ARMY AVIATION

JANUARY 15, 1957

The Army's new
HILLER H-23D

powered by

Lavco Lycoming

O-435-23A
260-h.p. take-off
250 h.p. normal

Lavco Lycoming

defense and industrial products

Stratford, Conn. • Williamsport, Pa.

Dependable Avco Lycoming engines
power more different types of fixed and rotary-wing
aircraft than any other engines in the world.

That's Bendix-DECCA

. . . the 3-way Navigation System for Helicopters

Bendix Decca actually traces on a map in the helicopter cockpit the exact route you are flying. Every movement of the craft is instantly traced on this Flight Log. You **always** can see exactly where you are — in any weather — and you can fly a safe, positive course.

Bendix Decca gives you a 3-way check — (1) for accurate area coverage navigation, (2) for traffic control and (3) as a safe approach and landing system.

This is the **low frequency system** which operates behind buildings, beyond line of sight and below the curvature of the earth.

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Write us for the complete story.

DECCA NAVIGATOR SYSTEM

Bendix
PACIFIC DIVISION
Bendix Aviation Corporation
NORTH HOLLYWOOD CALIF

BENDIX-DECCA SOLVES THE PROBLEMS OF...

An open letter from "Ed" Koch:

Hiller Helicopters

PALO ALTO, CALIFORNIA • CABLE ADDRESS "HILLER" • TELEPHONE DAVENPORT 5-3241

Gentlemen:

Our Service Department wishes to extend thanks to all Army personnel for their cooperation with our Technical Representatives during the past year.

In 1957, as in the past, our thirteen Technical Representatives assigned to the various Army areas stand ready to aid and assist the Army in our common goal to further Army Aviation. Without question, the success of the H-23 or any helicopter is measured not only by its performance, functional capabilities, and maintenance integrity, but also by the degree of effectiveness of the maintenance and services devoted to it during its operational life.

Thus, the overall objective of our Service Department must be to insure continuous maximum availability of the aircraft to its user by constant re-appraisal and improvement of the service system. A Hiller Maintenance Difficulty Report system provides an efficient vehicle for quickly reporting discrepancies noted in the field by Technical Representatives. This sytem, combined with prompt, accurate follow-up evaluation should often result in the submission of Equipment Change Proposals to the military before the military makes its formal request. This system is greatly aided by the submission of UER's which result in numerous improvements in our product. Your cooperation in aiding us to improve our H-23 series is greatly appreciated.

With best wishes for a fruitful New Year, we at Hiller remain ready to serve you.

Sincerely yours,

Edward Koch

Edward Koch
Service Manager

HILLER HELICOPTERS
PALO ALTO, CALIFORNIA

ARMY AVIATION

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Navigator

FORT HUACHUCA, ARIZ.—The Aviation Department of the Army Electronic Proving Ground quietly made history here recently when one of its aviators flew the first operational flight in an Army aircraft using an experimental *"breadboard"* model of a lightweight *"self-contained"* airborne electronic navigator.

Lt. Robert D. Fisher took off from Lindbergh Field at San Diego, Calif. in a *Beaver* and flew to Fort Huachuca passing over Yuma, Gila Bend and Tucson enroute. Though he was on course all the way he did not depend upon any form of *ground* navigational aids. The electronic navigator provided him with an indication of his exact position, along with the course to fly and distance flown toward his destination throughout the trip.

The *"self contained"* electronic navigator is an experimental lightweight packet of mystery boxes, constructed for AEPG under contract by Ryan Aeronautical Company, San Diego. During September, Lts. Fisher and Conrad J. Provencher flight tested the *breadboard* model along the West Coast, out to sea, and over the desert. Afterwards, both agreed that the navigator would seem to eliminate manual navigation problems for aviators and would be capable of navigating an airplane between any two points at a given distance.

When Lt. Fisher made tthe first operational flight, the navigator directed him something like this:

With the indicator *"zeroed"* for San Diego airfield and the course set for Yuma, the first check point along the rout to Fort Huachuca, the flight began. During flight the system automatically took the speed of the aircraft over the ground and the drift caused by the wind and added them to other factors to check the course. This course was presented on an indicator dial, showing the direction to fly to the Yuma checkpoint. A distance indicator automatically computed the miles flown as the plane moved over the ground.

The Army plane was brought to Fort Huachuca to continue the testing of the experimental navigator and to investigate its operational capabilities and its application in a system for Army combat navigation and aircraft traffic control.

Early in the development of the self-contained navigator, liaison between the AEPG and representatives of the Ryan Aeronautical Company revealed that an experimental model, lightweight enough for use in Army aircraft, might be possible. In June 1956, in anticipation of success in the construction of such a navigator, work was started at the AEPG on the development of an Army aircraft traffic control

(*Continued on Page* 34)

Cessna L-19's deliver the goods – Army counts on it!

The Cessna "Bird Dog" is a pack horse, too! Here, it is shown dropping supply packs to Army units. Packs are snapped to wings of L-19's, delivered to forward troops in seconds!

The tough, dangerous job of supplying small Army units by air is assigned to Army pilots flying Cessna L-19's because these airplanes are designed for this type of work . . . and for other duties such as wire laying, flare dropping, aerial photography, insect spraying, courier work, communications, artillery spotting.

Cessna

Cessna Aircraft Company, Wichita, Kansas

Cessna L-19's offer high-wing visibility, short take-offs and landings, outstanding load-carrying and slow-flight characteristics. Also, these rugged, all-metal airplanes are easy to service, require less maintenance.

Cessna has delivered every L-19 to U. S. Armed Forces on schedule since 1951!

NEW TURBOROTOR 'COPTER...
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1951

Kaman built the first turborotor helicopter flown anywhere.

1954

Kaman again pioneered in the helicopter gas turbine field with this HTK powered with twin turbines.

Kaman Aircraft and Lycoming scored a turborotor first when this Kaman HOK helicopter took to the air powered by Lycoming's XT-53, the first U.S. free-shaft gas turbine specifically designed as a helicopter power plant.

Kaman leads the field in turborotor experience and development and is proud of the forward steps it is taking in the interest of our National Defense.

KAMAN

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Kaman builds helicopters YOU FLY LIKE A PLANE

E and E

by Capt. Robert Skimin

Precisely what does an Army Aviator do when he finds himself on the ground *behind* enemy lines in combat? Ask any one of the thousands of officers and warrant officers wearing the wings of an Army Aviator and this will probably be his answer, *"Oh, I don't know, elude the enemy, get back; the usual things."*

What are the usual things? What has he proven by such an answer? He has proven that the average Army Aviator is not adequately trained in combat survival or escape and evasion. He is not prepared to safeguard his own life—one of the Army's most valuable investments—behind enemy lines.

The present mission of Army aviation does not normally place the pilot too far behind enemy lines. However, with new developments and missions planned for Army aviation, the aviator of tomorrow could easily find himself from fifty to one hundred miles deep. In such a position it is entirely conceivable that he may encounter enemy fire, mechanical failure, or bad weather, each of which could force him to the ground.

Aircraft do go down in combat. After reaching the ground, he may be confronted with a return trek which will take several

weeks. A sound training program in survival and escape and evasion will have prepared this aviator to attempt this extremely difficult problem.

The Air Force has long recognized the value of such training and presently operates survival schools in several parts of the world. Crew members are schooled in the various and nefarious ways in which they can live off the land in every clime. In addition, an active E&E (*Escape and Evasion*) program is being continually improved and implemented. Due to its intricacies, a definite, perfect E&E system has always been an elusive goal to the Air Force.

Escape and Evasion is the term applied to the means by which downed crew members remain out of enemy hands and eventually return to friendly forces. In every country where a war is being fought there will be people who are friendly to our effort. These may be ordinary natives, guerillas, or our own personnel engaging in special activities. An organized net for returning downed airmen and escaped prisoners may be in operation. Such a net would only be accessible when the escapee is far behind the lines. The Air Force's approach to the problem, naturally, is based upon its varied missions, from tactical to strategic; as a result, their E&E planning is geared accordingly.

Survival and E&E actually go hand in hand as a combination; one is a part of the other. Army aviation, in its present and planned role, needs a workable combination geared to its own requirements. Boiled down simply, this combination consists of avoiding detection by the enemy, surviving physically, and returning.

One aspect of extreme importance in survival behind enemy lines is *attitude.* The man who is psychologically ready and in possession of a belief in his own capabilities will have an exceptionally good chance of getting back. Sound preparation of the individual aviator can produce this confidence.

What is the answer to this very definite need? How shall this aviator be trained and equipped, mentally, physically, and materially? This answer must be found, developed and instituted before any full scale conflict of the future commences.

Air Force Training

One possible solution to the problem would be to send our aviators to the different Air Force schools for training. This solution has several drawbacks. One is the expense entailed and the quota situation; the Air Force, itself, has thousands of untrained crew members. Another is that our aviators would be receiving training with equipment and systems dissimilar to our own. Still another drawback is that the Air Force itself is still striving for perfection in this field. There is, however, much to be learned from their program.

A Survival Center

A better solution would be for Army aviation to open its own *Survival Training Cen-*

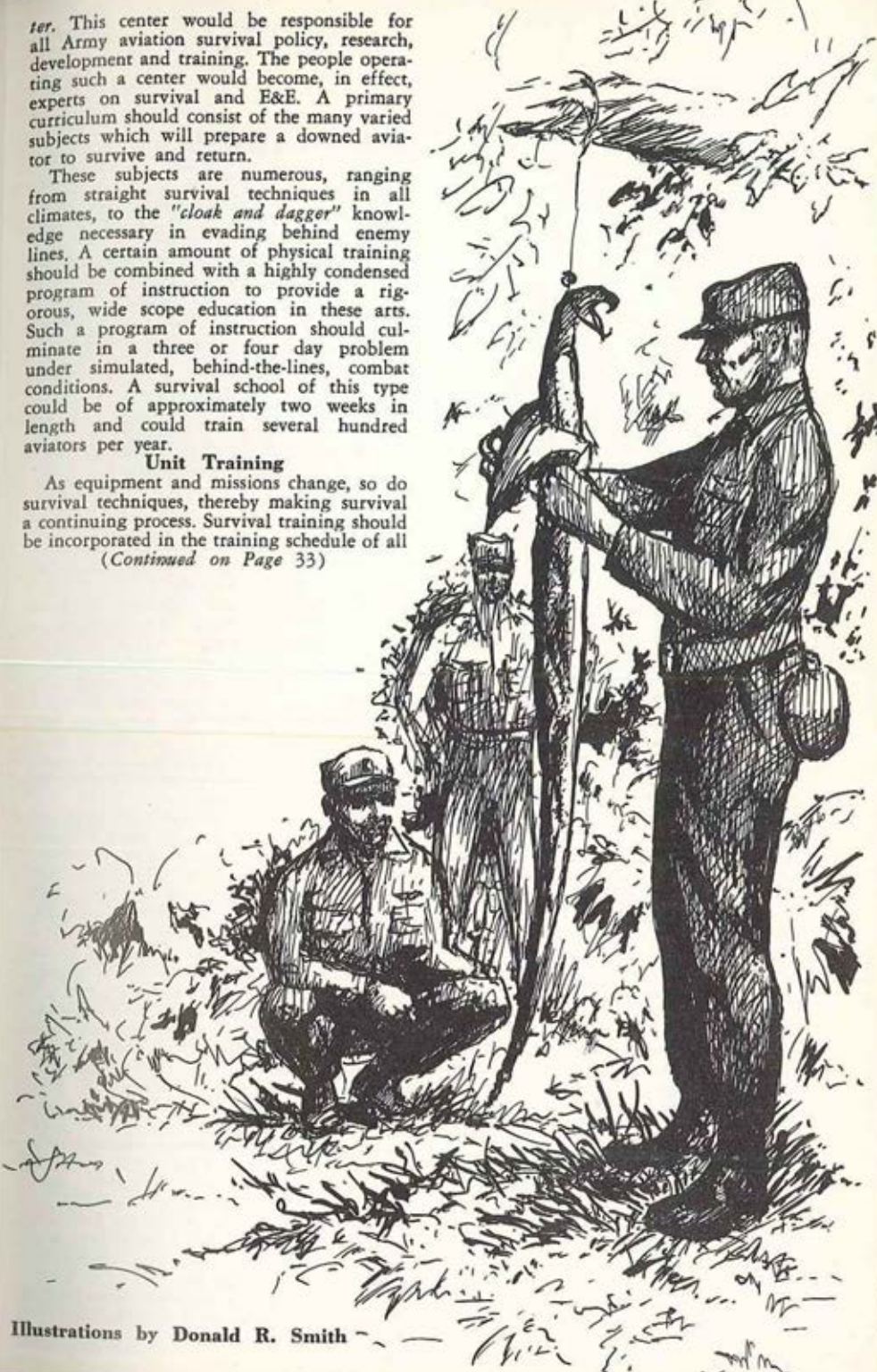
ter. This center would be responsible for all Army aviation survival policy, research, development and training. The people operating such a center would become, in effect, experts on survival and E&E. A primary curriculum should consist of the many varied subjects which will prepare a downed aviator to survive and return.

These subjects are numerous, ranging from straight survival techniques in all climates, to the *"cloak and dagger"* knowledge necessary in evading behind enemy lines. A certain amount of physical training should be combined with a highly condensed program of instruction to provide a rigorous, wide scope education in these arts. Such a program of instruction should culminate in a three or four day problem under simulated, behind-the-lines, combat conditions. A survival school of this type could be of approximately two weeks in length and could train several hundred aviators per year.

Unit Training

As equipment and missions change, so do survival techniques, thereby making survival a continuing process. Survival training should be incorporated in the training schedule of all

(*Continued on Page* 33)



Illustrations by Donald R. Smith

A presentation by ARMAV's Colonel John D. Edmunds to a recent O.N.R. Progress Report Conference discussed instrumentation programs in relation to . . .

Around the Clock Operations

Man determined many years ago that he must have a mobility differential over his enemy in order to wage war successfully. On foot, he was limited to a speed of about one and one-half miles per hour. If he moved any faster on foot, he was too exhausted to fight. The horse was one of his first aids in mobility, followed by the motor vehicle and, finally, the present-day aircraft.

Until the advent of the airplane and helicopter, any increase in mobility was limited to the trafficable terrain. However, the airplane and helicopter have divorced him from these terrain obstacles and give promise of true freedom of movement about the battlefield beyond the wildest dreams of past military planners.

The airplane and helicopter, however, have their limitations. Paramount among these limitations is the inability of present-day aircraft to operate within the *"nap of the earth,"* by day or night under all-weather conditions. (I thank Dr. Doug Courtney for this phrase "nap of the earth." It completely describes the area in which we in the Army feel we must operate.)

Atomic warfare, with its forced dispersion of combat units and the attendant need for rapid massing to gain superiority of force followed by re-dispersion to avoid enemy atomic counter measures, places a tremendous requirement upon Army aviation. It is obvious that these mobility missions must be accomplished around the clock, and we in Army aviation look to industry for the solution of the many attendant problems. I wish to stress at this time that the Army visualizes the need to operate fixed-wing, as well as rotary-wing, aircraft within the *"nap of the earth"* and, therefore, offers this low-level problem as a distinct Army requirement—inasmuch as the other services undoubtedly have decidedly different problem areas.

To be a little more specific, the aircraft support that the Army needs must have the following capabilities: it should be able to navigate from A to B, land, fight if necessary with the landed unit, and then move to Point C under all-weather conditions, 24 hours a day, 365 days a year. What do we mean by *"all-weather conditions?"* Our version is—conditions which permit other means of military transportation to operate and/or men to fight.

The aircraft for this support must have self-contained equipment for instrument flight, navigation, ground and air obstacle location, anti-detection, and means of identifying itself and of challenging other aircraft; it must have a suppression weapons system and protection for personnel and critical parts of the aircraft; it must be simple to operate and simple to maintain; and it must require extremely short periods of training for pilot personnel. . . .

It should be realized that the American aircraft industry must furnish the technological superiority so necessary to overcome the tremendous manpower differential that presently exists between the free and slave worlds. In order to achieve these great strides, we must set our sights high.

During this talk with you today, I am going to present Army Aviation instrument flight requirements as we see them today. I realize that the instrumentation programs being conducted by Douglas and Bell have as their purpose the determination of the fundamental requirements of the optimum man-machine combination necessary to give man true and complete freedom in the air. Certainly my presentation cannot solve your problems for you, but rather, I hope to tell you of our needs within the Army. Our present program breaks down into three main phases; immediate, interim and ultimate.

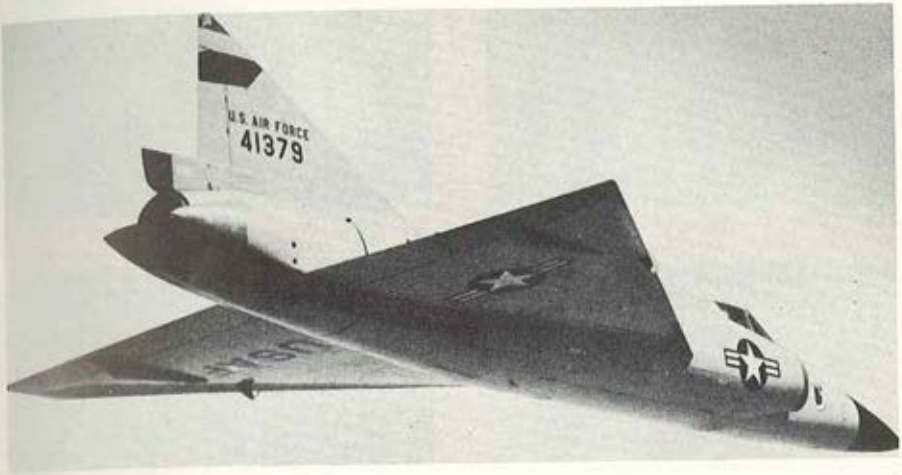
Immediate Phase: A) Night and marginal weather, instrument flying capability, and B) Helicopters should have a capability comparable with our present light fixed-wing aircraft. *We need this capability immediately.*

(*Continued on Page* 35)

Colonel John D. Edmunds

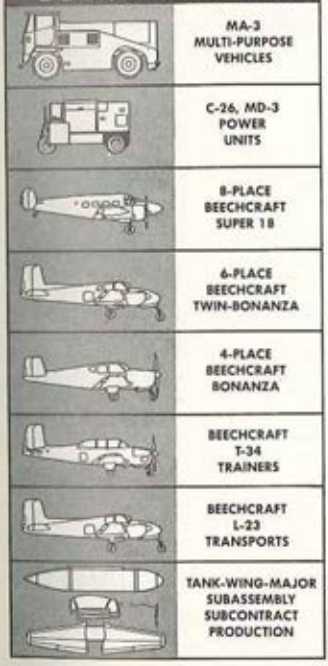
Complete text of a speech given by Colonel John D. Edmunds, Assistant Commandant of the Army Aviation School, Fort Rucker, Alabama, before a recent Office of Naval Research Progress Report Conference.

CAPABILITIES . . . Manpower, Tools and Experience



Producing canopies and windshields for CONVAIR'S USAF F-102 jet fighter is a proud undertaking for Beechcraft. We're busily engaged, too, in classified engineering design studies of other F-102A and F-106A aircraft components.

BEECH BUILDS



For more than 24 years Beech Aircraft Corporation has served the aviation industry, earning an enviable reputation for quality products and on-schedule deliveries. Beechcraft's five major plants with 1¾-million square feet of plant area and more than 6,000 skilled employees are at work on a wide variety of prime and subcontract orders . . . including special projects for BOEING, McDONNELL, REPUBLIC, LOCKHEED and other leading aircraft manufacturers who depend on Beechcraft's capabilities.

If your company has a research, design, development or production problem, an inquiry addressed to our Contract Administration Division will bring immediate information on how Beechcraft's manpower, tools and experience can help. Write today.

Beechcraft

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

Assault Force

FT. BENNING, GA.—Using twelve U-1A *Otters*, the 1st Army Aviation Company recently completed a tactical maneuver which proved that this type of aircraft can be employed in combat operations under battlefield conditions.

The joint maneuver—combining the crews of the *Otter* Company with an assault force from Company B, 4th Battalion, 3rd Infantry Division—tested several concepts in air-land operations.

Doctrines contained in Army Field Manuals were explored during the operation which also provided valuable data on the types of loads combat-ready rifle companies can carry in the new U-1A aircraft.

In the tactical problem a re-inforced Infantry Company landed 12,000 yards behind enemy lines, assembled, assaulted an assigned objective, and secured their portion of the air-head line, that sector which a unit is responsible for holding and covering.

Heading the operation were Maj. Jerome B. Feldt, CO of the 1st Army Avn Co (FW-TT), and Capt. George B. Heald, Company B commander.

Careful attention should be given to AR 600-15, a D/A Message, and a D/A Letter, all of which pertain to the . . .

Officer Career Program

by Maj. Gen. Hamilton H. Howze

Gentlemen: Once again I would like to emphasize the importance of the Army Aviation Officer Career Program and call your attention to AR 600-105, dated 18 April 1956; DA Message 417963, dated 15 March 1956; and DA letter, subject: *"Assignment of Officer Aviators"*, dated 15 October 1956. Careful study of these documents will materially assist all aviators in understanding the program. The third document which authorizes commanders to deviate from the provisions of paragraph 6a, AR 600-105 and message DA 417963 is especially important.

Due to the temporary surplus of aviators, commanders may now assign aviator personnel, with less than three years' experience, to non-flying duty in their respective branches. This authorization gives considerable flexibility to the field but it does require close coordination between the commanders and aviation officers. Should an aviator, with little experience, be assigned non-flying duty the Commander and Army Aviation Officer must insure sufficient time from assigned duty for the aviator to continue supervised flight training by the more experienced pilots.

★ A new plan for the assignment of Army Aviation Medical Officers, depending upon the number of Army aviators to be served, is explained in DA letter AGAM-P (M) 210.-31 (9 Jan 56) MEDDD-HO, subject: *"Utilization and Assignment of Aviation Medical Officers, MOS* 3160", dated 7 June 1956. I recommend that you check this DA letter to determine if your station is authorized an Aviation Medical Officer, and if so, suggest that it be brought to the attention of your station hospital commander.

★ The Chief of Engineers has been conducting an investigation on the effect of the H-21 helicopter landing gear on flexible (asphaltic) pavements. The H-21 has a landing gear of such design that the wheels move outward on landing, causing a high shearing stress in the upper portions of the pavement. The Engineers have recommended that the H-21 landing gear be modified to correct its adverse load characteristics. This, as you undoubtedly realize, would be a time-consuming and expensive process. As an immediate means of easing the problem we have sent out instructions that RUNNING LANDING and TAKE-OFFS be utilized more often.

★ TB AVN-8 has been published as a guide for aircraft accident investigation. This bulletin is not a complete and polished publication but has been provided as an interim guide until an appropriate field manual can be compiled. I suggest you school your people in the provisions of TB AVN-8.

★ We are striving to refer to our Army aircraft by popularized names, like the *Beaver* for the L-20 and the *Otter* for the U-1. Even though there are names "in the book" for other aircraft, in most cases these names are not in common usage. Let me have your suggestions.

★ The first worldwide Army Aviation Conference, held 13-15 November at the Pentagon, was extremely interesting and profitable. It provided an excellent opportunity for Army aviators from all commands to exchange information, review plans for future development of Army aviation, and to discuss current problems and their solution.

I sincerely hope that the beneficial results of this conference will be disseminated to Army aviators at all levels of command. If you do not hear from your representative at the Conference, I suggest that you get in touch with him for a quick rundown on the information presented.

Wishing all a Merry Christmas,

HAMILTON H. HOWZE
Major General, GS
Director of Army Aviation, ODCSOPS

Recovery

FT. RUCKER, ALA.—Following an emergency flight to the U.S. Army Hospital at Fort Benning, Ga., in early December, Brig. Gen. Carl I. Hutton, Commanding General of The Army Aviation Center, underwent surgery for a stomach condition. Gen. Hutton's post-operative progress is reported as *"highly satisfactory"* and he is expected to return to his assignment after a convalescent leave of three weeks. Your personal *"Speedy Recovery"* messsages will help to brighten his period of convalesence and should be directed to his Fort Rucker address.

Faced with cold weather starting of H-34's a Fort Sill crew added a few "wrinkles," ironed out the "bugs," and came up with a . . .

New Portable APU

FT. SILL, OKLA.—Here's an item of interest for the maintenance personnel around the horn. It concerns an APU assembled and put in use by the 64th Transportation Company (Lt Hcptr) here at Fort Sill. This is not an *ordinary* APU. We feel it is the answer to the immediate *"Problem"* for starting the H-34 during cold weather as well as all other times. In describing the APU, I will not be too technical; however, I would like to include some of the pertinent data about the power plant.

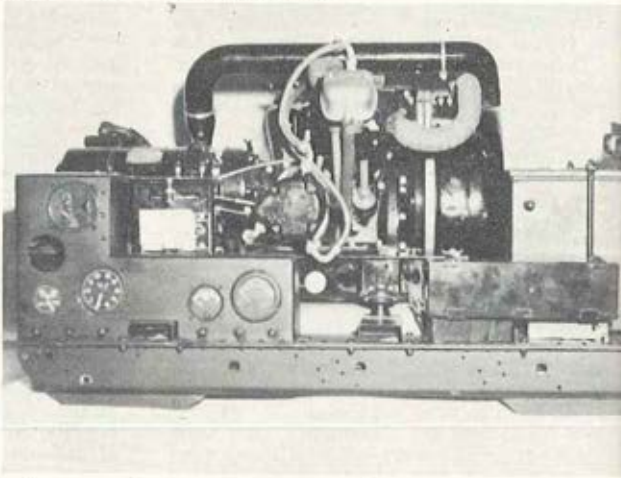
To begin with the offical designation of the basic unit is as follows: Plant, Auxiliary Power, Type V32D2, Class 02B, s/n 0230-5900. Since this plant is not a self-contained source of external power for starting the cargo helicopters, a number of additional items had to be obtained before assembly of the complete APU could be accomplished.

We started the paper work on this project in June of this year, but a lack of component parts delayed the completion of the APU until November. On 14 November the little monster turned its first revolution and since that time has been in operation within the unit.

No "Pipe" Job

As all of you might have guessed by now, the entire project was not quite as simple as I have stated. You are right in this guess. The Project Officer was *WO Howard L. Willis,* who spent many a hard day and made many a visit to the neighboring Air Force bases before the plant was actually completed. Chief electrician on the project was WO William Burgess, our ass't Maintenance Officer, and the ever present helping hand of PFC Ronald C. Rice was a valuable asset. We feel these three maintenance personnel of the unit have accomplished a project that may well pave the way for other units that are presently having starting troubles with the cargo helicopter ,due to lack of adequate APUs. (And who doesn't have trouble when old man thermometer takes a dive?).

This particular APU is a desirable power plant in as much as it is light and can be carried within the helicopter, mounted on a jeep, mounted on a dolly or if you prefer, portable by ski. And believe me, it will handle that old R-1820-84 even if that oil is like molasses.



by Lt. William C. Hampton

As previously stated, the power plant requires a number of additional components before the APU is a self-contained plant. However, I am sure this information will be made available by your supply personnel. If you encounter any difficulty, drop us a line here at the 64th Transportation Company (Lt Hcptr) at Fort Sill and we will send the *Poop to the Troops* by return mail.

Another First

We of the 64th Trans Co believe this to be another first for Cargo Helicopter companies and we highly recommend that those of you who do not have a satisfactory APU obtain this little monster and end your troubles. It ended ours.

Redesignation

FT. RUCKER, ALA.—Effective January 1st, 1957, Board Nr 6, CONARC, was redesignated the *"U. S. Army Aviation Board"* with no change made in the unit location. All correspondence with the Board should be forwarded in accordance with the heading indicated in this announcement.

OKINAWA RESCUE—The 28-man crew of an Army tug was rescued by a Sikorsky H-19 of the U. S. Air Force's Air Rescue Service after the tug was wrecked on a reef off Naha, Okinawa. The tug went aground aiding the Army coastal tanker in the background, also stranded on the reef.

AROUND THE WORLD WITH SIKORSKY HELICOPTERS

NEW RADAR HELICOPTER—Under development for the Navy by Sikorsky Aircraft is this HR2S-1W helicopter with radome accommodating search radar gear. It can extend radar coverage beyond the range of shipboard radar or land-based radar picket aircraft.

WORLD'S FASTEST—A Marine Corps Sikorsky HR2S-1 has set a world record of 162.7 mph. Flown by Major Roy L. Anderson, left, and Robert Decker, Sikorsky test pilot, the HR2S also set new records carrying 13,250 lbs. to 7,000 ft. (surpassing a Russian record), and 11,050 lbs. to over 12,000 ft.

SIKORSKY AIRCRAFT

BRIDGEPORT, CONNECTICUT

One of the Divisions of United Aircraft Corporation

December 5, 1956

Mr. Arthur H. Kesten, Editor
Army Aviation Magazine
Westport, Connecticut

Dear Mr. Kesten:

Your friendly and public-spirited offer of space to bring the Association of the United States Army to the attention of your readers is much appreciated. You know the importance of the Association to all soldiers and to all Army civilians, and I know it -- but too many do not.

I am writing this just a week after the Department of Defense once more restricted -- I believe unreasonably -- Army Aviation to arbitrary weight limits that cannot do otherwise but hamper performance of its mission. The Army needs a voice. The Army has that voice in the Association, but it isn't yet well enough known.

Local chapters are being formed. A new reorganization gives us a Council of Trustees that cannot be controlled through military channels. The country will hear more about us, and through us, about the problems of the Army. We need Army support -- the support of every officer, first-three-grader, and D/A civilian who realizes he has a stake in the future of our Army.

To keep this letter within the bounds of your space, which I know is restricted, let me close by inviting all your readers who are interested in the future of the Army to write me for the brochure which explains the Association. We will get it out to them immediately.

Sincerely,

ARTHUR SYMONS
Colonel, Arty-USAR
Secretary and General Manager

AS:eb

1529 EIGHTEENTH STREET, NORTHWEST, WASHINGTON 6, D. C.

Photo at left—Eight members of the newly-formed 572nd Engr Platoon study the first leg of their 8,000-mile journey to Libya. L. to R. Lt. R. K. Bastian; Capt H. L. Howell; Maj. Phillips Melzer (Plat Comdr); Lt C. J. Radu; Capt F. R. Wilson; Lts R. Smith and R. Flint; Capt J. E. Greer.

Seaborne

STOCKTON FIELD—Seven 572nd aircraft, brilliant in their red and white survival markings, roared skyward recently on the first leg of an 8,000 mile odyssey to the remote and little known kingdom of Libya in North Africa.

Manned by nine officers and six enlisted men the five fixed wing aircraft and two helicopters were enroute to the POE staging area at Brookly AFB, Ala. From Brookly the aircraft were placed aboard the escort carrier *Tripoli* (no fooling) for the sea voyage to Wheelus AFB, Libya.

Maj Phillips Melzer, CO of the 572nd, acted as flight comdr for the group which included: Capts *James E. Greer, Frank Wilson, Harold L. Howell,* and *Peter K. Herring,* and Lts *Richard K. Bastian, Robert Flint, John Radu,* and *Robley Smith.* Acting as crew members were Sp-3 Allen Bonner and PFCs Douglas K. Bryant, Richard A. Caldwell, Robert E. Callery, Leslie Harmon, and Jack W. Ripley.

Eight of the 572nd's H-23's were flown to the POE for sea shipment. The other four were placed aboard C-124 Globemasters and accompanied Capt John Yates and his advance detail to Libya. The rest of the survey detachment—the 329th Hq Det, the balance of the 572nd, and the 542nd Engr Co—will entrain for the POE shortly.

Best Wishes

Maj John L. Briggs, 30th Engr Gp Avn Officer and CO of the 521st Engr Co, has been tapped for assignment as Student Company Commander at the Cargo Helicopter Pilot's School, Camp Wolters, Texas. A veteran of the 1955 Alaska survey missoin and a Senior AA, Major Briggs departed December 17th. At this point we'd like to join the chorus of officers and men in wishing Maj Briggs plenty of runway, plenty of altitude and airspeed, and many happy landings in his new job. Maj Briggs replacement as CO is scheduled to be Maj Charles Bussey, a Senior AA, who will joint the unit from Ft. Ord, Calif.

Busy, Busy, Busy

Without waiting for a repeat performance of the antedeluvian deluge that struck northern California last December, both the First and Second Platoons have plunged into separate survey support missions at opposite ends of the state.

The First Platoon is busy supporting the 549th Engr Co in survey operations near Clear Lake in northern California. One H-19, one L-21, and three H-23s plus five pilots and four mechanics are currently working the rugged terrain around Clear Lake. Platoon commander is Capt Vernon L. Lawrence, while Lt. Ken Fletcher is working as OIC in the field.

Back at the flight line, the Second Platoon has launched preparations for supporting the 537th Engr Co on a desert survey operation in the 29 Palms-Indio area of Southern California. The kick-off is scheduled for 15 Jan with two fixed-wing aircraft and ten helicopters committed to the operation. Under Platoon Commander Capt Jim Kennedy will be fifteen officers and approximately twenty enlisted men.

YC, Lt. William F. Gabella

Dry Run

FT. SILL, OKLA.—This air-evac was a *dry run* but in the event of a real emergency this 8-litter *Sikorsky* H-34 chopper of the 31st Hcptr Co will be on a permanent *standby alert.* The craft was pre-fitted with the litters by the 31st since it takes about 30 minutes to ready a 'copter for emergencies. The ambulance-helicopter will now be available to all Ft. Sill personnel and for accidents outside the Post after proper clearance is obtained. Shown at the craft are (l. to r.): Majs. Thelma B. Goodman and Lourine Patterson, both USAH nurses; WOs George R. Sabens & Frank Robinson; Lt. Phyllis Goodhue, nurse; and Lt. Gerald A. Briscoe. A healthy but prone Sp-2 Joe E. Allen counts the clouds as a simulated patient.

REVISIONS

(Dear Editor:) How many times have you sweated over a handbook only to later find that you were more confused at the end than you were before you referred to the book? It's small wonder. Some of the people who write these books know less about aircraft and maintenance than the average rifleman.

When you receive a *new* handbook on maintenance or flight, it is usually 6 to 12 months behind the times upon receipt. When I refer to the book for information, I cannot use it as a Bible for it just ain't so.

In many cases, the writers of these texts do not understand, or have never seen, the aircraft about which they are writing—let alone the complicated processes being performed. In the maintenance handbooks, you can easily find that procedures are employed that are impossible to follow—one can't help but wonder if the writer even bothered to check out the process with the fellows who performed it.

The biggest problem lies in *your* complaints about the texts. They just don't get to the right people—and the fellows in between you and the writers are *"too busy"* to bother with complaints. These complaints seldom get to the manufacturers and producers of the handbooks as a result. Then too, the Air Force reviews these books and suggests changes but here, in many cases, the *reviewers* know as much about the aircraft as the writers—sometimes *they* have seen the aircraft but are not pilots and mechanics.

The Army seems to have little or nothing to say about these books and the pilots and the mechanics in the field, the people who actually *use* the books, have even less to say.

Maybe one of these days—a favorite saying—the Army will arise and get the handbooks up to date. But until they do, you will have to be content with year old "new revisions"! If you have a Tech Rep nearby—and I have never seen one—tell him the nature of your complaints and perhaps with enough push these complaints will reach the manufacturer. The only catch is that I haven't seen any comments from pilots yet—and I work in the tech writing department of a helicopter concern.

It would seem that it's about time the Army let you fellows who fly the machines contact the manufacturer directly with your problems. It could save time, months perhaps—and much money. And, of course, it would help other units who have the same problem.

One other thought. The Army, having more rotary wing craft and pilots than all of the other services combined, have their aircraft tested by the Marines, checked by the Air Force and delivered to the Army.

A Many Sided Thing

Letters to the Editor

Letters from all sources are welcomed. All letters for publication must bear the signature of the writer. The writer's name will be withheld upon his personal request.

It seems strange that the people who are getting thte bulk of the equipment have little to say about how they are made, no?

Edward G. Polanski
Captain Inf
Conn. National Guard

(Ed. Not being a completely "enlightened" individual on Army technical orders and handbooks and the compilation of same, we forwarded the above to TSMC at St. Louis for amplification and possible comment. This column— as you note—is called *"A Many Sided Thing."* We prefer, of course, to present both sides in the same issue.)

REBUTTAL

(Dear Editor:) I would like to attempt to discuss some of our maintenance publication concepts [in existence] and perhaps help the writer as well as other readers to understand what is going on in this direction.

Air Force technical orders, particularly the basic handbooks, are written by the manufacturers concerned and closely reviewed by the Air Materiel Command and the Transportation Supply and Maintenance Command. If the aircraft concerned has a commercial counterpart, as is usually the case in our Army aircraft, the technical order is practically a carbon copy of the commercial handbook.

As you well know, people selling aircraft are *most* desirous of keeping them flying and they certainly would be expected to publish the best possible handbooks for their customers. The drafts of technical orders are submitted to this command prior to publication, where they receive close scrutiny and review prior to being returned to the Air Force for publication.

At TSMC, the T.O.'s are reviewed by the specific commodity managers of the aircraft concerned. The same man or group of men who review the technical orders are the ones who manage the entire maintenance program of any given aircraft. They

Cut out for provisions

projectiles or platoons

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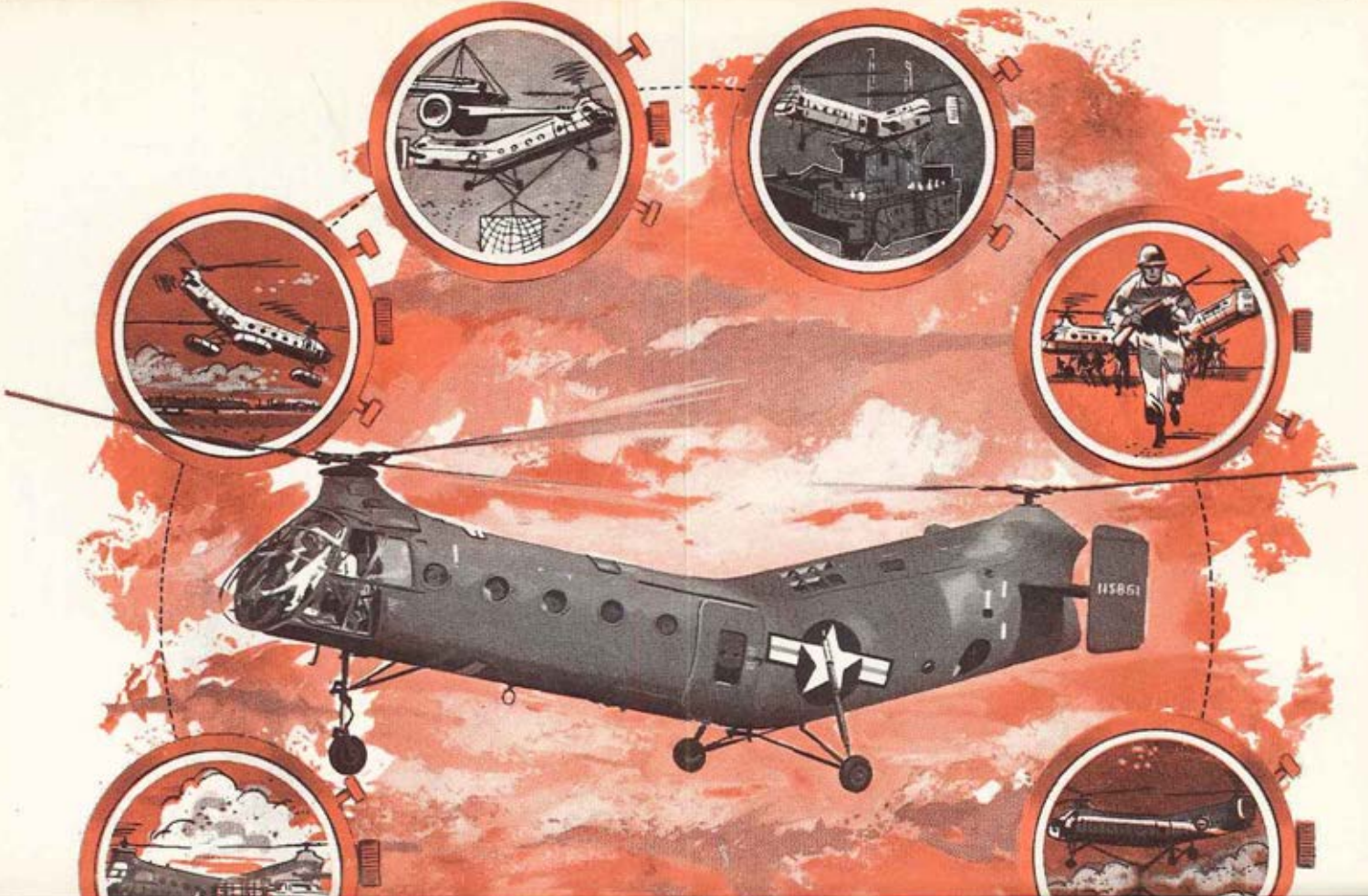
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A Many-Sided Thing

Letters to the Editor

are the best qualified by background and experience that can be obtained.

Many are former enlisted mechanics of the Army, Navy or Air Force and several are former maintenance officers. These people are *continuously* brought up to date by making field trips to Army installations and by attending *contractor sponsored* training schools. For instance, four of our men have just returned from the 7-weeks H-37 maintenance course at Sikorsky.

The officers supervising the Aircraft Maintenance Engineering Division are all Army aviators with a broad background of maintenance and operational experience. *None* of us have failed to remember that our next assignment will probably be with an aviation unit in the field and that we will have to live with the policies and procedures established during our tenure here.

We are not entirely satisfied with the technical order system as it pertains to Army aviation and planning is in the advanced stages concerning new methods of compiling, publishing and disseminating maintenance manuals and supply authorization information. This new scheme will assure timely distribution of information and should alleviate many of our problems.

I cannot understand why the writer has never met a manufacturer's technical representative. This command has spent over a million dollars during the current fiscal year on tech rep contracts.

AR 700-38 prescribes the method of submitting Unsatisfactory Equipment Reports (UERs). UERs can and should be submitted on all discrepancies of items connected with Army aviation. *This is as true in the case of publications as when materiel failure causes an accident.* This command is now publishing a monthly UER Digest. The first one was dated 1 October 56 and is called TB AVN 23-5-1. Each one will be a 23-5-series.

We believe that this Digest is a healthy step in the right direction and should make the exchange of maintenance information much simpler. UERs are processed in our Division when they are received from the *using* organizations. This processing consists of one of the following:

If possible, a determination of the problem and approval of the recommended fix will be made here and the submitting activity will be informed accordingly. The more complicated problems are referred to the appropriate Air Materiel Area, who have excellent engineering staffs at their disposal and who also rely greatly on the engineering staffs of the manufacturers. On occasion, we deal directly with the manufacturer concerned and it is seldom indeed that we receive anything but the finest cooperation.

I hope that this will serve to explain some of our methods of operation. I realize it is a broad brush treatment and I would be happy to go into any points in more detail if you think it required. Sincerely,

James R. Hodge
Major, TC
Sp Asst to Chief
Acft Maint Engr Div

DROP DEAD

(Dear Editor:) I noticed in the December '56 issue that you captioned THE Memorandum as a *"DD Memorandum."* In that the details of this directive were anything but pleasant, were you being flippant in captioning this way, i.e., DDT, etc.? Sincerely, (Capt) F. G.

(Ed. This interpretation didn't occur to us at the time. "Department of Defense" is a difficult phrase to abbreviate for proper captioning and spacing. "DD", despite its interpretation, was our best effort.)

TOUCHE

(Dear Editor:) I know that it's out of season to write (Xmas) and probably out of reason (past the deadline) but that anonymous classic in the back part of the December, '56 issue [*Combat Preference Card*] must be noted. Since I am sure some of the professional *'Regulars"* are going to scream, add my small *part-timer* peep to the rebuttal.

I'm sure that the writer was kidding even though his missive contains a definite *trace* of dastardly puck—just a vague glimmer of truth even if pointed up a trifle sarcastically. He *must* have had some USAR Summer Field Training.

This sort of thing is true humor at its basic best. Clever, funny, fantastic, and fresh, yet the bouquet as a whole hides a big ol' hatpin for the frosty boned "professional" who attaches so much importance to his being. There are not many, but they're present, you know.

You've got a lot of friends, *Integrated;* c'mon out. Sincerely, Jim Murphy, 94th Inf Div, Lt Col, USAR.

APPRECIATED

(Dear Editor:) I particularly enjoyed reading the *Combat Preference Card* in the December '56 issue. *"Integrated"* has a keen, needle-point sense of humor with the accent on the *needle.* I might also say his compassion for the *"Xmas rush help"* is greatly appreciated. I'm curious to know if you had any qualms about printing this without a by-line. Sincerely, (Lt.) Bob Kennedy

(Ed. No qualms at all. Anyone who would object to this bantering, or who did not reply in kind, would be disclosing his own stuffiness.)

A Many-Sided Thing

Letters to the Editor

HEAR YE!

(Dear Editor:) In the event some of us aviate up to the Bridgeport area, are you on the map? Wed like to see *"The Shop"* and wonder if the *Welcome Mat is* out. Sincerely, Les Kaufman.

(Ed. The phone unmber's in each issue (p. 4). Jes' call and we'll give you the bearings. We welcome subscribers and non-subscribers alike, tip the same 86 proof for each, but assure you that everyone who steps off our front portico leaves as a subscriber.)

CONCURRENCE

(Dear Editor:) To all advocates of a distinctive ribbon, wings, patch, boot, scarf, bracelet, hat, belt, shirt, or BVDs for our mechanics, I heartily add my vote. 'Tis time indeed that their efforts were acknowledged by some means other than the morning report clerk who knows their MOS or the laundry that washes their grease-stained clothing.

(Lt.) Robert J. Koepp

POLL

(Dear Editor:) How about a magazine poll on how many Army aviators favor a separate branch?

Capt. William G. Phillips

(Ed. We don't know whether "premature," "out of order," or "we'll comply" is the best answer here. We'll put an ear to the pipelines and get a reading.)

Newly Rated

FT. RUCKER, ALA.—The wings of an Army Aviator were bestowed upon Maj. Gen. John B. Medaris, Commanding General of the Army Ballistic Missile Agency, during an award ceremony held at the Army Aviation School on December 28th. A former civilian pilot, Gen. Medaris underwent a special course of flight instruction supervised by the AAS and conducted by former school IP's now assigned to the Flight Detachment at the Agency's Huntsville, Alabama installation. The senior officer's final check ride was completed at Fort Rucker.

KOOLS?

★ On record at the National Safety Council is an incident that occurred at Knoxville, Tenn. In reaching absentmindedly for his favorite brand of cigarette, Golden Gibson picked up a two-inch firecracker that happened to be lying nearby, put it into his mouth, and lit it. From a hospital bed Mr. Gibson announced that he had given up smoking.

(Ed. Note: Although your hubbie may fill up eleven ash trays daily, girls, this is NOT the accepted method to cut the ol' boy down.)

Congratulations!

(Ed. The exigencies and pressures of other editorial matters prevented us from keeping up with the "Congratulations" column . . . in plain English, we goofed! The Publisher desires that the column be reinstated on a monthly basis and that future notifications of promotions, marriages, Senior AA ratings, and blessed events be addressed DIRECTLY to the Publisher. Now that we've been canned in this respect, we would like to add one other feature to the Publisher's tab—a Personal Notes section wherein you may list brief messages to any particular party you wish.

A daughter, Kristie Lynn, born to (Lt.) Joseph and Milly Gayhart.

A daughter, Melanie Gay, born to (CWO) and Mrs. Harry E. Gilliand, Jr.

A son, Ricky, born to (Lt.) Robert and Sara Flint.

A third son and fourth child, Scotty, to (Capt.) Story and Sue Stevens.

A daughter, Karen Kimberly, to (Lt.) Loial and Wanda Haas.

Married: Capt. Seamon Molkenbuhr (Janice).

SHORT TRIP

★ The archives of the National Safety Foundation have their usual share of unusual freak accidents. On file is the mishap of Mrs. Mary Hasting Bradley, author and big-game hunter, who survived the rigors of six African safaris without injury. But in the calm and relative safety of the trophy room in her home in Chicago, Mrs. Bradley tripped over a lion's head and broke her arm.

Q and A Session

FORT BENNING, GA.—An Army *Vertol* H-21 helicopter from the 8th Helicopter Company, Fort Bragg, N. C., is shown above taking off from in front of Patton Hall, Headquarters Third Army, Fort McPherson, Georgia.

The H-21 *"Workhorse"* was part of a static display, that also included an H-34, an H-19, and an H-13. Over one thousand spectators viewed the display, which was intended to familiarize military and civilian personnel at *"Fort Mac"* with the various types of Army helicopters.

The pilots and crewchiefs stood by the aircraft all day, answering the varied queries. Typical *female* questions when viewing the H-21:

Q—*Will it go straight up?* A—It depends on the wind.

Q—*Does it come straight down when the MOTOR stops?* A—Does the bear walk in the woods?

Q—*Which end does the pilot fly it from?* A—Step right up, little lady, and move to the front of the "bus".

And the classic: Q—*What are those two big holes for in the tail?* A—It depends on the wind. YC CWO Donald R. Joyce

"Chopper!"

FT. SILL, OKLA.—The ol' competitive spirit has been roused so here goes; we want our due recognition in the realm of *Earth-Free Creatures.*

The 36th Helicopter Company was organized on 30 March of this year and up until just recently we've been spinning our engines without the rotors engaged. However, we've begun our transition on the *Sikorsky* H-34 and all has gone well between the potential *pitch-pullers* and the power-laden monsters. Our CO, Maj. George Singley, Jr., watches intently from the sidelines in that he is already H-34 qualified.

After seeing how the *Other Half* lives by reading the magazine, and seeing those burros and all appear as unit mascots we hereby present ours (Note the photo above). He is our pedigreed English Bulldog (no ordinary mongrel or burro for us) who answers to the name of *Chopper.* In that he recently joined the unit we haven't had the opportunity to determine if this name belies more than a connotation with a rotary-wing craft, although I will say he has both the teeth and jaws to do some real choppin'. His likeness also appears on the embroidered unit insignia of the 36th.

(*Continued on the Next Page*)

AIRCRAFT FLIGHT REPORT AND MAINTENANCE RECORD
AIRCRAFT FLIGHT REPORT

DATE: 4 DECEMBER 1956

ORGANIZATION: TRANSPORTATION ARCTIC GROUP
LOCATION: THULE AIR BASE, GREENLAND
ENGINEER OR MECHANIC IN CHARGE: WAYNE H. ELDER
GRADE: WO-3
AIRCRAFT TYPE, MODEL, SERIES: L-20A
AIRCRAFT SERIAL NUMBER: 53-7944

PRINT PLAINLY Last name-First name-Middle initial - Grade - Service no. (Organization and station if transient)	USE AS DIRECTED LOCALLY	ENTER DUTY SYMBOL IN UPPER LEFT BOX AND FLIGHT CONDITIONS SYMBOL IN UPPER RIGHT BOX - ENTER TIME FLOWN ON LINE THEREUNDER (DUTY / FLT COND)	FLIGHT DATA	TIME
A	B	C	N	I
CARVER, GEORGE O. 1/Lt 01880497		TP / H 02 00	TO: LOCAL	1/ 00
PRIEM, CHARLES M. 1/Lt 0/007061		P / H 02 00	FROM:	12 00
			MISSION S / NO. & TYPE LANDINGS	2 00

THULE, GREENLAND—Enclosed you will find a Part 1, Form 781 which is a true copy of the Flight Report of one of our aircraft.

As you will note the takeoff was made at noon and the pilots of the Trans Arctic Group were airborne for a total of two hours. Yet they logged night time and it was as legal as it could be. This would be difficult at most other stations, except those located above the Arctic Circle; the reason being that at the present we have 24 hours of darkness per day.

We believe this is the only Army air section that can make that statement. The Part 1 might make interesting reading in the Army Aviation Magazine.

YC, Lt. Charles M. Priem

For those who may wonder which came first—the patch or the mascot, we offer this question in return; which came first the chicken or the egg?

YC, WO James A. Garner

No Friend!

FT. BRAGG, N. C.—*Baker Buster?* Napalm? No—just a king-size tear-gas cylinder being carefully rigged on the wing of an L-19 for a troop spraying mission. Chemical specialists of the 9th Chemical Company lift the cylinder into place prior to the takeoff. On the receiving end will be chagrined soldiers who alternately have been bombarded with flour bombs and tear-gas. The flour bombs indicate a deficiency in camouflage technique while the tear gas teaches a practical lesson in the use of the gas mask. Several runs later, while the troops are still ducking, the Army pilot will swing low and deliver rations by free fall or by parachute.

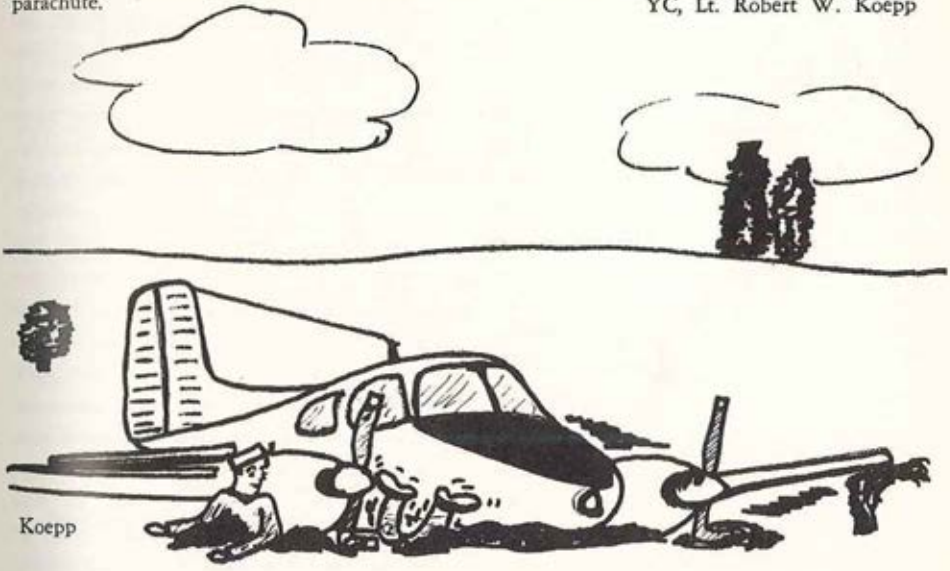
A Tip of the Hat

CAMP ZAMA, JAPAN—From past reports, some of you readers may think that the pilots of the AFFE Flt Det do all of their own maintenance, tower operating, refueling etc. Not so!! I have sadly neglected due mention of our enlisted men and hereby make an open and most profound apology to all of them.

Our enlisted men are headed by M/Sgt Masaichi Saiki, the 1st Sergeant. Sgt. Saiki is not an aviation man, as such, but is an excellent administrator and a former paratrooper. The maintenance chief is M/Sgt Walter M. Elliot who is ably assisted by a couple of real old timers in the persons of SFC Orval E. Brown, fixed-wing, and Sgt. Henry J. Eperson, rotary-wing. The tower operators are Pfcs L. D. Eastburn, and S. V. Lemons and Pvt. D. R. Dunn. The link operators are Sp/3 J. L. Kimberling and Pvt. E. S. Goodman and Sp/2 R. E. Erlich is our one and only radio mechanic. Supply is run by Sp/3 Bearden and I mean run.

Total EM strength is 37, two of which are WACs. The WACs, Pfc. Juanita Beasley and Pfc. Elaine Orendorff, are assigned in the operations and administrative sections. The rest of the EM are the real *"grease-under-nails"* mechanics who continually strive to keep 'em flying. Despite the hampering of additional details and old aircraft, they're doing fine work in their respective areas of endeavor. This unit, like any other, would fold like a pup-tent in a hurricane without the staunch support of our enlisted men. We of the AFFE Flight Detachment sincerely salute them.

YC, Lt. Robert W. Koepp



Now that's strange—the T.O. says that button won't work with the weight of the aircraft on the gear!!

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AUSTIN, Donald J. 1/Lt, Hq Btry, 17th FA Group, Fort Sill, Oklahoma.
BATES, Mrs. R. E. c/o Lt. Col. R. E. Bates, Dental Det, South Park Military Res, Broughton, Penna.
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BERGIN, John J., Jr., 2/Lt., Cas Off Sec, OS Repl Sta Pers Cen, Oakland Army Term, Oakland, Calif.
BORGEN, Lloyd O., Maj., c/o H. Hamm, 95 W. Greenwich Ave., Roosevelt, LI. N. Y. (Eff Feb. '57).
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QUINT, Alvin M., Capt., Hq, First Army Aviation Section, Governors Island 4, N. Y., N. Y.
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WILSON, Maurice A., Capt., 1027 Assembly Street, Columbia, South Carolina.
WITTBECKER, Richard A., 1/Lt., Hq Btry, 2nd FA Battalion, Fort Sill, Oklahoma.

"SMALL BUT MIGHTY," that's the phrase unit personnel of the Army Avn Maint Shop at Holloman AFB, New Mexico, employ to describe their outfit. It's a 100% Unit and we're prone to agree. Pictured are (Front Row, l. to r.) Sp-3s Richard H. Eldredge & Ernest C. Clark; Pvt-2s Joseph M .P. Fukomoto & Willis M. Tillary; Sp-3 Paul J. Lasewicz, Jr.; and Sp-2 George H. Snook. STANDING: Mr. John R. Hensley; Miss Ava H. Wiard (Secretary); Lt. William W. Spalding (CO); M/Sgt Laurence E. Wiard, Jr; SFC Lloyd H. Tate; M/Sgt Charles R. Snyder and M/Sgt William M. McRae, Jr. Missing is SFC Leonard C. Adkins.

On the South Side

LANSING, ILL.—I'd like to bring the readers up to date on the current activities of the Illinois National Guard for sooner or later they'll be passing through the Chicago area and we'd like them all to know they have a home here.

The NG set-up in Illinois embraces the 33rd Inf Div Avn Section as well as the section of the 178th RCT, with both units operating off Chicago-Hammond Airport on Chicago's far south side. This, of course, makes us joint tenants with the civilian operation here but this tenancy has presented no problems whatsoever.

Our assigned acrft consist of 15 L-19s, three H-23s (one's a little mangled), 2 *Navions,* and a *Beaver.* To aid and assist the personnel in their annual instrument minimums we have a TL-19 and a Link trainer and the Link really helps the flying time on these muggy days in Chicago's smoke.

On full-time duty are two officers. I serve as State Supervisor and Capt Walt Reeve is assistant, although I'll be by my lonesome shortly when Walt departs for Examiner School at Rucker. In addition, we have 24 one-day-a-week warriors and are sweating several more through the paper mill.

We welcomed a new advisor recently, Maj. James Goode, who came to us by way of Europe and chopper school. He replaced Lt Col Earl Kelly who left here for the Advanced Arty Crs and further training at Rucker.

Now here's the pitch: I'd like to extend a sincere welcome to all Army aviators planing through here to stop in and take advantage of our free quarters and coffee. We can accommodate two at a time. Not the best, but it's *free.*

YC, Lt Col Frank Grey, Jr.

A Sure "First"

FT. WORTH, TEXAS—I noted the comment (and veiled request) for information on the USAR Aviation Company set-up here in Texas. Here's the poop to date: the 300th Army Avn Company (FW-TT), the first such unit to be organized in the USAR, went through organizational procedures on September 11th, Maj. Tim Carigan serves as CO of the 25-man unit. Incidently, among the 25 men is a Lt. Col. Molone, a member of the Chaplain's Corps. If this isn't a first in Army aviation, it certainly is in the USAR. Your unit may have more Senior Pilots but we've got the only *Sky Pilot.*

At the present time we do not have any aircraft and are flying proficiency in civilian jobs, but we expect to get a *Yellow Monster* (L-21) in the near future and expect to receive two *Otters* within the next 18 months.

We extend an invitation to all Weekend Warriors in the Fourth Army area to contact Maj. Carrigan (1334 E. Davis, Ft. Worth) to join us in our Weekend operations. Editor, look for a roster with our next story and some of that green stuff. We aim to be a 100% unit.

YC, Billy M. McSpadden

(*Ed. My favorite color!*)

Check This!

Have you a friend listed below? The roster includes some of the personnel who recently subscribed to "AA" on whom we can render "locator service." Exceptions: the Wandering Gypsies (absent-minded newly graduated pilots).

General Officers
Vander Heide, H. J. MG
Shaler, Harrison BG

COLONELS
Steinbeck, Paul W.
Seneff, George P.
Dale, John R.
Williamson, Ellis W.

LT. COLONELS
Johnson, Lester B.
Awdry, John
Walker, Mansell A.
McCants, L.
Bobo, Carl E.

MAJORS
Dantzer, Lawrence L.
Fuller, Melvyn W.
Walrath, Charles F.
Pittman, J. L.
Borland, R. E. R.
Boyd, Donn T.
Hawkins, Julian A.

CAPTAINS
Bowler, Joseph L.
Smith, Adam
Wolcott, Frank S.
Frederick, James M.
Crosby, Richard D.
Davis, Harry Q.
Kennedy, Joseph L.
Drda, Robert J.
Druyor, Frank A.
Richardson, P. R.
Tarantin, Arcangelo
Sanders, James F.
McClure, Joseph W.
Madrano, J. P.
Laber, Orville J.
Berry, William B.
Michelion, Robert L.
Fulton, Fred F.
Quinby, U. B.
Ruple, Charles O.
Clay, William M.
Henry William H., Jr.
Tamplin, Jack D.
Traver, Daniel B.

LIEUTENANTS
Cantrell, Wanlford A.
Kirsch, Francis, J.
Pattison, Floyd H., Jr.
Valz, Darwin K.
Runkel, David M.
Elliott, Bernard V.
Osif, Thomas J.
Schramm, Bernard H.
Layne, Leslie A.
Crosby, Glen L.
Graham, Jack C.
Bond, J. Stephen
Gober, Floyd C.
Peterson, Merrill T.
Smith, Paul I.
Culp, Arnold D.
Hurley, Alfred W.
Ecrette, Joe D.
Childers, Marvin E.
Baldwin, Boyd F.
Rossman, Jay D.
Doty, Benjamin E.
Horne, J. D. J.
Jordon, A. C.
Strum, Ernest C.
Heyward, James R.
Trachtmann, Dale
Blackman, Charles M.
Lewis, Joseph
Williams, Billy
Smith, John
Euler, H. C.
Baldwin, J. C.
Plumstead, P. H.
Ross, R. M.
Towle, T. J.
Mario, Donati
Gardner, Lloyd G.
Akeson, Lloyd R.
Johnson, Richard L.
Banes, Merrill W.
McMurray, Thomas I.
Bryan, Claude M. Jr.
Sheldon, Thomas L.
Bergin, John J., Jr.
Owens, George W.
Collins, Ben
Ellis, Mike
Comer, Phillip
Moore, Jimmy
Silva, Julio
Wood, Ernest
Daughery, Jackie
Dale, Ronald E.
Goff, Richard D.
Wenn, Kenneth L.
Bagley, Robert T.
Fincher, Julius W.
Morris, Hubert
Haggard, Frank E.
Ferguson, Theodore P.
Gilmer, Charles T.
Frank, Charles C.
King, Lonnie E.
Belk, George M.
Irvin, Ralph O.
Cole, David A.
Anderson, Richard R.
Moroz, Max
Taylor, George C.
Sweeney, Alan F.
Miller, R. E.
Melbye, John
Chesser, Conrad F.
Auth, Richard W.
Center, Dick
White, Clardie A.
Spence, Thomas K.
Putnam, Carl M.
Sime, David, Jr.
Van Cleve, John H.
Edwards, C. A.
Dalone, Arthur
Salter, L. T.
Hewell, Robert E.
Cox, James A.

CWOs
Ruiz-Hernandez, M.
Bell, Jack A.
Cooney, John J.
Kidd, Denvir G.
Cook, Harry J.
Tiernan, James T.
Martens, Roy E.
Scott, Delmont H.

WOs
Hull, Paul J.
Merkle, Robert B.
Cole, Leland R.
Ellis, George F.
Beaston, George F.
Williams, William J.
Sandidge, Johnnie R.
Rhinehart, Clarence G.
Sable, Robert J.
Baker, Willie E.
Kutih, Joe E.
Wheatley, William D.
Causseaux, Allen P.
Johnson, Paul H.
Farmer, Marvin A., Jr.
Graeber, Charles R.
Price, Jimmie R.
Kading, Delbert C.
Cunningham, William L.
Lewis, Edward S.
Hester, David P.
Astrike, Charles H., Jr.,
Graham, H. W.
Sligh, Marion W.
McFerron, Karl F.
Maxey, James H.
Berry, M. H.
Campbell, J. T.
Hickman, D. D.
Munn, N. B.
Myers, R. E.
Sheley, Richard A.
Gilmore, Edward A. Jr.
Anarga, Jose
D'Angelo, John P.
Iseman, Lester G.
Senne, George L.
Beck, William R., Jr.
Jacobs, Robert
Rodriquez, Mike
Scheff, Gilbert D.
Brown, Leonard T.

M/SGTs
McRae, William M., Jr.
Snyder, Charles R.
Wiard, Lawrence E., Jr.

SFCs
Preston, Russell J.
Jones, John B.
Reierson, Raymond J.
Tate, Lloyd H.
Adkins, Leonard C.
Snook, George H.
Zachman, Edward J.

SERGEANTS
Constantine, F. E.
Baird, Chester
Drummond, Raymond S.

SP-3s
Rice, Willard
Clark, Ernest
Eldredge, Richard H.
Lasewicz, Paul

SP-2s
Estes, William W.
Sullivan, Thomas J.
Cerklewski, Leonard
Simon, Joseph H.
Snook, George H.
Clarkson, James M.
Krick, Darrell G.

PVT-2s
Sparks, Richard A.
Fukomoto, Joseph
Tillary, Willis M.

FRIENDS
Senior Army Advisor, Ohio-Nati Guard
Burris, Carshal A., Jr.
Breit, William E.
Graham. W. J.
Forehand, Raymond
Kantor, MacKinlay
Ford, W. J.
Tabak, John M.
Helio Aircraft Corp.
Childress, Jesse M., Jr.
Best, Mrs. L. W.
King, Freddie G.
Kummer, William F.
Turner, Mrs. A. S., Jr.
Collins, Norman C., Jr.
PIO, Camp Wolters
Hettema, Harold
Entz, James A.
Generous, Harry W.
Wails, Edsen
Stanton, F. E.
Conklin, Edward F.
GSDF Avn Sch, Japan
MacDonald, Peter
Altoscan Company
Liberatore, Eugene K.
Senftlehen, Rietdorf
Rankin, Mrs. Ruth M.
CG, Fort Ord, Calif.
Settle, Gilbert

Benning Personals

Here at the 1st Army Avn Co the trend was on Instrument Qualification. Completing the Instrument Refresher Course conducted here were Capts. Drummond & McGaughey and Lts Jones and Moran. They're clear for another year as IFR-pilots . . . In training now at the Refresher Course are Capt. Al Knight and Lts Jim Greenquist, Billy Williams, and Richard Steffanson. All of the training, incidently, is given in U-1A Otters. Capts Ken McGaughey and Lyman Vassey and Lts Stan Jones, Rod Turner, and Frank Kakuk are TDY as instructors . . . You may be interested to learn that "E-1" Jack S. Burro thoroughly enjoyed his personal November issue of "AA". If Jack's far distant cousin, "Duke," the mascot with the 93rd chopper crew, can divert his attention long enough from the tin cans, Jack will be glad to send him his greatly dog-eared copy, assuming, of course, that the editor doesn't consider this jackass to be another "peeker." YC, Lt Jimmy N. Moore.

Stockton Personals

With the help of two armed guards, Lt. Bill Kiernan flew a homicidal prisoner from Ft. Ord to Crissy AAF in the Presidio the other day. All in a day's work at the 521st . . . Lts. Chuck Sigler & Dick Rodgers had a Stockton-Bridgeport XC in ferrying a Sikorsky H-19 for IRAN . . . Currently attending chopper school are Lts Wallace Franklin & Robert Bishop with Capt Bernard Cobb and Lts Bob Leonard, Bob Pond, and Ray Carson scheduled to leave for fling-wing training soon . . . Due in soon here is Lt. Dean Wesner, ex of the 937th EAC, Panama. YC, (Lt.) William F. Gabello.

Up to Re-up

FT. SILL, OKLA.—The first man to re-enlist in the 31st Helicopter Company here at Ft. Sill went *"up to re-up."* Shown taking the oath in an airborne *Sikorsky* H-34 is Sgt. Arthur C. Larson, Jr., current Operations Sergeant with the 31st Hcptr Co. Administering the oath is Maj. Amore V. Juliano, company commander of the unit which recently completed its Army Training Test with the AAUTC at Ft. Sill. Shown in the center is M/Sgt. Dan K. Carson, acting first sergeant of the 31st.

Hi-Milers

PANAMA—*Felices Pascuas Y Un Prospero Ano Nuevo,* which is, of course, a Merry Christmas and a Happy New Year from the Latin Americas.

We'd like to say that the *Otters* have proven to be quite the cross-country cargo ship. On an average of twice a month our *Otters* have flown from the Zone to Monterrey, Mexico, a distance of some 3,400 nautical miles in about 33 hours of flying, round-trip. About every other month or so the *Otters* make trips south to Lima, Peru, some 2,500 NM and about 29 hours flying time. To the non-believer, *"What ho, perhaps you too can be assigned down here."* The above discounts Capt. *Smokey* Culp's trips here and there to the Upper Amazon in Ecuador, etc. as well as the fact that when a fella needs maintenance he must fly about 2,000 miles to get maintained. (And lubricated).

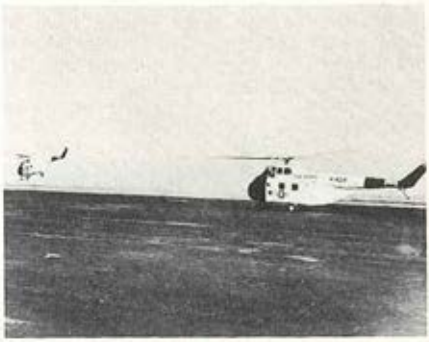
Cotton-Picking?

Seems as if the Dry Season is with us in that it hasn't rained since yesterday. Pretty soon the farmers of the jungle will begin that universal trick of burning off their lands which simply adds another hazard to flying, in addition to this cotton-pickin' weather.

I'd like to reassure future assignees to the Command that malaria is not rampant here due to the great winds stirred up by our helicopters. Much agitation of the atmosphere is not conducive to the activity of the Anopheles.

Last thought: two of our recently departed pilots, Lts Mattera and Hockett, had the pleasure of flying Senator Margaret Chase Smith and party on an orientation flight of the Canal. Senator Smith, a Lt. Col. in the USAR, was not only performing her duties as a reserve officer, but was also inspecting the Canal in her capacity as a Congresswoman. Oddly enough, Lts Mattera and Hockett, known as the *"Voice"* and the *"Woman Hater"* respectively, were replaced by Lts Dan Knotts (with wife and chillun) and Edgar Westlake (also with wife & child).

YC, Lt. Joseph R. Gayhart, Jr.



Long Haul

STOCKTON, CALIF.—Two *Sikorsky* H-19's of the newly activated 572d Engineer Platoon (Topo Aviation) make a bright splash of color against the northern California sky as the aircraft head south for the initial phase of their trip to Wheelus AFB, Libya. The H-19 crews included Maj. Phillips Melzer and Lts. Richard K. Bastian, Robley W. Smith, and John Radu.

"Operation Darien"

FORT KOBBE,CZ—Lt. Richard E. LaBrode has logged the longest L-19 direct ferry flight ever recorded at the Cessna Wichita plant. He took a new TL-19D from thar to hyar, a measly 3,000 miles through four scenic lands in 26 flying hours. (Yazz, he does have a good-looking wife.) Dick got another item while at the Cessna plant—word to pin on tracks.

The 7438th AA Det and 20th Inf Air Sec furnished extensive support to 20th GIs during *"Operation Darien."* This was an exploration through native jungles in eastern Panama to survey routes for completing a Pan-American Highway link to Colombia.

Back in the Darien hills, where that guy stood on a peak a long, long time ago, the

weather is usually so bad that only poetic license could have permitted him to see the Pacific. Anyway AA as usual delivered the goods at low level and in time.

It was doughs hacking the brush who really had it rough for it was wild, man, wild. We escorted all H-13 flights with fixed wings to aid navigation and send the word in case fan belts gave out. It wasn't too rainy; we just had trouble getting fording kits for the L-19s.

USARCARIB got crates and crates of H-23Cs. Hot, moist air down here. A man can work up a sweat mighty easy. No further comment. We don't want to enter the Hiller vs. Bell argument.

Installation of Sunair HF commo is going ahead well in the unit. Sooner than we think we'll be able to talk to somebody in this tropic Eden. VHF is unheard and unheard of for the most part here.

YC, John K. Ottley, III

The Soft Sell

FT. BELVOIR, VA.—Happy Hungarians? Guess again! These are happy High Schoolers from George Washington H.S. in Alexandria, Va., who were given the full tour of Davison Army Air Field's facilities. Following a tour of the Engineer School's Department of Topography the 45 students were ushered by Capt. Frederick Rupp through Davison's hangars and repair shops, the operations section, and, of course, the flight line. Following an orientation on Army aircraft, maintenance, and flight operations the youngsters had many questions for the "guide" when the program was thrown open to a question and answer period.

Fifth Candle

FT. GORDON, GA.—Soldiers with "wings" are quite familiar here, the Aviation Branch of the Southeastern Signal School having celebrated its 5th anniversary on November 30th. Equipped with four L-19s and two H-13s, the Branch provides tactical support to Signal Unit Training Group units on field exercises and providing all TSESS or ROTC students with an orientation demonstration of the missions of AA. Shown above are three of the Aviation Branch pilots working out some cross-country details. They are (l. to r.): Lts Francis J. Kirsch (Opns); Bernard V. Elliott (Maint); and Bernard H. Schramm (Supp).

The Peeker's Lament

I have been bawled out, bawled up, held up, and held down; bulldozed, blackjacked, walked on, cheated, squeezed, and mooched. I have been set up, upset, miffed, tiffed, (but not riffed), browbeaten, and harangued. I fought in France, came home, got stuck for a war tax, excess profits tax, per capita tax, city tax, county tax, state tax, federal tax, and dog tax, liberty bonds, war bonds, baby bonds, and the bonds of matrimony; also red cross, blue cross, green cross, and double cross; I've been asked to help the Society of John, of Peter, of Joseph, and of Paul; the UCS Association; and the SCU Association, Women's Relief, Men's Relief, Childen's Relief, Old Men's Relief, Old Women's Relief, and stomach relief; I've worked like hell and have been worked like hell, spend all I make and because I won't spend or lend the little I earn and then go beg, borrow, or steal, I have been cussed and discussed, boycotted, talked to and talked about, hung up, held up, and robbed and damn near trimmed and ruined, and frankly the only reason I am sticking around is to see what the hell that magazine salesman of yours says next.

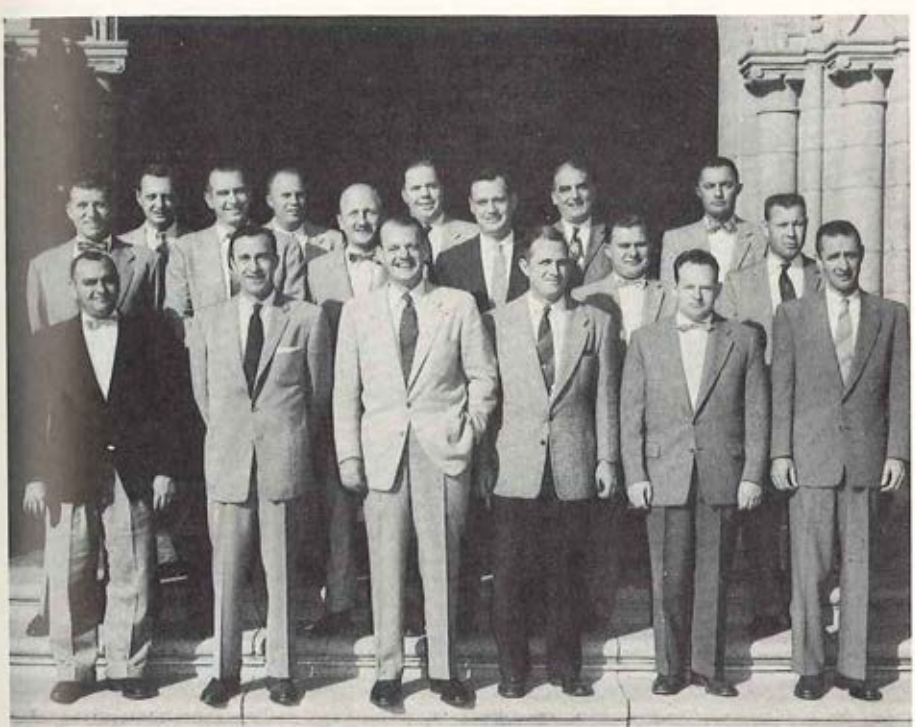
FT. BENNING, GA.—Six pilots graduated recently from the first H-21 Pilots Transition Course to be conducted within the 8th Helicopter Company, marking a new milestone for the 8th. All previous H-21 checkouts had been given by the AAUTC at Fort Riley, Kansas. Having just finished a temporary assignment to Fort Benning, Ga., the 8th returned to Fort Bragg, its home station, in December with the *new* pilots logging First Pilot time on the XC home. Flight training for this class (57-A) was entirely taught by IP's of the 8th with Mr. George Holmes, a Vertol Aircraft Corporation tech representative, providing the students with ground school maintenance instruction. Members of the class pictured above are (l. to r.) WOs Gordon E. DeGeest, Phillip E. Crossan, Alva W. Kepner, John W. Patterson, Alvey Martz, Jr., and Modesto Ruiz-Hernandez.

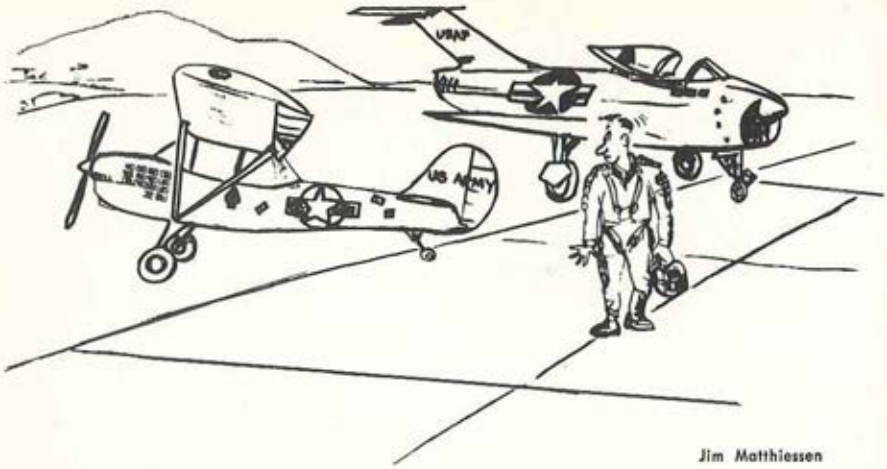
Hot Oil

FT. RUCKER, ALA.—As many readers know the T-37 Test Unit (7292 Aviation Unit) is in the process of organization here and many things are still uncertain. However, this much is certain—Lt. Frank Treece has been designated by Col. Ruby as the unit PIO and Frank hopes to secure clearance to provide *"AA"* with the hot oil. He plans to submit same just as soon as we can see the tops of our desks. The project—for the most part—has been declassified and the reports should be rather complete and uncensored. We'll all pitch in to give Frank a hand.

Les Kaufman

The first ARMY class to graduate from the Aviation Safety Division at the University of Southern California (Los Angeles) poses in the accepted undergraduate manner. FRONT ROW (L. to R.) are Majors Perry West (45th Trans Bn, Ft Sill) and Elmer M. Fox (4th Inf, Ft Lewis); Lt Col Lloyd J. Swink (AA & GM Sch, Ft Sill); Mr. William R. Gaines (Safety Dir, Ft. Rucker); and Majors A. T. Pumphrey (Ln O, Norton AFB) and Harold Grossman (Avn Dept, T-Sch, Ft. Eustis). SECOND ROW: Lt Col Edward G. Raff (Avn Saf Bd, Ft Rucker); Majors William R. Miller (Hq, 2d A, Ft Meade), Joseph M. Bowers (OCT, Wash 25), and Joseph H. McPheeters (1209 SU, Camp Drum); and Lt Col Lewis N. Shaffer (Hq, 5th A, Chicago). THIRD ROW: Capt Dolman W. Vineyard (DAAF, Ft Belvoir); Lt. Col Carl I. Sodergren (Hq, III Corps, Ft Hood); Capt Theodore S. Ferry (Avn Saf Bd, Ft Rucker); Lt Col Robert D. Dearth (PCS to Germany); and Capt Richard C. Smith (Prim Hcptr Sch, Camp Wolters).





Jim Matthiessen

Who's Who

The 1956 Yearbooks were mailed in early January to all of its purchasers. We are withholding the individual copies of the persons listed below pending notification of a current and correct mailing address. If you have one of the personnel listed below on your Post, please ask him to drop us a note and claim his copy.

Capt. Rodney V. Anderson
1/Lt. Waite H. Archer
2/Lt. Paul W. Bass
1/Lt. John P. Brown
Lt. Col. Robert D. Dearth
Capt. George A. Crowell
Lt. Harvey C. Detwiler
Maj. Kenneth R. Eckert
Sgt. Alfred K. Glennie
1/Lt. Bobby J. Hewett
1/Lt. Phillip J. Hoebler
Capt. Johnny Hood
Capt. Wilbur G. Hudson
1/Lt. Phillip W. Inman
1/Lt. Robert M. Jackson
Capt. Frank C. Jarrard
Capt. Raymond E. Jarrell
1/Lt. Carlton C. Kennedy
1/Lt. Wendell K. Krontz
Capt. Samuel E. Lockwood
1/Lt. Asa C. McCranie
Capt. Evan F. Magney
Capt. Earl W. Miller
1/Lt. Edward J. O'Meara
SFC William S. Slater
1/Lt. Robert I. Stoverink
1/Lt. Jack L. Tabor
Capt. Eugene Thomas
Maj. Verle E. Towne
1/Lt. Richard E. Turner
1/Lt. Walter J. Werner
Capt. Jesse L. Wilkinson
Maj. Leland H. Willard

What's What

We're past masters at getting ourselves into embarrassing postions. The '56 *"Who's Who"* Yearbook is a good example. Listen to this monstrous boo-boo and then judge for yourself if we've extricated ourselves. Believing that all of the copy and "ads" were in and that we'd certainly deliver by mid-December, we prematurely inserted a small Notam in the December issue intimating that the "Yearbooks" were on the way.

The first wrap-around cover didn't take (the red and blue inks gave us a *bleeding* purple) and we had to scrap the cover and start from scratch again. Meanwhile, the December issue went out; the readers saw the tiny Notam; and soon we were plagued by the expected *"You Thief!"* postcards and letters.

Realizing that one man crying, *"Rascal,"* could destroy four years' effort we endeavored to answer each card and letter explaining the delay, hoping that the personal answers would sit well with the recipients. This added (but entirely necessary) chore was sufficient punishment in itself. At least, it made us realize that in publishing future magazine commitments we'll keep our big typewriter shut.

The *last* word will be spoken by the *Yearbook* recipients—which is as it should be. Inserted in each copy is a handy postpaid card for *critique*. We anticipate their wide usage. . . .

ALL'S FAIR

★ The gopher that kept pestering Paul Thomas, a Las Vegas farmer, was anything but a fool, so say the records of the National Safety Council. When Mr. Thomas shoved a lighted concussion bomb down the gopher hole, the gopher shoved it right back. In desperation the farmer frantically hurled the bomb away. Where? Right near his barn where it then proceeded to explode and the eventual fire burned twelve tons of hay.

E and E

(Continued from Page 9)

aviation units and sections. Graduates of the survival school could return to their parent organizations and conduct such training. The center could distribute a periodic bulletin covering new developments and general information. Hundreds of true experience-type books dealing in survival and E&E have been published; as background material and reference reading they are invaluable. The center could screen and recommend a list of such books to aviation personnel. One lesson may be learned in each book which may someday save a life.

Primary Training

The basic elements of survival training should be incorporated in the ground school curriculum of pilot training. Thus, newly rated pilots will be familiarized with the fundamentals.

Aside from the actual training program, further planning is necessary to provide the combat flier with equipment and systems capable of preserving his life behind the lines. A field manual should be written, covering every applicable approach to survival of downed Army Aviators. A survival kit should be designed, containing such things as highly concentrated rations, first aid necessities, heat tablets, a lensatic compass, etc. This kit should be compact enough to fasten to the parachute (at present CONARC Board Nr 6 at Fort Rucker is testing survival kits.)

The aviator should be armed with a new, more accurate hand gun of some practical use in hunting small game, yet still a defensive weapon, such as a .22 caliber type. On all combat missions the aviator should carry compact maps on his person which would enable him to navigate on the ground. A definite helicopter rescue plan should be implemented along with a communication system. These are only some of the many considerations vital in affecting a successful Army aviation survival system.

The mission of Army aviation no longer calls for Cub flight over enemy lines. Combat Army aviation of today and tomorrow will place aircraft and those people who fly them many miles deep in enemy territry. It stands to reason that the downed aircraft cannot be recovered, but the people who fly them should be given the equipment, training and knowledge that will provide them with a reasonable chance of returning to their own forces safely.

Capt. Robert Skimin

ABOUT THE AUTHOR

Having served as a prolific cartoonist for "Army Aviation," Capt. Robert E. Skimin demonstrates his adeptness with the pen as well as the brush. An AA currently assigned to the 10th Special Forces Group in Europe, Bob is well qualified to write on E & E procedures, having served as a paratrooper with the 187th RCT in Korea. Rated in '54, Bob is an L-19 I.P.—"A peon, nothing else," he modestly claims. Commissioned in '49, the Lodi, Ohio Artilleryman now wears the "green berries" (berets) of the 10th Special Forces Group with pride, an assignment that has convinced him "we need to start things rolling along the survival line." Cartooning? Bob's an Army man all the way. His sketches invariably rib the Air Force "party line," Bob with a grin admitting, "You know what a renegade I am; THEY will probably drop me in the enemy D.Z. someday."

A PROPOS?

★ Helicopter manufacurers my reflect on the words of Maj. Gen. Harry P. Storke, commander of Ft. Carson, who spoke at a recent review in tribute of the Army's last mule pack unit. While a helicopter signalizing its triumph with an earsplitting swoop past the reviewing stand, Gen. Storke summed up his praise with these words, *"That grand old fool, the Army mule, who is never known to fail."*

THE GIANT

★ They tell in Texas about the man who drove up to his home on a very warm day, burst out of his car, and gasped to his wife, *"Lord, it's hot! I thought I'd never get out of that car!"*

The man's wife glanced at the car and snorted, *"You fool! Why didn't you at least open the windows?"*

"What?" said the Texan. *"And have folks think we don't own an air-conditioned car?"*

Random Thoughts

We would like to alert you to the fact that on February 1st the subscription rates for the magazine will be revised. The Z. I. subscription fee has remained at a two dollar level since December of '53 despite the fact that the combined squeeze of increased composition, printing, and distribution costs has been placed upon us during this 3- year period. The Z.I. and APO fees will be stabilized at the same figure, thereby permitting a free transfer without penalty. We would like to stress that the increase is slight and that we will continue to accept new subscriptions, renewals, or subscriptions extensions at the "old rates" until February 1st.

Although many people view New Year's Resolutions with silent (and often appropriate) skepticism, we'd like to pass on to you a few resolutions to which we probably will adhere for quite some time.

1. We resolve to swamp you with Change of Address Cards during the coming year so that in OUR minds you will have every opportunity to keep us posted on your whereabouts. Having done this, we resolve not to lose our composure when an absent-minded subscriber realizes EIGHT months later that he hasn't been getting his issues and rocks this tiny office with an unfair blast.

2. We resolve—by hook or crook—to determine your residence address or Post box numbers so that we can have your issues delivered at home, rather than at your unit address where all magazines are regarded as "community property" and often take wings. We resolve not to lose our composure when you discover that you have unit-delivered WINGED issues.

3. We resolve, commensurate with the advertising and subscription support rendered to the publication during '57, to continue to increase the quantity and quality of the pages of the magazine. THIS one may be difficult.

4. Last, we resolve to place heretofore uncompensated literary efforts on a modest compensation basis, at least, just as soon as we get the "schnozz" above water. The long "article" writers will probably be the first to be pleasantly surprised.

That's about the substance of it . . . and I don't think we'll break 'em.

There may not have been a White Christmas in Connecticut this year but we certainly had a colorful one . . . We'd like to thank those of you who included the two of us on your Christmas card list. We proudly scotch-taped each one to the office wall and the Maze of Merry Messages had the children goggle-eyed.

Your editor,
Art Kesten

ELECTRONIC NAVIGATOR
(Continued from Page 4)

and navigation system employing the navigator.

The use of the self-contained electronic navigator in an AATCAN system presented a unique and different problem which required a detailed and exhaustive study of the principles of application. A plan for application of these principle was developed at the AEPG and simulation tests of a system using these principles are being conducted at the CAA Technical Development Center, Indianapolis, Indiana to determine the adequacy of these test plans for application in operational field tests of an AATCAN system in which all aircraft will be equipped with self-contained navigators.

It is anticipated that the use of self-contained navigators will permit the establishment of numerous non-interfering tracks (aerial highways) between airfields *without* the requirement of radio beams or other ground navigational aids at the fields.

This new concept of self-contained navigation, coupled with new air traffic control procedures, is expected to revolutionize Field Army flight operations for the years to come.

Easy, There!

FT. BENNING, GA.—During a regular 5-hour periodic inspection of a Vertol H-21 *"Workhorse"* helicopter, mechanics and crewchiefs are often called upon to do a variety of tasks which tax their ingenuity. Pictured above are SFC Clarence Hall, mechanic in the 8th Helicopter Company directing the 10-ton wrecker operated by Sgt Jimmy R. Williams of the 140th CH-FM. In removing a rotorhead from a craft and in a hundred other ways, these well-trained unsung heroes of Army aviation perform many types of maintenance on the giant helicopters, ranging from the mere change of a spark plug to the replacement of an entire transmission or engine assembly (PIO, 8th Hcptr Co).

I will go into the immediate program in greater detail later—suffice to say that we have been conducting successful fixed-wing instrument courses for some years now. Also, we have completed the test and evaluation phase of our immediate helicopter instrument program and are presently graduating instrument qualified helicopter pilots.

Interim Phase

Interim Phase: Zero-zero, remote area to remote area instrument flying capability in all but the most severe weather. This severe weather would be the type that would stop all present-day aircraft. *We should have this capability within 5 years.*

I must emphasize that this phase is oriented on this particular time frame only because of our present knowledge of the indicated limitations of the state of the art. We offer as a challenge to you in industry the obvious need to greatly reduce this time frame. However, I must add the necessity of making the entire problem of flying aircraft, either visual or by reference to instruments, as simple as possible. Our goal must be such that we can take the boy *"off the plow"* and have him flying in combat after a training period so short that today we look on it as fantastic. What is that time? For this group let us say—a month. Let us now look at each of the parameters stated above.

First, the zero-zero capability requires a very stable aircraft capable of extremely slow landing speeds with good environment sensing and presentation facilities. (Attitude, altitude, ground speed and landing area information.)

Remote area to remote area instrument flight calls for all of the facilities just mentioned—plus navigation facilities capable of pinpoint accuracy at ranges in excess of 300 miles and free from line of sight limitations. Inasmuch as these flights will be made at extremely low altitudes, highly sensitive and discriminatory obstacle warning devices are required. Added to all this is the need for IFF, and small, lightweight voice communication equipment free of line of sight limitations and affording a greatly increased channel usage.

Flying in inclement weather requires anti-icing or de-icing facilities and greater stability in turbulent air. The obstacle warning devices mentioned as a requirement for remote area work must also be capable of detecting thunderstorms and other severe weather formations. Of course, all of the old cliches about light weight, stability, simplicity, ease of maintenance and low cost are added to these requirements. However, gentlemen, I would like to point out to you, the sometimes forgotten fact, that stability and ease of operation can be obtained by other methods as well as by hanging on another complicated and expensive black box with its attendant heavy complicated hydraulic and/or electrical systems.

Around the Clock Operations

by Col. John D. Edmunds

(*Continued from Page* 10)

Ultimate Phase: Complete freedom of action permitting normal operations during all periods when other means of military transportation can operate and/or men can fight, utilizing what today are considered realatively inexperienced pilots. *We should have this capability within 10 years.*

While this requirement can be simply stated, there are a great many technological breakthroughs required before this wish can become a reality. Generally speaking, the first requirement is ease of operation and maintenance. With the ever-increasing requirements of the Services, it is obvious that we will have to *"scrape the bottom of the barrel"* for pilots and mechanics during any future war. This means that the aircraft and equipment we use must be capable of being operated and maintained by relatively inexperienced personnel.

Let's now cover the systems we feel are necessary in order that we may have complete freedom of action in the air utilizing relatively inexperienced pilots.

First: *The cockpit*: Controls must be few in number and simple to operate. These controls should make maximum use of the operator's senses and environmental background. Maybe this calls for automobile-type controls or individual lift device type controls as first advocated by Zimmerman of NACA.

Instrumentation must present a normal everyday picture to the operator, the instruments should be few in number and extremely simple—maybe the flatplate television tube and go-no-go engine instruments —maybe something entirely different. I don't know, but, I must again caution you to look to the *"plow boy"* as your operator rather than the experienced pilot.

Second: *The sensory devices*: We must have a complete environment sensing capability. This must provide a high resolution pictorial display of the terrain and other air traffic under non-visual conditions and provide operator orientation cues.

Third: *The navigation devices*: We must have accurate light, small ,and secure self-contained navigation devices.

Fourth: *The security devices*: We must have an IFF capability.

Fifth: *The communication capability*: We must have light and small long-range, non-line-of-sight, multiple-channel radios.

One little point bears re-emphasis before we go into the details of our immediate instrument program. You may give us the



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by Col. John D. Edmunds

capability of using J. Fred Muggs as a pilot, but if we must have three bright young men with Ph. D. degrees to maintain the equipment, then all of this simplification will be for naught.

Army's Accomplishments

[In discussing the Army's accomplishments to date] The Army has realized for quite some time the necessity of operating its aircraft 24 hours a day under all conditions of visibility. We presently have a complete fixed-wing instrument program second to none and have initiated a helicopter instrument flight testing and evaluation program.

F/W Instrument Program

Our current *fixed-wing instrument program* is based on proven methods of instruction compatible with existing instrumentation equipment. The next step may be to begin instrument training when the student first steps into an aircraft. In other words, the present system of teaching a student to fly contact and then teaching him to fly on instruments may be wasteful and slow. The Army Aviation School is presently conducting experimental courses with a group of new students in an effort to establish whether it is feasible to initiate contact and instrument training simultaneously. It appears that this program as well as further advancements in our fixed-wing instrument flying will probably depend to a great extent on new sensory devices and cockpit presentations which we hope current programs will provide.

R/W Instrument Program

The *helicopter instrument program,* being new, has taken a slightly different road. In the beginning, the Army had no background of experience upon which to base helicopter instrument training. An immediate need for such training became apparent because worldwide helicopter operations were producing accidents resulting from loss of visual reference. In order to have some insight into the reasons for the immediate need, let's look at the file copy of an accident that happened not too long ago.

A helicopter company was participating in a field exercise designed to simulate night combat conditions. To complete the mission, the pilots were to fly 20 minutes and then land in an unfamiliar and unlighted area. At the time of take-off, the weather reported was high overcast, visibility three miles plus. The time was about 2200 and the mission was progressing uneventfully. A thin ground fog or haze layer had developed between 50-150 feet above the ground. (I know that you have seen this type of fog that forms along a river or when the moisture content is high and there is little or no air movement.)

This haze layer developed unnoticed by participating personnel, since the stars could be seen overhead by the ground crew and conversely, the pilots could see the lights on the ground. The two H-19s had arrived over the landing area, one on final approach to the unfamiliar and unlighted area, while the other circled. The first helicopter turned on its landing light and descended to about 150 feet above the ground where the landing light was turned off. It appeared from the ground that the pilot had elected to go around, but the helicopter hit the ground in a descending right turn from about 100 feet. The impact killed the pilot and co-pilot and the helicopter burned.

Second Tragedy

Meanwhile, the pilot of the second H-19 saw the accident and made radio contact requesting aid for the first H-19. The second pilot then went to the scene and elected to land, following the first helicopter's landing flight path. The sequence of events were the same; turning on final with landing light on, descending to 150 feet, turning out the landing light, and then the mild right decending turn followed by a crash 100 yards from the first helicopter with the same fatal result. It was later determined that the pilots probably were victims of vertigo when visual reference to the horizon was lost.

One of the pilots was instrument qualified in fixed-wing aircraft and had a full panel of instruments in good operating condition in front of him. This fact alone clearly illustrates the requirement for better helicopter instrumentation and an adequate helicopter instrument training program. With the knowledge we now possess on helicopter instrument flight, it can safely be said that with the proper type of training, several lives may have been saved—along with two expensive helicopters.

In order to put a stop to accidents similar to the one I have just outlined, a helicopter instrument flight testing and evaluation program was initiated at the Army Aviation School in December of 1954. Authority was granted to start a program evaluating present off-the-shelf fixed-wing instruments in helicopters, under simulated instrument conditions. In January of 1955, project officers

from Department of Rotary Wing and Department of Combat Development were assigned the task of determining the feasibility of instrument flight with present day instruments installed in utility type helicopters. Liaison was established with New York and Los Angeles Airways to determine the procedure utilized by these companies when operating under marginal instrument flight conditions.

Resulting information indicated that both of these companies were operating under VFR conditions only. The Air Force, the Navy, the Marine Corps, NACA Laboratories, all the helicopter manufacturers, and a few civilian helicopter operating agencies were then contacted to obtain information on how they were operating in marginal weather. All data readily available was collected and it was found that in some isolated cases pilots had flown rotary wing aircraft under limited instrument conditions.

Pilot Fatigue a Factor

Two of the outstanding problems encountered while on instruments were pilot fatigue and control difficulty when flying at air speeds below 40 miles per hour. All persons contacted felt that the present-day instruments were marginally adequate for civil airway type flying, and that a need existed for better instrumentation to aid the pilot even in this type of flying. At this time, the Army contracted with Bell Aircraft for an immediate short-range program calling for the instrumentation of two H-13s. The first ship was to be delivered as soon as possible with an instrument panel consisting of present-day production instruments. This ship was delivered in March of 1956. The second ship was to be delivered about one year after receipt by the contractor of GFE. This second ship will be delivered with an instrument capability representing the very latest in instrumentation *"state of the art."*

To date, The Army Aviation School has flown a total of 1700 hours of simulated helicopter instrument time. The instrumentation and procedures that have been developed during this program vary little from the standard procedures used in fixed-wing instrument flying. The pilots chosen for the evaluation were qualified in the type helicopters that were used and some members of the Army Aviation School Fixed-Wing Instrument Examiners Board were included.

During the early stages of instrument flight testing, it became apparent that instrument grouping and placement were items of ever-increasing importance. In some helicopters, part of the instrument panel was obscured from the pilot's vision by the cyclic stick during its normal travel in flight. A meeting was held to determine instrument types, sizes, and placement on the panel for increased flight capabilities. One arrangement that was standardized at the time and installed in the first H-13 delivered by Bell.

Second Arrangement

The use of this [standardized] panel simplified instrument flight considerably and was preferred by the majority of the pilots over the other existing installed helicopter instrument panels. However, the pilots agreed that an improvement could be made on the arrangement of instruments. Based on studies made as part of the instrumentation program, Bell Aircraft came up with [a second] arrangement.

With this second arrangement, heading and attitude proved difficult to control. However, the use of the over and under presentation of heading and attitude with 5-inch instruments directly in front of the pilot's eyes produces excellent results. Pilots obtain proficiency on the panel in shorter periods of time than with the original panel.

Program Findings

Some of the characteristics and factors evolved during this program were as follows:

Stability characteristics differed between single rotor and tandem rotor aircraft. At cruising speeds in straight and level flight, the single rotor configuration proved relatively stable around its longitudinal and lateral axes with little or no tendency to pitch and roll. However, this was not true of the tandem rotor craft which proved less stable around these same axes. Both configurations proved stable around their vertical axes at cruising speed. However, the tendency to yaw was quite pronounced at airspeeds below 30 knots.

Altitude changes of less than 100 feet require a change in collective pitch setting and manifold pressure.

Turns may be entered and terminated by the coordination of both anti-torque and cyclic control. This is necessary to prevent slipping and skidding on initial entry. In the H-19 an eight-degree bank is required to establish a standard rate turn of three degrees per second. It was found desirable not to exceed 25 degrees of bank due to

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by **Col. John D. Edmunds**


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increased vibration and the possibility of exceeding the lateral limits of the cyclic control. The normal lead that is required in fixed-wing instrument flight for rolling out of a turn on a predetermined heading is not necessary in the helicopter because of the rapid control response of the rotor.

A constant swinging of the needle from side to side with as much as a two-needle width deflection is not uncommon in rough air. Consequently, in coordinating turns, the turn and bank indicator is of limited help only. In the single rotor configuration, small deviations in heading can be corrected by the use of antitorque pedals only. However, coordination of the cyclic and antitorque controls is necessary to make these same corrections in tandem rotor ships.

Climbing and *descending* turns can be made with the same degree of proficiency as normal turns. No great difficulty was encountered in either of these maneuvers as long as the air speed was maintained between 50 to 60 knots. However, with air speeds below 40 knots, instrument interpretation was extremely difficult due to the vibration encountered.

Instrument take-offs from a hover were tested but are not recommended with the present instrumentation. At air speeds from zero until translational lift is obtained, it is almost impossible to maintain heading due to the excessive yawing of the helicopter. A 45-degree deviation from the desired heading was not uncommon during the period of transition from a hover to forward flight.

Running take-offs were tested but are not recommended with the present installation. The helicopter usually leaves the ground in a nose low attitude and, due to the lag of the present rate of climb instrument, a definite rate of climb cannot be established in time to prevent the helicopter from settling.

Autorotations Accomplished

Autorotations were made down to predetermined altitudes under simulated instrument conditions without any difficulty. The needles were rejoined and collective pitch was applied at approximately 100 feet above that altitude for which the recovery was intended. Cruising flight at the desired altitude could be resumed with a minimum of effort from this position.

Landing Aids. The use of radio equipment for orientations, let-downs, holding procedures and approaches presented no problem at airspeeds above 40 knots per hour with rates of descent of 200 to 300 feet per minute. A single exception was the use of omni range for orientation, tracking and let-down in that the excessive fluctuations of the needle due to rotor interference caused errors in interpretation on the part of the pilot. ILS approaches were made successfully, utilizing an air speed over 50 miles per hour and rates of descent up to

"Of course, it won't fly, but it has a hell of an impressive power set-up."

Jim Matthiessen

300 feet per minute to the minimum published altitudes.

Although these approaches were time consuming, the same degree of proficiency was obtained as with fixed-wing aircraft. GCA approaches were made with the same airspeed and rate of descent at ILS approaches. Attempts were made to make touchdowns from GCA approaches, but were unsuccessful due to the lack of absolute altitude information.

Actual Instrument Flights. In January of this year, permission was obtained to fly helicopters in actual weather. These flights were accomplished off airways at altitudes up to 4,000 feet. The positioning of the helicopters in relation to airways and other unknown aircraft was constantly checked and GCA steers were given to contain flights within a 15-mile by 18-mile rectangular pattern northwest of Ozark Field.

Navigational Flights. Numerous cross-country flights were made under simulated and actual instrument conditions utilizing the current installed navigation aids. The navigation, flight planning, radio tuning and reporting were accomplished by the pilot. However, due to the instability of the helicopter, the pilot could *not* release the controls to operate the E-6B computer for figuring estimated times of arrival.

Operating Factors. It was discovered that the following control limits are feasible at speed ranges between 35 and 70 knots: (1) Air speed can be maintained within five knots; (2) Heading can be maintained within plus or minus five degrees; and (3) Altitude can be maintained within 50 feet.

Conclusions

Conclusions. (1) Helicopter instrument flying is both feasible and practical with the present utility type helicopter; (2) The techniques used in fixed-wing instrument flying are adequate for helicopters with the present instrumentation, and (3) Adequate control on a partial panel is fatiguing but satisfactory for emergency procedures.

Also, (4) Emergency procedures can be performed in a normal manner while on instruments; (5) Recovery from unusual positions can be performed with a high degree of accuracy while under instrument conditions; (6) Zero-zero flight conditions are not feasible with present day instrumentation. However, instrument flight with a ceiling of 200 feet and one-half mile visibility is within the helicopter's limitations.

Lastly, (7) Helicopter instrument flying is more fatiguing to the pilot than that of fixed-wing aircraft. This is caused by the lack of flight control *"feel"* and by the inherent instability of the rotor system. The pilot must diligently scan the flight instruments and continuously move the flight controls to maintain the proper flight attitude. All instrument flights should be conscientiously planned with the following in mind: wind conditions, turbulence, and icing conditions. It is mandatory to have a co-pilot available to do the navigation, make position reports, and to relieve the pilot for short periods of time to lessen pilot fatigue.

Upon completion of the helicopter instrument test and evaluating program, a helicopter instrument training program was initiated. This program called for the qualification of 96 Rotary Wing instructors to teach in the basic helicopter instrument course. To date, 14 helicopter instrument certificates have been issued to graduates in this program. We are finding that it is possible for the average instructor who holds a current instrument certificate in fixed-wing aircraft to qualify for a basic instrument certificate in helicopters in 50 hours of training.

"Much To Be Desired"

In summarizing the evaluation project, it was found that the present helicopter while on instrument flights leaves much to be desired in the way of equipment for ease of operation. However, the combination of a stable rotor system, the best available conventional flight instruments, current communication equipment, and electrical navigation aids will make the helicopter the equivalent of our light fixed-wing aircraft with respect to instrument flight capabilities. This will give the Army the capability of flying helicopters at night and under marginal weather conditions which has been set as the immediate goal.

In conclusion, to get back to the philosophical plane again, it appears that the combined Douglas and Bell programs are oriented toward our ultimate goal: Complete freedom of action permitting normal operation during all periods and conditions when other means of military transportation can operate and/or men can fight. This capability is required using relatively inexperienced pilots and extremely short training periods.

One little point with respect to future developments bears re-emphasis. You may give us the capability of using orangutans for pilots, but if we must have several bright young men with Ph. D. degrees to maintain the equipment, then all of this simplification will be for naught.

I personally feel that the Army must make sure that we consistently take full advantage of all of the *"state of the art"* advances. Our interim program must continually "rake off" appropriate portions of all long-range programs. Certainly the programs which are the basis of this Conference will serve to keep the Army instrumentation program moving in a straight line and avoid the "house that Jack built" type approach to our final objective.

AROUND THE CLOCK OPERATIONS
by Col. John D. Edmunds

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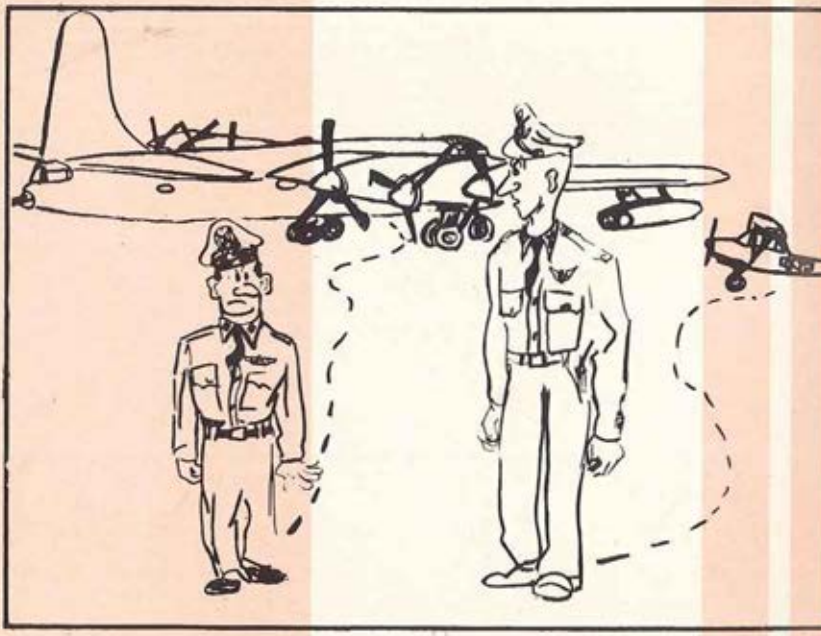

Jim Matthl