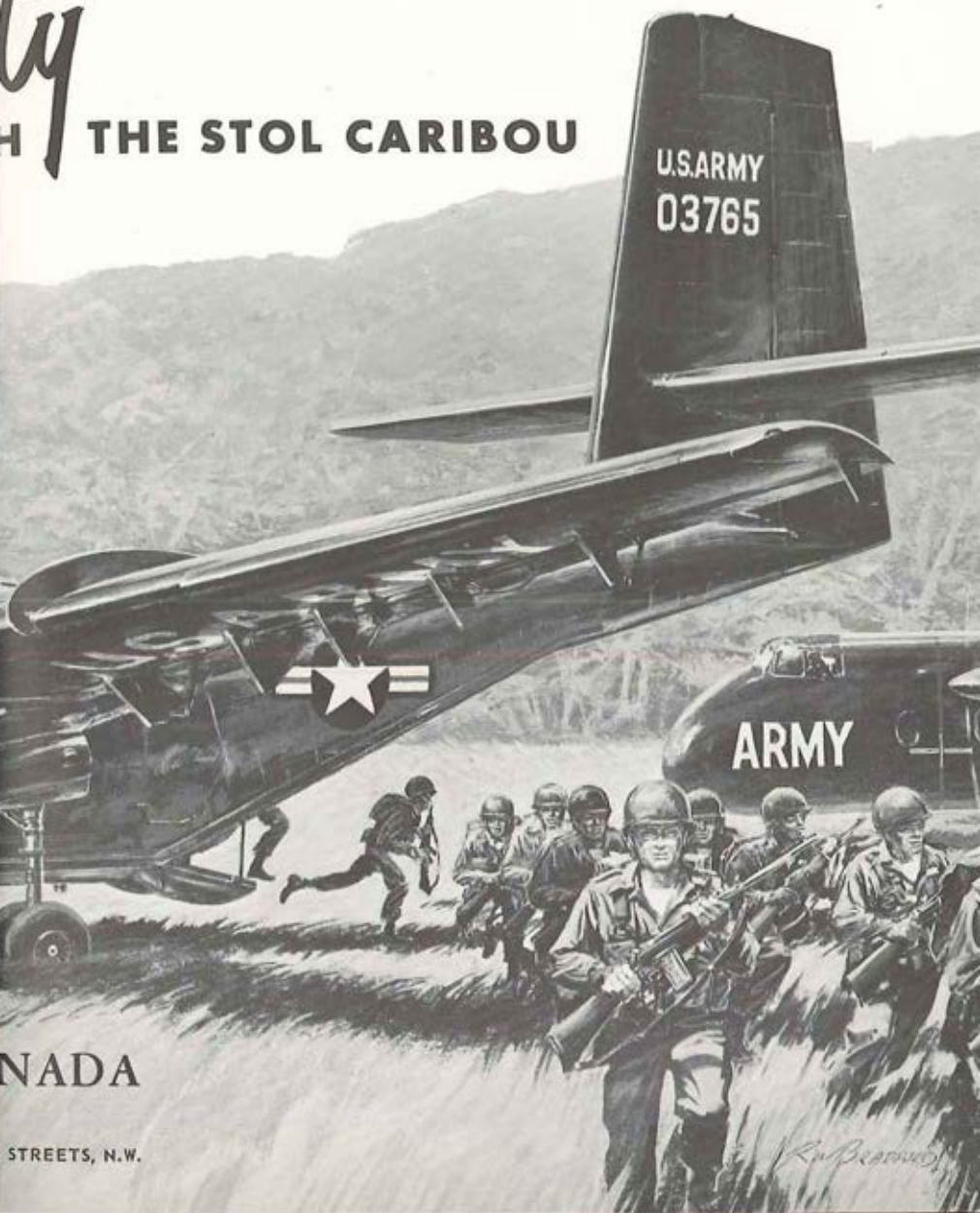
DE HAVILLAND AIRCRAFT OF C

DOWNSVIEW ONTARIO

WASHINGTON REPRESENTATIVE: J.E. McDONALD, 319 TOWER BUILDING, 14th A

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NADA

STREETS, N.W.

USARHAW



A PHOTO OF A FOUR-PLANE ENGINE RUN-UP REVEALS THE COMMAND AND STAFF TRANSPORT CAPABILITIES OF THE L-23 FLIGHT OF THE U.S. ARMY, HAWAII AVIATION SECTION. THE FLIGHT CONSISTING OF ONE L-23F AND THREE L-23D'S ARE PAINTED IN ARCTIC AND TROPICAL MARKINGS (RED AND WHITE) AND MAKE A SPECTACULAR APPEARANCE IN THE LOCAL FLYING AREA. LOOKS LIKE SOME "SOUP" IS STARTING TO BOIL OVERHEAD. (U.S. ARMY PHOTO)

AIR CAR

THIS MAN-CARRYING EXPERIMENTAL AIR CAR, DESIGNED TO SKIM OVER LAND OR WATER AT SPEEDS UP TO 50 MPH, IS BEING BUILT FOR U.S. ARMY EVALUATION BY THE MARTIN CO.'S ORLANDO, FLA. DIVISION. KNOWN AS THE "EJECTI-JET," THE 10' X 20' TEST VEHICLE EMPLOYS A UNIQUE RECIRCULATION SYSTEM TO PROVIDE THE SUPPORTING AIR CUSHION UPON WHICH THE VEHICLE RIDES. OBJECTIONABLE DUST CLOUDS AND WATER SPRAY ASSOCIATED WITH VEHICLES OF THIS TYPE ARE EXPECTED TO BE ELIMINATED BY THE CONTINUOUS RE-USE OF THE AIR.



CRIPPLED

AFTER ONE WEEK OF BACK-BREAKING LABOR PERSONNEL OF THE 57TH TRANSPORTATION CO (LT HEL) OF FT. LEWIS EXTRICATED SOME SIX TONS OF SHAWNEE HELICOPTER FROM AN INACCESSIBLE MARSH AREA HIGH IN THE RUGGED CASCADE MOUNTAINS. FORCED DOWN IN A MILE-HIGH SWAMP COMPLETELY CIRCLED BY "IMPERIAL SIZE" TREES, THE H-21 WAS PLACED ON A PLATFORM OF LOGS AND PLYWOOD PRIOR TO ENGINE CHANGE, THE CRIPPLED BIRD WAS THEN FLOWN FREE FROM THE IMPROVISED MUD-FREE BASE. (U.S. ARMY PHOTO)



NEW GCA

SARAN AIRFIELD, SERVING THE HEADQUARTERS OF U.S. ARMY COMMUNICATIONS ZONE, EUROPE, IN ORLEANS, FRANCE, RECENTLY BECAME THE FIRST U.S. MILITARY AIRFIELD IN FRANCE TO OPERATE UNDER GROUND CONTROL APPROACH RADAR. A MORE RECENT PHOTO DEPICTS THE GCA SYSTEM WHICH WAS UNDER TEST SINCE JUNE OF 1960 PRIOR TO COMMISSIONING. SGT. GORDON FAULKER (LEFT), SP/4 RONALD PELKO, AND SP/5 MICHAEL MAZUR OF THE 2ND AVIATION COMPANY ARE SHOWN CHECKING OUT THE SET NOW IN USE AT SARAN.(U.S. ARMY PHOTO).



USAREUR REPORT



By LT. COLONEL J. ELMORE SWENSON
Operations Division, Hq, USAREUR

Employing a well-used Pentagonese adverb, normally this column announces the arrivals and departures within the theater of certain aviators. But alas! The extension policy is now in effect and there is a sharp curtailment to zero in names for this particular report.

LOOKING OVER the theater-wide activities, one finds the Iroquois transition program progressing satisfactorily with suprising few hitches. Several of the Aviation units are already in an operating status with the new aircraft. Heeding to the safety warnings from the USABAAR relative to certain autorotation characteristics of the Iroquois (like a rock), everyone is on the alert to avert any accident of this nature.

THE MOHAWK is also progressing satisfactorily with the support capabilities available. The aircraft are arriving in excellent condition and stationing is being effected with fewer kinks than anticipated.

THE BERLIN SECTION

ATTENTION OF the world is naturally focused at this time on Berlin. And Army aviation is there playing an important role in the beleaguered city's operations. Within that enclave is the Berlin Command Aviation Section under the supervision of Capt. James L. Hastings. The Section, comprised of six officers and eleven enlisted men, operates from the Templehof Airport.

THE FOUR H-13 and four H-19 aircraft provide surveillance as well as other aviation support, while the maintenance facilities and operations are set up in one spacious hanger bay with adequate offices spread throughout the building proper. The supply and tool layouts are a model for all Army aviation units to follow.

THE SENSITIVITY of the lines of demarcation in Berlin and the confined area requires precision flying at all times. Of importance is not only the ever present hazards of having to autorotate while flying over densely populated and built-up areas, but the tight flight restrictions on altitudes and corridor areas. These trying times have been busy for this section and flying hours have doubled recently. In fact, maintenance is now being performed at nights with split crews.

NO FIXED-WING Army aircraft are used in Berlin. The area is just too confining. Capt. Hastings and his group of aviators therefore periodically infiltrate down to the Heidelberg Flight Detachment to get in their annual instrument checks and other flight requirements. At the moment, however, this requirement is one of second consideration and necessarily so.

A TOUR OF THE MAAGs

TURNING TO other events, it appears appropriate to wind up the final note on the recent trip to the aviation elements of the MAAGs and Missions. On hand to greet the USAREUR aviation staff liaison group at Athens, Greece, was Maj. Leo E. Bergeron and his mechanic, Sp/5 Howard C. Ware. A one-aviator show, Maj. Bergeron, is not only pushing the aviation program for the Greek Army, but has established a unique weather reporting system by using the Greek radar stations for his flights around the mountainous and water areas of Greece.

GREECE TWOSOME



ANYONE GRIPING ABOUT PERSONNEL SHORTAGES? BIG TWO-MAN OPERATION FOR ALL OF JUSMAAG, GREECE, MAJ. LEO E. BERGERON AND SP/5 HOWARD C. WARE. (U.S. ARMY PHOTO)

... ANKARA, TURKEY

IN ANKARA, Turkey, Maj. Donald A. Baker and his cohort, Maj. Donald C. Blatt, were doing an excellent job supervising the Turkish aviation program and providing vital transport service to MAAG members. Their chores are rough ones since inadequate weather reporting facilities for flying over a vast mountainous area of Turkey are limited and navigational facilities sparse, especially in Eastern Turkey. Even the Turkish airlines cease operations east of Ankara during the winter months.

... TEHRAN, IRAN

IN TEHRAN, Iran, Cpts. Olay B. High and Donald A. Cardner with their ten aviators and eighteen enlisted people, the latter ably supervised by M/Sgt. Henry P. Turner, are doing an incredible service in some of the most gruesome flying country in the world. Here, too, were found unique improvisations for operating. Perhaps Capt. High has the only full Army weather reporting system in the Army. He operates a base radio station tied-in with seven teams located throughout Iran. The radio operators not only do the communicating, but also report weather information on the spot.

... ROME, ITALY

IN ROME, Italy, Maj. Arthur F. Hammarstrom, Jr. and his sole support, M/Sgt. B. Vincent J. Mitkowski, are monitoring the Italian aviation program, providing air service, and maintaining equipment in good stead.

NEEDED: MEN AND MACHINES

TWO VITAL PROBLEMS appeared in all the aviation elements in the near and Middle East - insufficient personnel on hand and unsuitable type aircraft to operate effectively over mountainous terrain during cold inclement weather. In evaluating this latter problem, minimum altitude in many places ranged from 11,000 to 13,400 feet. At these altitudes icing presents hazardous flying conditions and single engine operations, in modern aviation idiom, is just not conducive to longevity.

APPARENT SOLUTIONS to be worked out with Department of the Army are: increased personnel spaces or use of prefix six in the TD's; and a better balance of aircraft types in relation to the terrain. In the areas of Eastern Turkey and Western Iran perhaps the establishment of a consolidated aviation section employing a small number of Caribou aircraft should be explored.

ONE AGE OLD MILITARY aspect this visit revealed once again was the importance of command support. As the terrain and other con-

CARIBOU...



STOL TRANSPORT IS TURBINIZED

Flight test of General Electric's T64 engine is now underway with two 2850 horsepower gas turbines powering a deHavilland Caribou. The piston-powered Caribou is currently in service as an STOL transport with the U. S. Army, RCAF, other Free World forces and the United Nations.

While the aircraft is currently being used as a flight test vehicle in the deHavilland of Canada program, a Caribou developed with T64 engines would have doubled payload, improved take-off and climb performance, increased speed and service ceiling and still maintain current operating economy.

The General Electric T64 is available now in both turboprop and turboshaft configurations. Fuel consumption in the range of reciprocating engines and ability to operate continuously from 100° nose up to 45° nose down suit the engine for applications in V/STOL, helicopter and fixed wing aircraft.

SAE-186-58

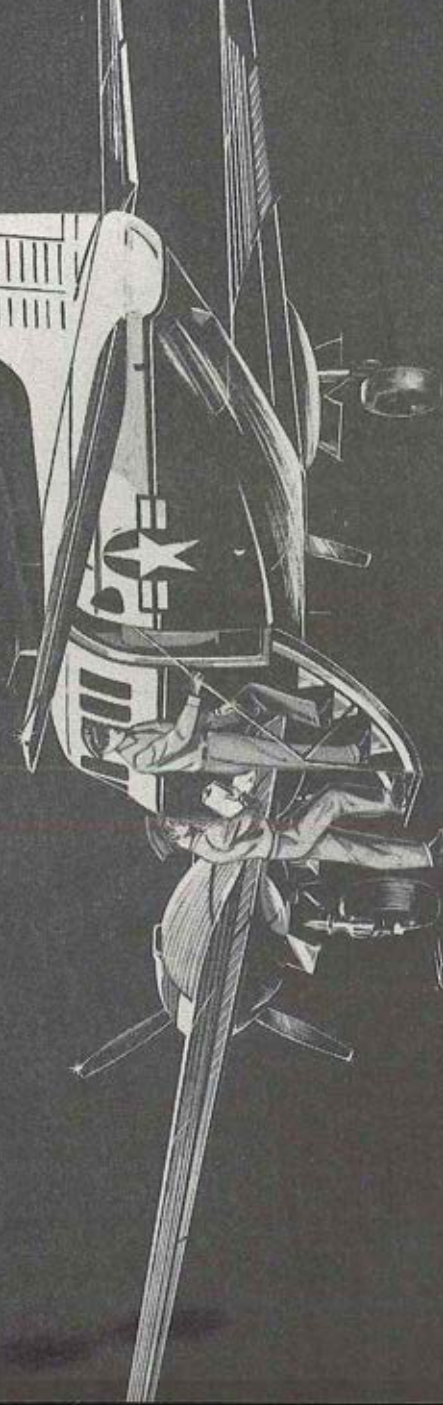
T64-4 TURBOPROP



FLIGHT PROPULSION DIVISION
GENERAL  ELECTRIC

BEECH "IMAGINUIITY" IN
Manned Aircraft

THE STRONGEST AIRCRAFT OF ITS TYPE, THE L-23F IS TESTED TO WITHSTAND IN-FLIGHT LOADS EQUAL TO 7 TIMES ITS WEIGHT.



A FAVORITE OF PILOTS EVERYWHERE, THE L-23F IS EXCEPTIONALLY STABLE AND EASY TO HANDLE, EVEN AT SLOWEST APPROACH SPEEDS. IDEAL AS ECONOMICAL INSTRUMENT TRAINER.

The Beechcraft L-23F—meeting the need for an . . .

Instrument trainer with "big plane feel" that operates at fraction of cost of larger planes:

Development and retention of pilot proficiency in instrument flying requires regular and realistic practice, for which large aircraft may not be available or are uneconomical to use for instrument training.

The Beechcraft L-23F feels and flies like a much larger aircraft. Yet it costs far less to buy, operate and maintain. It has more than enough space and weight allowance for all the electronic navigation gear and communication equipment normally used for instrument flying in the largest planes.

The reliability of the L-23F has been proved by many thousands of hours of both service and civilian flying. With 340 hp Lycoming supercharged fuel injection engines, it can cruise over

190 knots at 70% power. Top speed is over 200 knots.

The L-23F can be produced in quantity to meet early delivery schedules.

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 Roy H. McGregor, Manager — Contract Administration, Beech Aircraft Corp., Wichita 1, Kansas— or nearest Area Office.

Beech *Aerospace Division*

USAREUR

ditions of the countries visited became more difficult, the better the aviation elements operated and fared. Reason: The more dependent each MAAG Chief was upon his aviation element to carry out successfully his mission and thus the greater his personal interest and support.

JEPPESEN INADEQUACIES

OF SPECIAL IMPORT throughout this trip and also Europe proper was the currentness of the Jeppesen Manual, a fine publication indeed. Plowing the L-23D through the myriads of airways and control areas brought forth, however, long smoldering thoughts that perhaps something is needed to make the Jeppesen Manual still more responsive as far as Europe and the Middle East areas are concerned.

BATTING THESE THOUGHTS around with Capt. Egon J. Arndt, USAREUR distributor and eye watcher for the European Jeppesen editions, revealed some interesting considerations on the matter. A feeling emerged that maybe the Jeppesen Manual is tailored for airlines use primarily, for economy of productions secondarily, and for Army use only when Army requirements coincide with the other two.

OF SIGNIFICANCE were delayed corrections in Army air frequencies, approach charts, and airfield layouts. Although the Jeppesen Directory

of U.S. Army AAF's and AHP's in Europe is compiled and produced in Europe monthly, the information contained therein is constantly at variance with the manual itself since the manual is not corrected as often as the Directory. Action is being recommended to Department of the Army that the Army should change standard specifications where required and request extra haste or special services whenever necessary. This status is particularly necessary when flying in the boondocks.

. . . FROM THE FOOTLOCKER

THE FOREGOING BANTER on the Jeppesen Manual brings to light a recollection from the old musty footlocker. On a sunny, yet drippy April morning in 1954 at Fort Sill, now Lt. Col. William Howell of recent White House fame walked into the Aviation School Secretary's office and displayed a book called a Jeppesen Manual. Highly interested in promoting a more effective instrument flying program at the School and for the Army, Bill and a few of his real instrument flying instructors (very few of this type in those days) had subscribed to several copies of the Jeppesen publication.

HIS PITCH was the desirability of getting four complete sets with the weekly revision service included. HE HAD THE NERVE TO ASK FOR FIVE HUNDRED DOLLARS! That amount was some chunk to be taken out of the School's austere funds. Nevertheless, his argument was convincing and thus began the initial procurement of Jeppesen Manuals.

CORROSION CONTINUED FROM PAGE 643

effects on components BEFORE the aircraft had left final assembly stage. This condition was caused by the presence of high residual stress created by normal accepted fabricated techniques; however, the material used was particularly susceptible to corrosion when these types of stresses were present. A simple engineering

change incorporating a change in material to one of equal strength but reduced susceptibility quickly removed the problem.

RELATIVE MOTION

A MORE MYSTERIOUS TYPE of corrosion is that relative motion may take place. This condition can likewise play havoc with radio transmission and reception by creating static which defies location. The obvious solution to both of these problems is to attach the parts in such a manner that relative motion CANNOT take place.

THIS BRIEF DISCUSSION of the various forms of corrosion and corrosion prevention is only intended to illustrate the complex problems involved in this field and to show the necessity of contacting the appropriate engineering authority as soon as any corrosion is detected, so that engineers can evaluate the various ramifications and combinations and specify preventive measures.

BOUND VOLUMNS AVAILABLE FOR SALE

■ APPROXIMATELY 50 BOUND COPIES OF THE 1961 ISSUES OF "ARMY AVIATION MAGAZINE" WILL BE AVAILABLE FOR DIRECT SALE FOLLOWING THE PUBLICATION OF THE DECEMBER, 1961 ISSUE. THE HARD COVER EDITIONS ARE AVAILABLE TO MILITARY AND CORPORATE LIBRARIES AND TO INDIVIDUAL SUBSCRIBERS AT \$4.95 PER COPY.

Since the last appearance of this feature in ARMY AVIATION, service testing of the AO-1A airplane has been completed, and some of the modifications recommended during testing have been incorporated into production models. Major improvements include nose-wheel steering, re-designed starter-generator system, modified T-53-L3 engines, increased brake capacity, and a catalytic filter to eliminate smoke and fumes in the cockpit.

A MODIFIED AO-1A has been provided for confirmatory testing of these improvements, and testing is under way. A "B" model has also been received and is undergoing desert testing at Yuma, Arizona. Also completed during the period was the climatic hangar test of the AO-1A. The test airplane has been returned to the manufacturer for accomplishment of recommended modifications prior to going to the Arctic Test Board this winter.

THE AN/ASW-12 Automatic Flight Control System (AFCS) has been received and evaluated in the RL-23D airplane. The AFCS is now undergoing service test in the AO-1B airplane and the H-21 helicopter. As a separate test, a portion of the system will be installed in an HU-1 helicopter and evaluated to determine its suitability as a yaw dampener for use with the SS-11 missile system.

DESERT TESTING

DURING THE PERIOD 15-30 July a group of 49 Board members, military and civilian, conducted desert tests at the Army's Yuma Test Station in Arizona. In addition to the AO-1 mentioned above, major projects in desert test included the HU-1B and the H-37B helicopters. Upon completion of the desert tests, a portion of the group proceeded to Camp Carson, Colorado, for high altitude tests



CLOSE-UP PHOTO OF DRAG CHUTE INSTALLATION ON THE TEST A4D JET AIRCRAFT.

SPLINTERS FROM THE BOARD

of the AO-1, HU-1B and H-37B while the rest of the desert group returned to Fort Rucker with the balance of the equipment. A supercharged version of the H-13 helicopter was also evaluated during the visit to Colorado.

MAN/MACHINE PROJECT

WORK ON THE MAN/MACHINE project was resumed in Phase III early in the year but was subsequently deferred in favor of a comparative evaluation involving three jet airplanes, the Douglas A4D, the Northrop N-156, and the Fiat G-91. The evaluation team was made up of Board pilots of the Man/Machine project augmented by some additional Army personnel and four pilots on loan from the US Marine Corps.

IN SUPPORT of the airplanes was a host of engineering, maintenance and flight test personnel provided by the respective manufacturers represented. Overall support of the entire project was provided on a generous scale by the US Navy. Most of the evaluation was conducted at NAS Jacksonville; but the sod field operation, which deserves special mention, took place at Site Eight-Alpha Sod Stage Field, a satellite of NAAS Saufley, Pensacola, Florida.

THIS OPERATION made aviation history in one respect, for while the G-91 has been flown from sod fields in Europe since its issue to NATO forces, and was in fact designed for such operation, this was the first venture away from paved runways for the US equipment and personnel involved. It is also believed to have been the first sod field operation in this country with jet fighters of any type.

HELICOPTER ARMAMENT

IN THE FIELD of helicopter armament, the Board has conducted an evaluation of the US Marine Corps' Mark II 20mm Gun Pod mounted on an HSS (H-34) helicopter. This pod was designed for use on a jet fighter and is not the optimum configuration for helicopter installation; however, results of tests are indicative of what could be expected of a more compatible design.



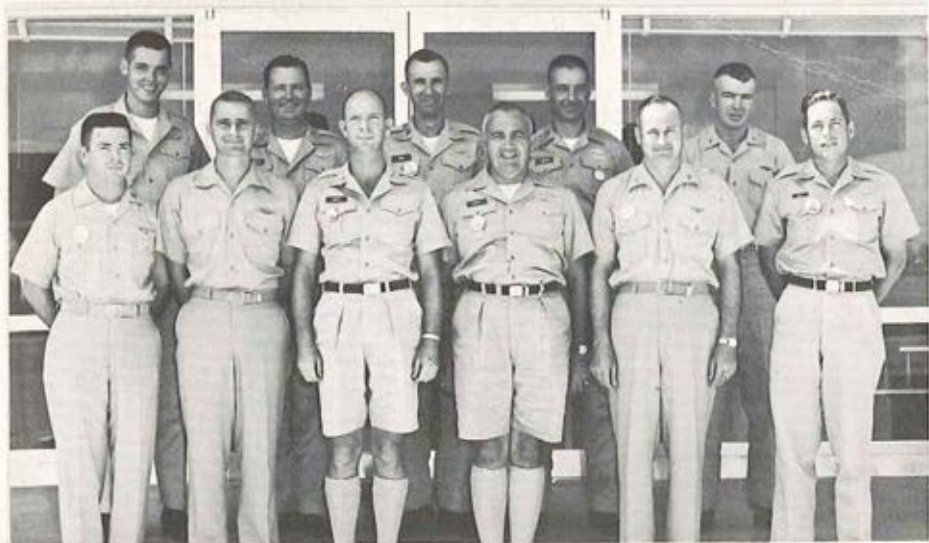
ABOUT PEOPLE

PERSONNEL CHANGES since our last report include the departure of Maj. Garrison J. Boyle, CWO Stewart R. Park, CWO Clifford V. Turvey, and CWO Paul J. DiFabion to assignments in Germany; CWO Sikorski to retirement; and Capt. Robert G. Elton to helicopter training at Camp Wolters and the Advanced Course at the Infantry School.

ARRIVALS at the Board are Maj. Max A. Clark, William R. Schmidt and Joseph L. Woolley; Capt. William F. Gurley and Douglas L. Haller; and CWO William E. Prior. Capt. Kenneth R. Mattocks of the Canadian Army has recently joined the Board for a one-year tour as an exchange officer.

TOP: THE N-156 AIRPLANE UTILIZED IN THE U.S. ARMY AVIATION BOARD "MAN MACHINE COMPATIBILITY" TEST. THE DUAL NOSEWHEEL AND THE OVERSIZE MAIN WHEELS ARE INSTALLED FOR SOD FIELD OPERATIONS. THE DUAL NOSEWHEEL IS NOT RETRACTABLE IN THIS CONFIGURATION. THE DRAG CHUTE IS A STANDARD INSTALLATION ON THIS TYPE OF AIRCRAFT.

BOTTOM: THE FIAT G.91 NATO FIGHTER USED IN THE "MAN/MACHINE" STUDY. HERE AGAIN, THE INSTALLATION OF A DRAG CHUTE IS STANDARD FOR THIS AIRCRAFT. (U.S. ARMY PHOTOS)



JET EVALUATION TEAM Front Row, left to right - Capt. Leroy A. Madera, USMC; Maj. George H. Shutt, USMC; Maj. James I. Scott, USA (Aeronautical Engineer); Capt. William P. Brake, USA; Maj. Robert R. Van Dalsem, USMC; Maj. Lowell K. Solt, USA (Test Coordinator). Back row - 1st Lt Donald P. Wray, USA; Capt. James A. Barrett, USA; Capt. David B. King, USA; Capt. Edward Lukert, USA (Aeronautical Engineer); 1st Lt. William Marshall, USMC. (Maj. Scott; Capts. Barrett, Brake, and King; and Lt. Wray are members of the original Man/Machine Team. "Splinters" reports the group involved in Phase III operations.

A4D AIRPLANE The lower photo shows the modified wheel wells and the dual main wheels installed on the A4D airplane to assist in sod field operations. (All "Splinters" photos are U.S. Army photographs.)



When higher headquarters staffs are visiting subordinate units, regardless of their size or make-up, generally their queries will be directed toward that particular unit's ability to accomplish their TO&E mission. How often have you heard the ever so common complaint? -- "Can't get the parts!"

IN THE AVIATION segment of the Army the importance of prompt accurate "follow-up" on demands to support aircraft can pay off additional dividends. There are many reasons why it behooves all those concerned - mechanics, crew chiefs, pilots, supply clerks, etc. - to exercise just a little bit more than a routine effort to ensure that you have a valid, active demand, and -- yes, on the right technical service.

UNIQUE PROBLEMS IN SUPPORT

SOME MAY DISAGREE, but let's mention a few things that somewhat isolate Wilbur and Orville Wright's invention as being peculiar in comparison to our ground-bound equipment, when it comes to support problems.

PROVISIONING SPARES for aircraft (particularly Rotary Wing) poses unique problems due to engineering design, complexity and the unpredictable malfunctions that have to be coped with which happen during its longevity. During the first few years over a hundred modifications are often necessary in the form of ECP's, TOC's, TM's, etc. to maintain the airplane in a "fly safe" condition. These modifications cannot be planned or forecasted, and are often solved on a "crash" basis.

AIRCRAFT ARE EXPENSIVE and this automatically causes the budget money to be squeezed to the last drop when programming for spares. In

addition, the Army air program is continually expanding in quantity and size of aircraft more rapidly than most other categories of equipment, therefore causing early obsolescence and new items identification problems.

NOW, ALONG WITH the foregoing that makes us sort of "special", we have a continuing program (directed by DA) for the reassignment of certain duplicate items of supply to particular services as a result of the new "Federal Supply Classification System". Is it animal, vegetable, or mineral? This is why we get batteries from the Signal Corps and seatbelts and common tools from the QM etc. - also the supply system is largely dependent on automatic machines with punch cards for processing supply actions. These "iron boxes" do not have the capability to pick up the telephone as yet, and often times they digest the information fed them with the least amount of discomfort, (no belches) and somewhere along the line someone is in receipt of advice information that is "goofy". This is why we sometimes hear the comment, "We requisitioned donuts and all we received are holes!"

FOLLOW-UP PAYS OFF

TIMELY, POSITIVE follow-up practices established along the chain of responsibility is a rewarding thing. The system is not simple and minimum error results in maximum supply response. This is especially important between customer and Direct Support Unit (DSU). The demand must be accurate and valid. This follow-up must be a physical look-see.

WHAT WILL ASSIST in keeping your aircraft "out of commission" rate down to a reasonable figure? Ask yourself - is my demand valid? Then go take a real good look, - often.



HOW'S YOUR PARTS FOLLOW-UP?

By MAJOR SIGMOND C. LENIC
ATLANTA GENERAL DEPOT, FORREST PARK, GA.

CLIFFORD F. BETTS

Captain Clifford F. Betts, TC, assigned to the Tobyhanna Signal Depot, Tobyhanna, Pa., sustained fatal injuries when his H-21C helicopter crashed during the conduct of a search mission in the vicinity of Tobyhanna, Pa., on Aug. 23, 1961. He is survived by his father, Mr. Harold F. Betts, of 5801 S. Fairfield Avenue, Chicago, Ill.

JOSEPH F. GARRITY, JR.

First Lieutenant Joseph F. Garrity, Jr., CE, attached to the U.S. Army Polar R&D Center, sustained fatal injuries in the crash of an H-34C helicopter in Greenland during the conduct of an official service mission. He is survived by his wife, Mrs. Nelita S. Garrity, of Northfield, Vt.

MANUEL G. GUERRERO

Captain Manuel G. Guerrero, assigned to the 503rd Aviation Company, APO 165, U.S. Forces, Hanau, Germany, sustained fatal injuries when the H-13H helicopter of which he was pilot crashed during the conduct of a service mission on August 28, 1961. He is survived by his wife, Mrs. Corrine H. Guerrero, of Birch Knoll Road, c/o Hendrickson, Hagerstown, Md.

WILLIAM W. HENSCH

Second Lieutenant William W. Hensch, assigned to the 8th Aviation Company, APO 111, New York, N.Y., died as a result of injuries received in the crash of his L-19A aircraft near Kreuznach, Germany, on Oct. 3, 1961. He is survived by his wife, Mrs. Constance A. Hensch, of 234 Second Street, N.W., Fort Dodge, Iowa.

ERIC F. INGRAM

First Lieutenant Eric F. Ingram, assigned to the 82d Aviation Battalion, Fort Bragg, N.C., sustained fatal injuries when his H-13H helicopter crashed at Ft. Bragg on Sept. 12, 1961. He is survived by his wife, Mrs. Shirley F. Ingram, of 1205 Valley, Baker, Oregon.

CHARLES H. MATEER

Mr. Charles H. Mateer, a former Army Aviator assigned to the 101st Aviation Company, Fort Campbell, Ky., was killed in an aircraft crash at Laos on May 30, 1961, while employed by Air America of Washington, D.C.

JAMES B. MORRIS

Captain James B. Morris, assigned to the U.S. Army Aviation School, Ft. Rucker, Ala., was killed in the crash of an L-19E aircraft at Ft. Rucker on Aug. 17, 1961, during the con-

OBITUARIES

duct of a student training mission. He is survived by his wife, Mrs. Sarah J. Morris, of 37 Boyce Lane, Ft. Rucker, Ala.

OWEN B. NEFF

Captain Owen B. Neff, CE, assigned to the U.S. Army Polar R&D Center, sustained fatal injuries when his H-34C helicopter crashed in Greenland during the conduct of an official service mission. He is survived by his wife, Mrs. Barbara H. Neff, of Quarters 1657-B River Village, Ft. Belvoir, Va.

KARL W. SEIDL

First Lieutenant Karl W. Seidl, 91st Transportation Company (Lt Hel), Finthen, Germany, sustained fatal injuries when his H-34C helicopter crashed near Hanau, Germany, on Oct. 10, 1961. He is survived by his wife, Mrs. Barbara A. Seidl, of 6700 A-2, University HSG, Mainz, Germany.

JOSEPH A. STEFFANCI

Chief Warrant Officer Joseph A. Steffanci, 91st Transportation Company (Lt Hel), Finthen, Germany, was killed in the crash of an H-34C helicopter near Hanau, Germany, on Oct. 10, 1961. He is survived by his wife, Mrs. Mary Ann T. Steffanci, of 1739-B-7 Warner Kaserne Munich, Germany.

PATRICK E. THOMAS

Captain Patrick E. Thomas, assigned to the U.S. Army Signal Training Command, Fort Monmouth, New Jersey, sustained fatal injuries in the crash of an Army RL-26 aircraft at Camp McCall, N.C., on Sept. 19, 1961. He is survived by his wife, Mrs. Catherine L. Thomas, of 1 Battan Avenue, Eatontown, New Jersey.

ORVILLE H. UNNERSTALL

Captain Orville H. Unnerstall, assigned to the U.S. Army Signal Training Command, Fort Monmouth, New Jersey, was killed in the crash of an Army RL-26 aircraft at Camp McCall, N.C. on Sept. 19, 1961. He is survived by his wife, Mrs. Barbara A. Unnerstall, of 19 Midway Lane, Eatontown, New Jersey.

CHARLES L. WATSON

Second Lieutenant Charles L. Watson, assigned to Officer Fixed Wing Aviator Course 61-9-1, U.S. Army Aviation School, Ft. Rucker,

Ala., was killed in the crash of an L-19E aircraft on Aug. 17, 1961, while engaged in a student training flight. The fatal accident occurred

at Ft. Rucker, Ala. He is survived by his wife, Mrs. Joan A. Watson, of Fort Rucker Road, Ozark, Alabama.

ARMY AVIATION BRIEFS . . .

FIFTH BIRTHDAY

■ Charged with the important mission of training the Army's helicopter pilots, the U.S. Army Primary Helicopter School celebrated its fifth birthday on October 11. Since the School was officially activated in 1956, 3,747 officers have passed through its gates with diplomas in hand; over 402,000 flying hours have been logged; and 1,063,485 successful student autorotations have been made. The School operates a fleet of 169 helicopters to support student instruction.

ALTITUDE RECORD SET

■ The Air Force has claimed a new world altitude record of 32,000 feet for Class E1d helicopters in the 3,858 to 6,614 lb. weight range. Lt. Col. Francis M. Carney, Commander of the 3638th Flying Training Squadron (Hel), Air Training Command, Stead AFB, Nev., set the new mark at Bloomfield, Conn., in a Kaman H-43B Huskie rescue helicopter. The flight took one hour and one minute.

TMC LOGISTIC SYMPOSIUM

■ An Army-Industry Logistic Symposium will be held in St. Louis at the Congress Hotel on November 27 and will continue through Dec. 1. The theme of the Symposium will be Army and industry roles in the development, production, and support of Army aircraft. Maj. Gen. Frank S. Besson, Chief of Transportation, will be the keynote speaker with some 200 representatives of the Army and the aviation industry expected to attend.



FIRE DIRECTION SYSTEM

■ Tactical mobility is a feature of the Hughes Aircraft "Helllift" helicopter-carried fire coordination system. The line sketch shows the "operations central" shelter - nerve center through which target information is transmitted to four or more anti-aircraft missile batteries in the air defense network - being lifted by helicopter to an area inaccessible by truck.

1,000 HOUR OPERATION

■ Vertol H-21C helicopters have been authorized for 1,000 hours of operation between transmission overhauls, according to information received from officials of the Vertol Division of The Boeing Company. Until now, the maximum time between transmission overhauls has been 750 hours of operation. The new time-between-overhaul applies to several hundred U.S. Army Shawnee aircraft now in use.

CONTRACT EXTENSIONS

■ Motorola Inc.'s Military Electronics Division has been awarded extensions to three major contracts for U.S. Army combat surveillance equipment totaling more than \$3 million. A part of the extensions apply to the AN/APS-94 Radar Sets, one of which is shown being checked by a Motorola Military Electronics Division engineer in the photo appearing at the left. The Scottsdale, Ariz. facility produces optical, audio, and electronic devices that augment today's advanced weapons systems.

MIKE BUTTON

MAINTENANCE TIPS USATMC, ST. LOUIS, MO.



Rx: EXPLOSIVE BOLTS HANDLED BY ORDNANCE

Remember, back in the June edition, we passed on the good words about "George" going on the "Fritz" when you had some of the installed Surveillance Radar Sets on, and one of them was the AN/APQ-86?

Gotta tip from the Signal people after a few inquiries, as to who's responsible for taking those explosive bolts out of the AN/APQ-86 Sets. It goes like this: "Disarming the explosive bolts is the responsibility of the Ordnance Explosive Handling Personnel," so pass it along. (Note! Hope Maj. Charles Easley down at Ft. Monmouth, New Jersey, buys this one - Mike.)

LET'S EXAMINE THE GROUND LOOP

Recall "FORGOTTEN AR", August Edition? I tried to get a few points across on this ever present problem in aviation.

Improper distribution of weight, erroneously figured c.g. limits, and forgetting about the MAC seems to be the vogue.

So, for once in ol' Mike's measured lifetime, I'd like to get real serious and step out of character for just a brief moment.

During my vacation, I had the opportunity to catch up with some reading, especially on this flying business. There was one article I read which I still dream about. I don't know how many of my readers read the one on "Ground Loops," but I should like to get a few points straightened out.

I'd like to dig into this one, and deep:

Let's examine the ground loop; the what, the why, the how, etc.

The ground loop is built in and is character-

istic of the "conventional" tail wheel landing gear. If you don't believe it, take a tail wheeled aircraft aloft and trim it up for hands off flight. Now let go. It does a pretty good job, eh? Bring it in for a landing and keep your feet on the floor, I dare you. Get the point?

As the forces through the c.g. go, so goes the tail; so, you must use a counter measure (the rudder) to keep the plane moving along a straight line, coincident with the longitudinal axis of the aircraft flown. Therefore, these ground loops are the result of the unequal lateral resistance offered by the forward wheels (Main Gear) and the tail wheel. For all practical purposes, the main wheels are slightly forward of the aircraft's c.g. and, consequently, they carry more load in a three-point attitude on the ground than the tail wheel.

If we'll just think for a moment - consider the wheel reactions that would result from dragging the aircraft sideways by a force through the c.g. It is immediately recognized that the aircraft tail wheel will swing in the same direction of the motion of these forces, and that the main wheels will not drag sideways while the tail wheel does because you have practically no weight on it.

Now, should you, during a landing roll, allow a curved ground path to develop, centrifugal force on the c.g. will duplicate the "side" force I just mentioned. The tail wheel will then move outward (in a concentric path) faster than the main wheels, thereby increasing the curved ground path of the tail wheel - worse, thereby increasing the lateral forces. There is the ground loop!

Since it is obviously impossible to increase the tail wheel loading to a significant percentage of the main wheels' load, it's concluded that

ground loops are more likely to occur as the c.g. of the aircraft moves rearward. It is also obvious that the tail low condition is the most rearward operational condition for a single loading condition, because the lowered tail moves the c.g. farther aft of the main wheels than the aircraft experiences in level attitude.

In summary, ground loop difficulties are, accordingly, more likely to happen from an aircraft which has had its balance changed (c.g. moved rearward) by adding weight on the tail assembly when in a three-point attitude during the approach and landing roll once the tail wheel deviates from the plane's intended straight path.

If, by chance, you have not been exposed to the same "information," be sure you check with and get the OK from the Project Engineer here at TMC before you go changing the Weight and Balance of any Army approved (by design) aircraft. Let's all try to stop refuting Newton (Isaac, that is) - it's dangerous.

The only way to stop ground loops in tail wheeled aircraft is to keep that mass moving in a straight line, whether it's on takeoff or landing, so that you do not generate an internal force which will act on the aircraft. The way this is accomplished is through diligence on the part of the pilots and instructor pilots (when they are teaching the proper coordinated applications of the controls during the difficult phases of flying); never once forgetting that when a flying machine is in motion, anyone can get into trouble.

It's like my pappy used to say: "Kill the varmint, don't cover him up, 'cause he might find another way to escape and get you." So let's all get to the real cause for these ground loops! Believe ol' Mike, it is not mis-designed aircraft.

THE ECONOMIC INVENTORY POLICY (E.I.P.)

In the August edition I told you to stand by for "New Policies in Supply," so now it's October, and here we go.

We of TMC know this is going to be new to you, but there are two new deals. Here they are:

E.I.P. (Economic Inventory Policy), and S.A.L.T.I. (Summary Accounting for Low Dollar Turnover Items).

These are two of the newest deals in the supply field; one is in use at many CONUS stations,

QUESTIONS FOR "MIKE"

QUESTIONS ON MAINTENANCE AND SUPPLY SHOULD BE DIRECTED TO: MIKE BUTTON, BOX 209, MAIN OFFICE, ST. LOUIS 66, MISSOURI. "MIKE" WILL ANSWER YOUR QUESTION BY DIRECT LETTER. GENERAL QUESTIONS AND ANSWERS WILL BE PUBLISHED IN THIS COLUMN.

and the second is about to pop any day. Here is what they are, and how they're supposed to work:

The E.I.P. is a system of inventory management designed to provide better and more economical peacetime supply service to the user. It applies to all minor secondary items and repair parts for stock at CONUS posts, camps, and stations. The system is being studied to find E.I.P. applicability to National Inventory Control Points and CONUS depots. Finally, it is to be extended to overseas theaters at theater control level.

Under E.I.P., a variable stock operating level is determined by the value of the gross sales on individual items. When the cost of ordering an item is greater than the cost of holding it in stock, more of the item is stocked and therefore requisitioned less often.

E.I.P. provides a variable safety stock to protect against the possibility of running out during the interval between the time when on-hand stocks fall below the re-order point and the time when replenishment stocks become available.

The quantity of safety stock held for any particular item is based upon the following factors:

- A real appraisal of the order and the shipping time.
- The demand frequency taken from history of the item.
- The historical order size.
- The desired degree of confidence in the protection against occurrence of a "stockout."

E.I.P. as a 2nd cousin to the Army Field Control System, is intended to improve supply performance for repair parts and minor secondary items by providing:

- Economic order practices.
- Flexible safety levels.
- Economical stockage principles.

Change 1 to AR711-16 calls out some of the changes E.I.P. has caused in Army Field Stock Control. AR changes will be coming out to include all of the E.I.P. concepts in AR 711-16 and AR 711-25.

During the testing of E.I.P., the following benefits were noticed:

- Ability to select stockage of medium and high dollar value at station level. This is done by increasing the standards for stockage to a higher incidence of demands to qualify the item for stockage.

- Greater depth of stockage for low dollar value items.

- A reduction in costs of stock control and ordering by reducing the number of requisitions placed.

- Reduction of station workload by use of a quantitative re-order point rather than a monthly item review.

At present three demands in 365 days qualify an item for station stockage and the requisitioning objective is based on the operating level, the safety level, and the order and shipping time.

Under E.I.P., the value of an item's annual quantitative demand develops the operating level factor. The annual number of demands against a statistical safety level factor, develops the safety and pipeline quantities.

TIPS FOR 'BEAVERS'

Seems like everybody who owns L-20's wants to install wing tip tanks. This is all real nice, but do we need them?

Away back in 1953, installation of wing tip tanks was approved for production aircraft only, but . . . !

Fact of the matter is, a retrofit for tip tanks would require moving all of the present plumbing

for the belly tank works on all 110 of our Beavers. Then what would you have? Tip tanks which hold about 22 gallons each as compared with 43 gallon belly tanks which you just got rid of. So what do you gain? No increase in airborne time, with the same gas load. And the COST !!! Around \$600 for a kit, and 75 or 80 manhours to do the job. Anyway, the Office of the Chief of Transportation turned it down.

And another thing: to retrofit unmodified wings would require inspection and reinforcement of the wings to the tune of \$18 each, and the manhours involved on some of them can't be calculated.

So, modifying the early Beavers (around 100) just for standardization is not contemplated because they're 10 years old (service life remaining is limited), and material benefits derived therefrom, would be nil.

THOUGHT FOR THE MONTH

Everybody concerned with R-1300-3C and 3D engines (Chickasaws) check out TCMAC-APE message Nr. 09 (Sept) - 1225 sent out on 14 Sept. 1961, 'cause it's a technical Safety of Flight deal.

It has to do with an immediate action inspection of certain engines installed in H-19 helicopters by serial number and it affects all cylinders in the list. This is a change Nr. 2, to immediate action TM1-2R-R-1300-1003 which deals with defective cylinder assemblies. If you can't get to the TWX, Mike'll help!

Informationally yours,

MIKE BUTTON

WANTED! BLACK CATS!

■ Black cats and Friday, the 13th may be jinxes to some people, but to the men of the 13th Transportation Company (Lt Hel), bad luck symbols are good luck. The "Lucky 13th," which thrives on bad luck myths, is actively seeking a black cat as a mascot to replace "Lucifer II" who apparently wandered off in the manner of all healthy male felines.

Lucifer II - whose predecessor, Lucifer I, was a three-legged specimen of the Korean variety known as Tom - reigned high over the 13th and "always enjoyed the loving care of his keeper," the most recently assigned officer or warrant officer of the company. To thwart off all bad luck symbols and myths, the company personnel blithely challenge the gods in celebrating Lucifer's birthday each Friday, the 13th.

Not completely fearless, the company wears unit patches that combine a four leaf clover and black cat emblem. The patch design by Walt Disney reflects the unit's excellent safety record and partially flouts all ill omens.

If a black cat should cross your path, don't go out of your way to walk around it. Unit members ask you to grab it, box it, and ship it to the 13th, care of APO 358, San Francisco, California. There are many Roman numerals available, and the 13th has no aversion to going to Lucifer XXII, et al.

■ ■

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The ease with which ARC's CD-4 Course Director adapts itself to every area of operation adds a new dimension to your flying technique.

SELECT MODE, SET TRACK, CENTER NEEDLE

With the CD-4, you simply select the mode of operation . . . VOR, ILS, ADF, or Magnetic Heading . . . set in the desired track information, and steer the plane to center the vertical needle. Instantaneous steering information is then computed and continuously displayed on one indicator. All enroute flying, holding, and terminal approach procedures are identical.

NO MENTAL GYMNASTICS

Exact mental calculations are no longer required. The CD-4 does it for you! It tells you how to intercept and maintain the desired course. Recalculation of headings to compensate for wind is not necessary. Your only requirement is to keep the needle on the cross pointer indicator centered.

And . . . the total added weight to the aircraft is only 8.5 pounds.

Engineered to the highest standards, ARC's CD-4 Course Director assures typical ARC reliability.

Aircraft Radio Corporation
BOONTON, NEW JERSEY

RESEARCH, DESIGN, DEVELOPMENT AND PRODUCTION OF ELECTRONIC EQUIPMENT SINCE 1928



AAAA ORGANIZATIONAL NEWS

COL. L.W. LEENEY ELECTED AS NATIONAL TREASURER

COLONEL L.W. "BILL" LEENEY has been elected to the office of National Treasurer, AAAA, to complete the vacancy left by Lt. Col. Charles E. Haydock, Jr. Col. Leeney, former President of the Fort Benning Chapter and the Georgia Region, is assigned at present to the National War College, Washington, D.C., in a student status.

THE NEW TREASURER received the unanimous endorsement of the 20-member National Executive Board in a mail ballot conducted in October. He will serve on the Board through the 1963 membership year. A National Board member for the past two years, Col. Haydock resigned his National office in late September citing the increasing demands placed upon his time by his Pentagon assignment. During his tenure of office, Col. Haydock was responsible for instituting sound fiscal and auditing procedures.

USAREUR REGION PLANS THIRD ANNUAL MEETING

THE ANNUAL MEETING of the USAREUR Region of AAAA will be held at the U.S. Army Recreation Center in Garmisch, Germany, on February 23-25, 1962, according to an announcement by Col. Russell E. Whetstone, USAREUR Regional President.

THE THIRD SUCH MEETING in as many years, the Regional gathering is expected to bring together some 800 aviators and industry representatives in a three-day professional-social program.

"THE MEETINGS are twofold in nature," Col. Whetstone commented. "First, and most important, they give to all who attend the opportunity to hear the latest developments on Army aviation and AAAA matters through presentations by senior military and industry representatives. Secondly, they give the aviators and crewmen a chance to relax from the strenuous daily activities required here, and to do so in the heart of the winter sports activities of Europe."

THE ANNUAL MEETING Committee expects the best part of the Region's 1,200 members to consider personal attendance. Invitations have been sent by the National Office to AAAA Industry Member firms inviting the European representatives of these firms to attend the forthcoming meeting. Chapter participation is expected from the Association's largest membership activity with representatives from the following Chapters to take part in the 3-day activities:

The Fulda Chapter, the Hanau Chapter, the Lech River Chapter, the Main River Chapter, the Munich Chapter, the Rhine Valley Chapter, the Stuttgart Chapter, and the 91st Transportation Company Chapter.

The newly-activated Bad Kreuznach Chapter and an interim Verona Chapter are also expected to send representatives to the Regional Meeting.

AAAA PRESIDENT Joseph E. McDonald, Jr. has been invited to attend as National Executive Board representative and to serve as one of the Meeting's principal speakers.

PRESIDENT McDONALD



CHAPTER PRESIDENTS, AAAA

CHAPTER PRESIDENTS LIST, NOVEMBER 1

CHAPTER	PRESIDENT
ALAMO	Maj. William D.C. Jones
ALASKA	Capt. Buehl R. Powell
AA CENTER	Col. Warren R. William, Jr.
BAD KREUZNACH	Lt. Col. Chas. A. Merritt
BLUEGRASS	Lt. Col. Earl B. Kelly
CAMP WOLTERS	Capt. William H. Cox
DAVID E. CONDON	Lt. Col. G.A. Peyer
DAVISON AAF	Lt. Col. Nelson L. Lindstrand
FORT BENNING	Maj. John M. Burhoe
FORT CAMPBELL	Lt. Col. R.P. Bonasso
FORT HOOD	Capt. James M. Archuleta
FORT McCLELLAN	Capt. Marvin E. Kemp
FORT MEADE	Maj. Wm. J. Hennessey, Jr.
FORT MONROE	Col. Robert F. Cassidy
FORT RILEY	Maj. Richard H. Scott
FULDA	Capt. Leslie A. Layne
HANAU	Capt. Robert G. Cox
JIMMIE L. HILTON	Capt. Eugene I. Smith
KOREA	Lt. Col. Orval H. Sheppard
LAWTON-FORT SILL	Capt. James R. Talbert
JEFF'SN & HIGHTWR	Capt. R.D. Henderson
LECH RIVER	Maj. George C. Conner
LINDBERGH	Maj. Gen. William B. Bunker
MAIN RIVER	Lt. Col. Daniel G. Gust
MET NY	Capt. William C. Taylor
MONTEREY	Lt. Col. George A. Lutz
MUNICH	Maj. Henry C. Sullivan
PIKES PEAK	Lt. Col. Gordon L. Kinley
RHINE VALLEY	Lt. Col. Rowan P. Alexander
STUTTGART	Col. Jack W. Hemingway
USARCARIB	Lt. Col. Jack W. Ruby
WASHINGTON D.C.	Mr. Darwin P. Gerard
82ND AIRBORNE	Lt. Col. Warren G. Crosby
91ST TRANS CO	Capt. Leland G. Wanken
217TH TRANS BA	Maj. Billie Asher

FULDA CHAPTER ACTIVATED WITH 100% SUPPORT

"THE FULDA CHAPTER of AAAA has gotten off to a flying start with 100 per cent membership participation in the Fulda, Germany area. The Chapter was represented at the last Regional Meeting in Ludwigsburg on August 18 just one week after Chapter organization.

CHAPTER PRESIDENT Capt. Leslie A. Layne and his Executive Board of officers have already developed a full calendar of events for the fall and winter periods.

THE ACTIVITIES were started with a formal Dinner-Dance on September 23 at the Fulda Officers Club. Mr. Igor Sikorsky served as keynote speaker for the function with Col. Russell E. Whetstone, the Regional President, and commanders and staff officers of the ground supported units in attendance.

CWO William H. Chambers
Secretary, Fulda Chapter

BELL EXECUTIVE TO ADDRESS ALAMO CHAPTER ON HU-1D

THE ALAMO CHAPTER of AAAA has scheduled a Membership Business Meeting at which a film and presentation on the Army's new HU-1D Iroquois helicopter will be featured. Mr. Hans Weichsel, Jr., Vice President for Military Contracts of the Bell Helicopter Company, will be the Chapter Guest Speaker and is expected to provide many interesting insights into the new "D" model.

ONE OF THE AAAA's more active Chapters, the Alamo activity headed by Maj. William D.C. Jones is pursuing a monthly "business-educational" program. The membership is bolstered by the Army aviation students enrolled in the Medical Field Service School at Fort Sam Houston who participate in Chapter meetings while they are on TDY from their Chapter areas.

LIST OF INDUSTRY MEMBERS, AAAA

AERO COMMANDER, INC.
AEROJET-GENERAL CORPORATION
AIRCRAFT RADIO CORPORATION
AIR LOGISTICS CORPORATION
ARMY AVIATION MAGAZINE
BEECH AIRCRAFT CORPORATION
BELL HELICOPTER COMPANY
CESSNA AIRCRAFT COMPANY
CHANCE VOUGHT AIRCRAFT, INC.
COLLINS RADIO COMPANY
CONTINENTAL MOTORS CORPORATION
CONVAIR DIVISION OF GENERAL DYNAMICS
DE HAVILLAND AIRCRAFT OF CANADA, LTD.
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GENERAL ELECTRIC COMPANY
GRUMMAN AIRCRAFT ENGINEERING CORP.
HAWTHORNE SCHOOL OF AERONAUTICS
HAYES AIRCRAFT CORPORATION
HILLER AIRCRAFT CORPORATION
HUGHES TOOL CO. - AIRCRAFT DIVISION
INSURANCE CITY LIFE COMPANY
INT'L TELEPHONE & TELEGRAPH CORP.
JEPPesen & COMPANY
KAMAN AIRCRAFT CORPORATION
LABORATORY FOR ELECTRONICS, INC.
LEAR, INC.
LOCKHEED AIRCRAFT CORPORATION
LYCOMING DIVISION, AVCO CORPORATION
THE MARTIN COMPANY
McDONNELL AIRCRAFT CORPORATION
NORAIR DIVISION, NORTROP CORPORATION
NORTH AMERICAN AVIATION, INC.
PAGE AIRCRAFT MAINTENANCE, INC.
RADIOPLANE DIVISION, NORTROP CORP.
REPUBLIC AVIATION CORPORATION
RYAN AERONAUTICAL COMPANY
SOUTHERN AIRWAYS COMPANY
SPERRY GYROSCOPE CORPORATION
UNITED AIRCRAFT CORPORATION
VERTOL DIVISION, THE BOEING COMPANY
WICHITA DIVISION, THE BOEING COMPANY



ARMY AVIATION ASSOCIATION APPLICATION FOR MEMBERSHIP

I wish to become a member of the Army Aviation Association. I have inclosed my Initiation Fee and my Membership Dues. Please start my ARMY AVIATION MAGAZINE subscription and send my membership credentials.

CHECK ONE

- My past or current duties affiliate me with the field of U.S. Army aviation or its allied pursuits.
- My past and current duties have not affiliated me with the field of U.S. Army aviation but I wish to further the aims and purposes of the Army Aviation Association.

NAME.....
 (Please print) Rank/grade First M. I. Last

ADDRESS.....
 (Post Box Number, Residence or Quarters Address is Desired)

CITY..... **ZONE**..... **STATE**.....

INITIATION FEE . . . \$3.00

First Year Membership Only. Includes Lapel Pin and Decal.

ANNUAL OR PRO-RATED AAAA DUES

Membership Year Terminates Each March 31st

- \$6.00 (Applications submitted April 1 - June 30)
- \$4.50 (Applications submitted July 1 - September 30)
- \$3.00 (Applications submitted October 1 - December 31)
- \$1.50 (Applications submitted January 1 - March 31)

CATEGORY OF AAAA MEMBERSHIP

- Active U.S. Army establishment U.S. Army Reserve component
- U.S. Army National Guard Other. Describe below.

Your check or money order, made payable to AAAA, and your application form should be submitted to AAAA, Westport, Conn.

SIGNATURE.....

Failure to sign above invalidates this application.

The Third Annual Meeting of the Army Aviation Association of America was the occasion for the announcement of a new civic project sponsored by the Washington, D.C. Chapter. Maj. Lewis E. Casner, Ret., Delegate of the Washington, D.C. Chapter outlined the project to Annual Meeting attendees and he has submitted the following report for the overall Association membership.

"KNOWN AS the SCIENCE AWARDS PROJECT, the Program is designed to recognize the scientific achievements of high school students participating in the Greater Washington Area Science Fairs.

TO RECOGNIZE ACHIEVEMENT

ADMINISTERED by a Science Awards Committee of the Washington, D.C. Chapter, suitable awards will be made for outstanding exhibits related to the general field of aviation, and in particular that area of aviation meeting the Army's peculiar requirements. The awards will not be any great prize of many thousand dollars; they will probably be, in most cases, nothing more than a Certificate of Achievement to recognize the achievement of some young person.

THE GREATER WASHINGTON AREA, which includes parts of Virginia and Maryland, is divided into five sub-districts or science fair areas. Each of those areas annually supports its own Senior Area Fair.

COVERS D.C. SCHOOLS

THE CONTESTANTS are advanced to the Senior Fairs as winners from the local fairs conducted at the various high schools within each area. Students from all high schools associated with the Washington area science fair program will be afforded the opportunity to submit exhibits within the scope of this project.

THE SCIENCE AWARDS COMMITTEE will appoint judging teams composed of both military and industry members who will participate in the main judging events at each fair. Two winners from each Senior Area Fair, or ten from the

WASHINGTON SCIENCE A



D.P. GERARD

Washington Area, are selected annually to compete in the National Science Fair. One or more could be winners from this project.

INCREASING THE SCOPE of AAAA activities within the limitations imposed by available funds has long been a major objective of the Washington, D.C. Chapter's current president, Darwin P. Gerard. Upon assuming that office, Col. Gerard appointed a Committee to select a suitable project which would enable the local membership to make a meaningful contribution to the civic community.

3-MEMBER COMMITTEE

THE SCIENCE AWARDS PROJECT was selected as the type of activity best suited to this purpose and as the most appropriate for sponsorship by the AAAA. Members of the original Committee later formed the nucleus for the Science Awards Committee and will administer the Project.

THE WRITER will serve as Chairman of the Committee and I will be assisted by Lt. Col. Cloyd V. Taylor, a senior Army aviator assigned to the Federal Aviation Agency, and Mr. Thomas Bean of the Washington Office of the Bell Helicopter Company. Both have indicated high interest in the Project and I am looking forward to working with them on the Committee."

Lewis E. Casner
Major, Ret.
Research Analysis Corporation



ON, D.C. CHAPTER WARDS PROJECT



COL. TAYLOR



T. BEAN



L.E. CASNER

EXTENSIVE AA SUPPORT GIVEN TO USAAMS

■ ARMY AVIATION is not on the decline at Ft. Sill. Quite to the contrary, the aviation support here is hardly sufficient to meet all of the requirements levied against the units and Ft. Knox and Ft. Benning units that have been TDY'd here will verify "the levying."

ONE TYPE of support is in providing the "lift" in the Helicopter Lifted-Artillery Demonstration. This demonstration is run at least once each quarter (See photo on page 640) and sometimes more frequently. It is probably our greatest opportunity to demonstrate the tremendous capabilities of Army aviation to the Artilleryman.

TWO-PART DEMONSTRATION

THE FIRST PORTION of the demonstration consists of performance capabilities of all available Army aircraft. We then demonstrate the rapidity with which a Reconnaissance, Selection, and Occupation of Position with a 105 mm Battery can be accomplished by utilizing Army aircraft. During this portion we tie in such missions as para-drop of supplies, wire laying, and message drops to the battery position.

THE H-37 'COPTERS that transport the 105's are barely out of the position area when the battery begins its fire mission with live ammo. The demonstration is concluded by lifting the

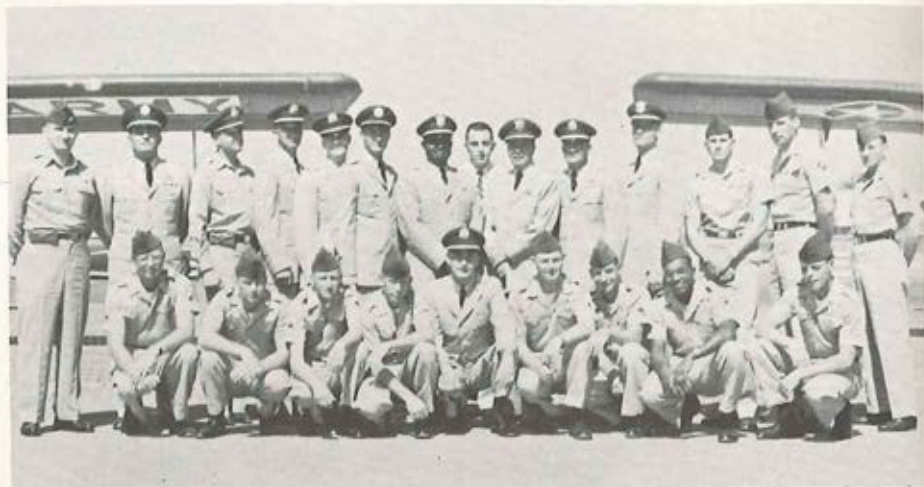
battery out with H-37's, and a later static display of aircraft, when appropriate.

ANY WRITING of aviation activities at Sill would not be complete without a mention of the 4th Army Instrument School. This is the only contract instrument school still operating in the Army, a testimonial itself as to the fine performance of this Ross Aviation facility. Lt. Col. Russ Blair, Ret., manages the operation with Maj. R.G. McLaughlin serving as the military "Great White Father."

CURRENT UNITS

THE EDITOR'S blue pencil permitting, here's a rundown on the current units at Ft. Sill. The 45th Trans Bn (commanded by Lt. Col. E.H. Francis), the 54th Trans Co (MH)(Maj. R.A. Filby), the 57th Avn Co (LTT)(Capt. E.L. Brown), the 154th Trans Det (MCHFM)(Capt. S.C. Burns), the 20th Avn Opr Det (Army)(Capt. B.C. Hall). Also, the 3 Arty Gp Sections - the 41st (Capt. F.E. Woith), the 52nd (Capt. J.A. Henderson), and the 214th (Capt. D.J. Austin). Lt. Col. J.Y. Hammack serves as Center Aviation Officer. The Post lost an outstanding aviation unit recently when the 12th Aviation Company departed for Alaska duty in August.

Capt. W.F. (Dick) Dixon
Artillery & Missile School
Fort Sill, Oklahoma



FULDA CHAPTER AT 100% Newly-activated Fulda, Germany Chapter members include, frpnt row, left to right, Capts D. Guentz & C. Bledsoe; CWO J. Lewis; Lts. R. Martin, R. Copeland, C. Webster, & H. Ochsner; Capt N. Dupre; Maj. W. Cleveland; Capts. J. Ferguson, M. Davis, G. Redd; Lts. R. Kvamme, & J. Philips; Capts. J. Keating & Burgess; CWO Chambers. BACK ROW: Capt J. Ahern; Lts. W. Adelmann, G. Nelson, B. Lutz, & W. Kaufman; Capts. E. Atchison, F. Newman, J. Grasmeyer, R. Briones, & B. Choat; Lt. S. Vanderbilt; Capt. R. Brown; Lt. C. Mattison; Capts G. Sink & M. Sykes; Lts. D. Fine, J. Griffin, W. Zierdt, F. Chew, & J. Christie; Capt. C. Washington.

FORT HOOD CHAPTER OFFICERS Officers and members of the initial Texas chapter are, front row, left to right, Lt. Cecil Shrader (VPA), Capt. Donald E. Treat (EXVP), Capt. Sydney Hurley (VPP), Lt. Bobby Maddox, Lt. Joseph Tobin, Capt. Richard Mukaeda, and Lt. Donald Bryant (Trea). Rear row, l-r, Capt. Stephen Featherstone, Capt. Robert Arnet, Maj. James Sterling, Lt. Wallace Napier (Sec), Lt. Elbert McAfee, Capt. Jack O'Donohue, CWO Irwin Rice, & Lt. Gordon Stone. Missing at the time of the photo was Capt. James M. Archuleta, President. (U.S. Army photo)





TRIPOLI MEMBERS Active in the Jefferson and Hightower Memorial Chapter in Libya are, front row, left to right, SFC T.C. Martin; PFC O.L. Smith; Sgt H.P. Roller; PFC D.A. German; Capt. R.D. Henderson (Pres); S/Sgt R.J. Whitehead; S/Sgt J.E. Padgett; Sp/5 J.T. Porter; PFC C.D. Wright. Back row, l-r, Capt. R.H. Merritt, H.P. Leighton, Jr., E.A. Smith, F.G. Peterson (Trea), J.V. Turner, R.L. Broughton, H.J. Raymond, T.L. Gochsauer, C.J. Heathcote, & T.L. McMurray; Lt R.R. Precht (killed in an aircraft accident at a later date); PFC R.D. Mays; Sp/4 L.J. Zimmisky; and S/Sgt W.M. Richardson (VPA). Capt. L.J. Powlen (Sec) and SFC T.C. Martin (ExVP) were missing at the time the photo was taken.

CHAPTER ACTIVITIES

THE WASHINGTON, D.C. Chapter of AAAA will hold a Membership Luncheon Meeting on Nov. 15 at which Mr. Edward R. King, Operations Officer of the Aviation Branch, Office of Transportation, International Cooperation Administration (ICA) will address the assembled membership. Mr. King's address will concern the "OVERSEAS OPERATIONS OF ICA" - a subject that should prove interesting to the Chapter membership.

THE MEETING, at which the general membership will have the opportunity to meet and greet Brig. Gen. Delk M. Oden, the new Director of Army Aviation, ODCSOPS, and Col. Robert H. Schulz, the new Deputy Director, will be held in the Crystal Room of the Fort Myer Officers' Open Mess.

MAIN RIVER VALLEY CHAPTER

THE MAIN RIVER VALLEY Chapter has scheduled a combined business and professional meeting on December 8. Lt. Col. Daniel G.

THE MEETING NOTICES ON THIS PAGE REPRESENT THOSE CHAPTER NOTIFICATIONS RECEIVED THROUGH NOVEMBER 6.

Gust, president of the newly-activated USAREUR Chapter, invites all area members to attend the meeting at the Kitzingen Officers Club during the hours of 0900-1400. The Chapter will discuss general Chapter business items in the initial part of the meeting and a guest speaker will address the membership following the business meeting.

RHINE VALLEY CHAPTER

THE RHINE VALLEY CHAPTER has scheduled a "very brief" business meeting at the Coleman Barracks Officers Club, Friday, December 1. Members are asked to meet at 1700 hours. Quoting the Chapter Secretary, Capt. Jay W. Pershing, "Due to the coming Holiday season and the resulting social commitments, it was decided at the last meeting that this one on Dec. 1 should be a 'beer call' to be followed by a short business meeting. So be it!"

VERONA, ITALY

AAAA MEMBERS in the general Verona, Italy, area met on October 17 at the Officers Open Mess, Boscomantico AAF in Verona and considered the reactivation of a separate USAREUR Chapter in the SETAF area. Initial business conducted at the meeting concerned the election of Chapter officers, drafting the program of Chapter meetings, and a discussion of local Chapter goals.



MAPS!

a foot in the door

By knowing where a job opportunity exists you have one foot in the door. Finding the job opening is half the battle.

The *Military Aviation Placement Service (MAPS)* sponsored by the *Army Aviation Association* is designed to accelerate the placement of qualified personnel who are committed to separation or discharge from the service. The *Service* accomplishes this by placing the applicant in direct contact with a firm or firms that have signified that they have a definite job opening in his category.

As an AAAAA Member, your qualification resume (provided to you by the AAAAA) will be reproduced and forwarded to the firm listing the job opening in which you are interested.

How does this help you? Your time and effort will not be wasted in snowing firms with resumes, firms that, unknown to you, have posted "No Vacancy" signs.

How does this help the employer? The MAPS Clearing House service will not waste his time. He has your resume and your qualifications; he knows when you will be available; he can hire.

Every effort will be made by the AAAAA to coordinate job placement through *MAPS*. If you are committed to civilian employment within the aviation industry, write for additional details today. AAAAA, Westport, Conn.

The adult male can generally be divided into two classes - "joiners" and "non-joiners." Joiners need no urging to belong; if anything, they have to be periodically suppressed from forming a new CHOWDER AND MARCHING SOCIETY or an INDOOR BIRDWATCHING COMMITTEE. This letter is addressed to the "non-joiners" - written by a fervid "non-joiner."

■ The officers of the United States Army Aviation Center are currently being urged to join three professional associations: The ASSOCIATION OF THE UNITED STATES ARMY, the ARMY AVIATION ASS'N., and the AMERICAN HELICOPTER SOCIETY.

with authority. This is the ASSOCIATION OF THE UNITED STATES ARMY.

■ The ARMY AVIATION ASS'N. OF AMERICA was formed for a special group with special interests. It in no way conflicts with the purpose of the AUSA - it is more of a supplement to it.

It provides valuable flight pay protection and gives the Army aviator a place to "hangar fly" in writing. You may become a member without the flight pay protection if you desire. It also provides a journal for the dissemination of information about his profession, ARMY AVIATION MAGAZINE.

WHY ALL THREE?

By BRIG. GEN.
JOHN J. TOLSON

Why? - What will I gain as an individual? - Why all three organizations? Isn't there much duplication and division of effort? - Are there going to be three meetings a month that I will be expected to attend?

All these are legitimate "non-joiners" questions. They deserve an answer.

■ Basically, all professional associations have the goal of uniting a special group of people with common interests and aims to enable them to effectively speak on matters affecting their profession. Manufacturers, doctors, lawyers, airline pilots, and hundreds of other groups have proven this to be effective and worthwhile. Protection of mutual interests and informal exchange of information are primary in all such organizations; some have a secondary social function.

■ The ASSOCIATION OF THE UNITED STATES ARMY was formed to fill a long needed place for

■ The AMERICAN HELICOPTER SOCIETY was formed with the prime purpose of advancing a particular art. It is essentially a technical organization. Its main concern happens to be a machine that is to be one of the Army's principal means of mobility and one that occupies a large portion of the Army's future. The connection is obvious. The manufacturers and the military have identical interests and need a place to exchange ideas and explore new avenues toward an advanced helicopter. As our future happens to be tied in a large degree to this equipment we have a real reason to be part of the AHS.

■ On the national level and in over-all goals it is apparent that the three organizations have different reasons for being. On the local level,

AUSA - AAAA - AHS

the Army to express itself outside of official channels along with the Air Force and Navy associations. Its influence is world-wide and its benefits are very real. It is sometimes difficult for the company grade officer to appreciate that he is receiving anything more than a copy of "ARMY" magazine, but he is overlooking the fact that as a career officer he must take steps to insure that his problems are recognized. He cannot write to the editors of the local papers expressing the views of the Army as he sees them. He is not expected to be writing notes to Congress or standing on soap boxes. But he does need a voice outside of official channels - one



the three organizations are composed of basically the same people with three different local administrative set-ups. Steps are being taken to combine some of the local activities without losing any of the overall identities of the associations. This is a problem that is peculiar to Fort

WHY ALL THREE?

Rucker. In particular, it is hoped to combine the meetings of the AHS and AAAA so as not to divide the interest or efforts locally, and provide a program that will insure maximum attendance. This should not affect the national aims or the individual benefits of the three distinct organizations.

■ Well, that's it, fellow "non-joiners." Might as well give in gracefully. It doesn't cost nearly as much as the Internal Revenue charges for being a U.S. citizen - yet I haven't heard of anyone talking of quitting (except about March). We were also going to push for members in the AMERICAN ROTARY SOARING ENCLAVE, but we decided to drop it because of trouble with the initials.

NEW CHAPTER OFFICERS

DAVISON AAF CHAPTER

PRESIDENT . . . LT. COL. NELSON L. LINDSTRAND
EXEC VP MAJ. WILLIAM H. HARPER
SECRETARY CAPT. AUSTIN J. PARKER
TREASURER TO BE ELECTED
VP, ARMY AFFAIRS MAJ. JACK G. MORROW
VP, ARNG AFFAIRS MAJ. PAUL H. ROUNDY
VP, RESERVE AFF MAJ. GEORGE T. BURTON
VP, INDUS AFF MAJ. STANLEY R. BLUNCK
VP, PUBLIC AFF CAPT. GLENNE E. SPAULDING

LAWTON-FT. SILL CHAPTER

PRESIDENT LT. COL. RAYMOND E. JOHNSON
EXEC VP CWO WILLIAM F. HENDERSON
SECRETARY CAPT. VICTOR A. JOHNSON
VP, ARMY AFF CAPT. CECIL R. HUFF
VP, RESERVE AFF CWO DWIGHT O. ALLEN
VP, INDUS AFF LT. ROBERT W. COOK
VP, PUBLIC AFF TO BE ELECTED

JIMMIE L. HILTON CHAPTER

PRESIDENT CAPT. WILLIE F. DIXON
EXEC VP CAPT. BILLY C. HALL
TREASURER CAPT. RAYMOND D. HENLEY
VP, ARMY AFF LT. COL. RUSS BLAIR, RET.

FULDA CHAPTER

PRESIDENT CAPT. LESLIE A. LAYNE
EXEC VP CAPT. EULEN D. ATCHISON
SECRETARY CWO WILLIAM H. CHAMBERS
TREASURER CAPT. JOHN J. AHERN
VP, ARMY AFFAIRS CAPT. FRANK K. NEWMAN
VP, INDUS AFF LT. FRANK S. CHEW
VP, PUBLIC AFFAIRS CAPT. MICHAEL M. DAVIS

FORT BENNING CHAPTER

PRESIDENT MAJOR JOHN M. BURHOE
EXEC VP CWO JAMES R. WOODS
SECRETARY CWO DONALD R. JOYCE
TREASURER LT. WILLIAM G. BACON, JR.
VP, ARMY AFFAIRS TO BE ELECTED
VP, RESERVE AFFAIRS TO BE ELECTED
VP, INDUS AFFAIRS TO BE ELECTED
VP, PUBLIC AFFAIRS TO BE ELECTED

BAD KREUZNACH CHAPTER

PRESIDENT LT. COL. CHARLES A. MERRITT
EXEC VP MAJ. CHESTER H. CRAWFORD
SECRETARY LT. GARRET G. ROOSMA
TREASURER CAPT. ERNEST H. JOHNSON
VP ARMY AFFAIRS CAPT. JOSEPH H. FOX
VP INDUS AFF CAPT. FRANKLIN D. CANTWELL
VP PUB AFF CAPT. STEPHEN F. CAMERON

JEFFERSON & HIGHTOWER CHAPTER

PRESIDENT CAPT. ROBERT D. HENDERSON
EXEC VP THOMAS C. MARTIN
SECRETARY CAPT. FRANKLIN G. PETERSON
TREASURER CAPT. LESTER J. POWLEN, JR.
VP, ARMY AFF SGT. WILLIAM M. RICHARDSON
VP, INDUSTRIAL AFF TO BE ELECTED
VP, PUBLIC AFF TO BE ELECTED

AA CENTER CHAPTER TO HEAR BRIEFING ON RUSSIAN 'COPTERS

MR. JOE MASHMAN, Chief Pilot of the Bell Helicopter Company, will be the principal after-dinner Guest Speaker at a December 7 meeting of the ALABAMA REGION. The well-known Bell executive will discuss Russian rotary-wing efforts based upon his recent visit to the USSR.

THE ARMY AVIATION Center Chapter will host the professional meeting and has extended invitations to members at Redstone Arsenal and the Fort McClellan Chapter to attend the December 7 meeting. A \$1.25 Shrimp Dinner, free beer, and a pay-as-you-go bar are planned. Dinner tickets may be secured from the various Departmental Administration offices and company orderly rooms. Transient Fly-In members are asked to contact Lt. Col. Jack Blohm, Ret., Box 428, Fort Rucker, Ala., and provide the number of people attending in their group and the services desired - BOQ, transportation, etc.

AAAA CHAPTER OFFICER SLATES ARE PUBLISHED AS THEY ARE RECEIVED AT THE NATIONAL OFFICE. REVISIONS SHOULD BE SENT TO AAAA, WESTPORT, CONNECTICUT.

NEW MEMBERS JOINING AAAA

BACON, William G., Lt.	GARDNER, William H., Lt.	NEUBAUER, Jacob D., III, Lt.
BALINT, Barry T., Capt.	GARNER, Kermit C., Capt.	NICKERSON, Alden K., Mr.
BAMFORD, Malcolm, Capt.	GERKEN, Henry A., Sp/6	OBERMIRE, John P., Capt.
BARRETT, George Jr., Mr.	GREER, Robert E., Sgt.	OCONNOR, James J., Capt.
BEGIN, Lee, Mr.	GROUT, Harold P., Lt.	PALMA, Peter A., Sp/5
BISBEY, Jay B., Lt.	GUST, Daniel G., Lt.Col.	PERCIVAL, William J., Lt.
BOTH, Benny L., Lt.	HAKI, Joseph C., Mr.	PERRY, Lloyd M., Lt.
BOWDOIN, Arthur C., Capt.	HATTON, Richard R., Capt.	PHILLIPS, William R., Capt.
BRAZIL, John E., CWO	HAWLEY, Harvey D., Maj.	PITTS, Philip C., Capt.
BRITTON, John A., Lt.	HENDERSIN, Donald R., Mr.	POWELL, Douglas W., Mr.
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■ LT. COL., RET., AGE 40. DESIRES POSITION AS AIRCRAFT SALES REP. 2,500 HRS TIME IN FW/RW. TEN YEARS' EXPERIENCE ALL PHASES OF AA. WRITE AAAA, ATTN: SJS, WESTPORT, CONN.

■ THE U.S. ARMY TRANSPORTATION DEPOT (SANDHOFEN, GERMANY) HAS SEVERAL OPENINGS FOR FERRY PILOTS AND GOVT QUALITY CONTROL REPRESENTATIVES. FOR FURTHER INFORMATION CONTACT HQ, USATDS, APO 28, N.Y., N.Y.

■ CESSNA AIRCRAFT COMPANY, MILITARY DIVISION, IS CURRENTLY SEEKING APPLICATIONS FOR A HELICOPTER TEST

PILOT. QUALIFIED CANDIDATES FOR THE POSITION MUST HAVE RETIRED OR HAVE LEFT THE SERVICE. WRITE MR. ADRIAN PAVLICK, EMPLOYMENT MANAGER, C/O CESSNA AIRCRAFT CO., WICHITA, KAN.

■ PETROLEUM HELICOPTERS, INC. HAS IMMEDIATE AND FUTURE OPENINGS FOR EXPERIENCED HELICOPTER PILOTS. IN ADDITION, THE FIRM HAS OPENINGS FOR LICENSED A & P MECHANICS WITH HELICOPTER OR FIXED WING EXPERIENCE. APPLICANTS MUST BE DISCHARGED OR RETIRED, OR HAVE IMMINENT KNOWN DISCHARGE OR SEPARATION DATES. CONTACT S.S. HILL, PERSONNEL DIRECTOR, PETROLEUM HELICOPTERS, P.O. BOX T, LAFAYETTE, LOUISIANA.

THE MASTERS

COL. O.G. GOODHAND

ASSISTANT SECRETARY OF THE ARMY (RESEARCH AND DEVELOPMENT) FINN J. LAUSEN, LEFT, CONGRATULATES COL. O. GLENN GOODHAND, HIS EXECUTIVE OFFICER, UPON THE LATTER'S RECEIPT OF MASTER ARMY AVIATOR WINGS. A 19-YEAR ARMY AVIATION VETERAN, COL. GOODHAND IS A GRADUATE OF M.I.T., THE FAS, C&GSC, AND THE ARMY WAR COLLEGE AND SERVES CURRENTLY ON THE AAAA NATIONAL BOARD. (USA PHOTO)



MAJ. R.R. BUCKWALTER

MAJOR ROY R. BUCKWALTER, COMMANDING OFFICER OF THE SECOND U.S. ARMY FLIGHT DETACHMENT AT FT. MEADE, MARYLAND, IS SHOWN RECEIVING HIS MASTER AA WINGS FROM MAJ. GEN. RINALDO VAN BRUNT, DEPUTY COMMANDING GENERAL, HEADQUARTERS, SECOND U.S. ARMY. A 15-YEAR VETERAN, THE PENNSYLVANIA-BORN ARMY AVIATOR HAS MORE THAN 6,500 FLYING HOURS TO HIS CREDIT AND HOLDS A SPECIAL INSTRUMENT RATING. PRIOR TO HIS CURRENT TOUR, HE SERVED WITH THE EIGHTH U.S. ARMY IN KOREA. (U.S. ARMY PHOTO)



MAJ. W.D.C. JONES

MAJOR WILLIAM D.C. JONES, DEPUTY AVIATION OFFICER, HQS, FOURTH U.S. ARMY, FT. SAM HOUSTON, TEXAS (2D FROM LEFT) IS SHOWN RECEIVING HIS MASTER AA WINGS FROM COL. LESTER F. SCHOCKNER, FOURTH U.S. ARMY AVIATION OFFICER. LOOKING ON ARE CAPT. BEN BYERS AND MAJ. FLOYD WILSON, BOTH MASTER AA'S. AN ARMY AVIATOR FOR 18 YEARS, MAJ. JONES IS THE CURRENT PRESIDENT OF THE ALAMO CHAPTER OF AAAA. MAJ. RAYMOND McLAUGHLIN AND CAPT. WILTSE, OTHER 4TH ARMY MASTER AA'S, MISSED THE PRESENTATION CEREMONIES.



CAPT. R.W. BLAKELY

CAPT. ROBERT W. BLAKELY (CENTER), AVIATION SECTION TRAINING OFFICER AT U.S. ARMY AIR DEFENSE COMMAND HEADQUARTERS IN COLORADO SPRINGS, RECEIVES HIS MASTER AA WINGS FROM MAJ. GEN. PHILIP H. DRAPER, JR., CHIEF OF STAFF OF ARADCOM. WATCHING THE CEREMONY IS LT. COL. GORDON L. KINLEY, ARADCOM AVIATION OFFICER AND PRESIDENT OF THE PIKES PEAK CHAPTER OF AAAA. AN INFANTRY OFFICER IN WW II, CAPT. BLAKELY HAS FLOWN SOME 6,000 MILITARY AND CIVILIAN HOURS, INCLUDING EXTENSIVE COMBAT TIME IN KOREA. (USA PHOTO)



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BRIG. GEN. DELK M. ODEN, (far right), the new Director of Army Aviation, ODCSOPS, views the Army HC-1B Chinook twin-turbine helicopter after initial demonstration flights by Boeing's Vertol Division test pilots at Philadelphia International Airport. Looking on are, left to right, Frank K. MacMahon, Vertol Manager, Military Programs; Lou Borges, Office, Assistant Chief of Transportation for R&D; Col. John L. Klingenhagen, U. S. Army Transportation Material Command; Col. David B. Parker, Assistant Chief of Transportation for R&D; Harry S. Pack, Director-Customer Relations, Vertol Division, The Boeing Company.



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