ARMY AVIATION

THE INTER AMERICANOS

Army Aviation's Representatives in Latin America
(Story on Page 17)

APRIL, 1956

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MORTON, PENNSYLVANIA

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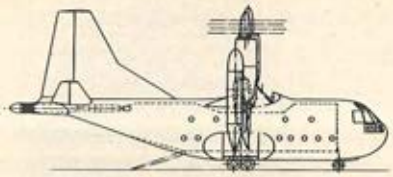
*The name *Vertol* is a contraction of the words VERtical Take Off and Landing.

from research...



TILT-WING TRANSPORT

Army requirements for a large troop-carrying transport capable of vertical take-off and landing led to a Hiller contract for the design study of such a vehicle.

to prototype...

FLYING PLATFORM

Although the Office of Naval Research was the developmental agency for this revolutionary vehicle flown by body-balance, Army funds were used for the project, and further development will be accelerated by Army requirements.

to production...

ARMY H-23C

This latest model of the H-23 series is now en route to join earlier models for Army use in general utility and training missions.

HILLER LEADERSHIP

stems from military cooperation

From the production model H-23 which flows out the back door of the Hiller plant to operational units throughout the Army...through experimental and prototype aircraft exemplified by the Flying Platform...to long-range planning and study contracts necessary to make future dreams a reality, the contributions of Hiller Helicopters to the realm of flight would be impossible without the constant cooperation and assistance of the United States Army.

HILLER HELICOPTERS • PALO ALTO, CALIFORNIA

ARMY AVIATION MAGAZINE
WESTPORT, CONNECTICUT

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COVER PHOTO

TOP LEFT: Shown boarding a 937th EAC L-23 for a flight to Colombia are left to right: Col. Robert R. Robertson, Director, IAGS; Col. La Verde, Director of the Instituto Catographia Militar in Colombia; and an interpreter. TOP RIGHT: Shown preparing a beached L-20 for disassembly are (l. to r.): PFC Baldwin, SFC Lee Taylor, SP-2 Cole, and SP-3 Repoli. MID LEFT: Being lowered by H-19 hoist to prepare a survey site and landing area in Panama is an engineer soldier of the 551st Engr Co (Surv Base). MID RIGHT: An H-13 shown coming aboard an IAGS F-S boat which has been fitted with a special helicopter landing deck for operations in the Antilles Archipelago. BOTTOM LEFT: SP-2 Chanberry (radio operator) shown operating the HF radio equipment organic to the 937th which permits voice contact with aircraft up to 800 miles from the Canal Zone Hq. BOTTOM RIGHT: Lt Jack D. Joiner and his float-equipped L-19 which is based in Buenaventura, Colombia.

Courtesy of Kollsman Instrument Corp.

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Beechcraft

SAFETY SUGGESTIONS

PUBLISHED AS A SERVICE TO PILOTS

(Condensed from Safety Suggestion Number 13)

Note: This safety article is the ninth in a series to be published in Army Aviation. They are short recaps from Beechcraft Safety Suggestions which have been published as a service to pilots since 1939. A Beechcraft Customer Service Program.

BOILING CUMULUS

It has been well established that thunderstorms are composed of "cells" and that these "cells" have a limited life span and their dangerous period may be only a few minutes. In a big thunderstorm, new "cells" are forming constantly as old ones die, and it is impossible to isolate or analyze the individual cells. Weather radar (at present too heavy and too costly for small airplanes to use) offers the only hope of avoiding the worst areas of a thunderstorm.

These photographs were taken at midnight, it will be noted that certain areas of the cloud show multiple edges. These multiple edge images are created by the individual lightning flashes. Between each flash and the next, there was about two to four seconds of darkness, during which the cloud grew taller and sometimes wider. This growth is represented by the space between the images of the cloud edges. The rate of growth is clearly, but approximately indicated by the spacing of the multiple edges.

The areas of activity are clearly apparent and it is obvious that an airplane would be roughly treated if it were to fly through the most active areas. Because these cannot be recognized and avoided in the ordinary thunderstorm, the correct solution is to avoid the entire storm, if possible.

At the end of the photo series, the activity of this particular cell is about finished. Its edges have become softened in outline and begin to look fuzzy. This is the test of an active cloud. If the edges look firm and distinct, like a pile of whipped cream, the cloud is expanding. *STAY OUT OF IT!* When it gets fuzzy and soft looking, it has lost its energy: but beware of a brand-new cell, out of sight on the other side of the spent cell!

Cessna T-37 designed for Jet Training

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It is a privilege for us here at Cessna to team with the Air Force in its forward-thinking plans for the jet age. CESSNA AIRCRAFT COMPANY, Wichita, Kans.

As it now stands, policies for the Army jet program have been established and the selection of pilot trainees is expected to commence shortly. Although the original selection plans contemplated going directly to the field to solicit *letters of interest*, the selection process now calls for an initial DA screening of personnel records. A *letter of inquiry* may then be sent to the selected individuals to determine if they desire to join the two-year troop test unit. AF-Army are currently reviewing the *equipment* structure for the program . . .

Vertol Aircraft has been informally advised that the bulk of the Army's H-25As are scheduled for allocation to ARMAV where they will be specially modified and equipped for use as instrument trainers. . . .

Under current evaluation by DA authorities are the quantitative requirements for mechanics in the field in order to pinpoint shortages and overages now existing in some units. DA officials wish to stress that a recent review and analysis of the overall mechanic picture revealed that there will be no world-wide shortage of maintenance personnel through '56. A distribution imbalance brought about by a last minute expansion in helicopter units has resulted in temporary isolated shortages . . .

Approximately forty USMC helicopter pilots are expected to become Army WOJGs in June when they join the Army Cargo Helicopter Program. Although the Army WO Program reveals an overstrength at this time, the projected requirements indicate that a shortage will exist in September of this year . . .

The grade structure for a field type Army is still under current staff study . . . Pilot candidate recruiting maintains its high input level, although DA will place increased emphasis on securing candidates who are already troop-trained. The bulk of the current crop now come directly from branch schools and have not had the opportunity to acquire troop duty . . .

A note to NG and USAR pilots: Some life insurance companies are now waiving the extra *flight* premiums required by Reserve Component participation in a flight program. One company has partially refunded its flight premium. If you're now paying an extra premium, check with your broker. . .

Look for an 8-week Army aviation safety course to be conducted at the University of California. Four classes of fifteen Army aviation officers will be programmed. The course will cover aeronautical engineering, aviation psychology, principles of accident

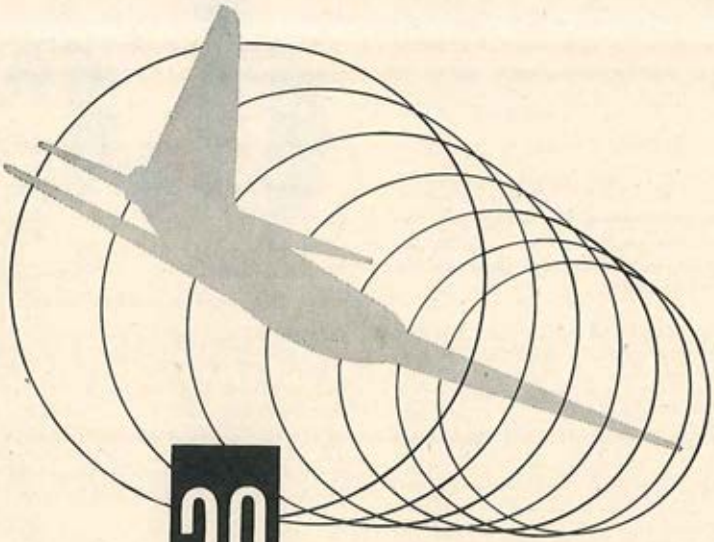
prevention, and indoctrination in the human centrifuge. Ten university credits will be allowed upon completion of the course. Although AF and USN safety officers now take a similar USC course concurrently, Army requirements call for a similar but not identical course and Army participants are expected to undergo separate instruction. Initial selections will be staff officers and a few installation civilian Safety Directors . . .

Representatives from the Army Aviation Flight Information Division, OCS-IGO recently completed a study of USAREUR facilities to augment Jeppesen coverage of this theater. A similar tour of AFFE facilities is expected to follow shortly . . .

All replacement parts will now be so designed that they cannot be installed incorrectly. This is part of the *"Go Right or No Go"* criteria recently adopted by TC . . . Army aviation's depot system is under current staff study. AF concurrence has been approved and *crash items* may shortly go directly from facility to depot . . . A large automobile manufacturing concern has expressed a decided interest in Army aviation along with several of the country's largest airframe facilities . . .

Serving the cause of air progress and reflecting credit upon American aviation are NACA's recent appointments from Army aviation sources: Col. Robert B. Neely (Subcommittee on Operating Problems); Capt. Amos B. Shattuck (Automatic Stabilization and Control); Lt. Col. Michael J. Strok (Helicopters); Col. James F. Wells (Flight Safety); and Col. Warren R. Williams (Operating Problems) . . .

Details on the Army Aviation Career Program should be available by the next issue. It's a compromise but a step in the right direction, too.



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◄◄ STEP FORWARD

FORT RUCKER, ALA.—Twelve senior officers were awarded the wings of army aviators February 24 when they completed one phase of the 35-week senior officers course now being conducted at The Army Aviation Center.

The officers hand-picked to attend the first such course to be conducted by The Army Aviation School who received their aeronautical designation were: Colonels John W. Britten, John L. Inskeep, Charles R. Murray, Hallett D. Edson, John D. Edmunds, George P. Seneff, Jr. William R. Tuck, Horace M. Wood, & John R. Dale; and Lt. Colonels Edward B. Bissell, James H. Lee, George W. Putnam.

The course is designed to fill vacancies in key positions created by the expansion of the army aviation program, and covers instruction in both fixed and rotary wing aircraft.

To be eligible to attend the course, officers must be in the grade of colonel or lieutenant colonel, currently serving on active duty in a branch authorized aviation, have successfully completed not less than one year of command duty of a battalion or higher level organization, have not less than one year of general staff level experience and meet the general physical standards for class 1A as prescribed by AR 40-110.

Upon successful completion of the course, officers are designated army aviators, placed on flying status and assigned to army aviation duty. (PIO Release).

◄◄ SHORTCUT

FORT RUCKER, ALA.—The Army is now using a mechanical device for testing prospective students of the Army Cargo Helicopter Pilots Course at The Army Aviation School. Use of the device may result in elimination of about 50% of the "washouts". or failures of students as they progress in the 22-week course.

The psychomotor is being tested to supplement the written and oral tests now given helicopter pilot students prior to beginning their training. Predictive tabulations of the device could result in savings of large amounts of money by eliminating students from the course who lack aptitudes for flying before they begin their training.

The entire United States Army will be watching the experiment, scheduled to continue from six months to one year, because the device modified could be used extensively to supplement tests administered by the Army, including those given recruits when they first come into the Army.

More than $3,000,000 has been spent developing these devices. The money—and possibly lives—it will eventually save can only be determined after experiments here.

The four devices within the psychomotor test are the complex coordinator, direction control, rotary pursuit, and rudder control. First to be tested with these devices were a group of students in the Army Cargo helicopter pilots course, Class 56-8, who took the test in addition to tests in use before starting their training at The Army Aviation School. The results of this test were forwarded to DA, where they will be tabulated and the results eventually compared with former classes, tested under the old method.

The Direction Control Test may prove a positive method for selecting students for Army Cargo Helicopter Pilot Training. It would eliminate the inept student before he ever begins the course. Officials of The Army Aviation School are hopeful this is exactly what it will do. But nothing concrete will be known until the results have been tabulated. If adjustments or changes in the psychomotor are indicated, they will be made after joint consultations by Army Aviation officials and the United States Air Force.

In New Zealand, Soil Conservation officials faced with a mammoth aerial top-soiling operation have solved their initial fencing problems with the . . .

Adv.

Fence-building Beaver

In a world of diminishing resources and multiplying populations the problem of conservation ranks as an equal with the problem of defense. In all civilized countries both governments and private interests are becoming aware of the need to counter the depletion of world resources.

In New Zealand an organization known as the Soil Conservation and River Control Council came into being. As the name implies, this organization is concerned with measures to deal with soil erosion and flooding and with the revitalizing of deteriorating hill country areas. A prime operation of the Council's program is the aerial top soiling of 3 million acres of hill country over a five year period.

Because of the magnitude of the aerial top soiling operation it soon became apparent that the problem of keeping sub division fencing up to date to meet the new requirements was a major one. Phosphate cannot be used efficiently unless grazing is adequately controlled and it is impractical to try gearing nineteenth century fence building methods to a twentieth century aerial top soiling operation. With these considerations in mind the Council decided to give the idea of airborne fencing a trial. *De Havilland* interests in New Zealand provided a *Beaver* aircraft and crew for the experiment.

After considerable experimentation to determine adequate bundling methods, the solution to the problem emerged. When bundles of posts, steel or batten were held firmly together with rubber bands stretched tightly around both ends of the bundle, and secured to the bomb-rack in two places with two turns of 3/10 inch rope, a sufficiently firmly tied bundle resulted. A piece of number 8 wire was used to thread the post ends together. When dropped the force of impact burst the pack and the individual members flew apart without damage to the individual fence components. Damage to coils of wire was also miminized as a result of aerial-drop packaging techniques that developed from these experiments. Successive dropping flights confirmed the efficiency of these packaging techniques.

Mr. D. A. Campbell, Senior Soil Conservator, makes an interesting comparison of airborne with other means of transporting fence materials to location in tough hill country. By *Beaver* aircraft, transportation cost per mile of steel fencing were $80 as compared to sled ($153), packhorse ($252), and man ($707). Similar cost savings were obtained in airlifting wood and concrete fencing by the four means available.

The aeroplane has a further advantage in cost per ton-mile decrease with distance flown because 90 per cent of the flying time is spent in manoeuvering and little at cruising speed over short distances. As the distance from the airstrip increases, a greater proportion of the flying time is spent at more efficient cruising speeds.

An active interest and participation in the maintenance of aircraft and records by the pilots will do much to improve Army aviation's. . . .

Organizational Maintenance

Gentlemen: I suspect there are some misconceptions about aircraft IRAN. IRAN does not mean the aircraft is completely rebuilt, nor does it mean that organizational and field maintenance repairs (unless safety of flight item) are performed. In fact, it is depot maintenance; aircrafts that are sent with organizational maintenance deficiencies to Iran facilities normally will return with these same deficiencies. If we depend on IRAN to accomplish al three echelons of maintenance, facilities would be swamped and costs would skyrocket. Under terms of the contracts, replacement of shortages and performance of repairs which are within the capability of organizational or field maintenance activities are strictly forbidden. I recommend that you bring these facts to the attention of your maintenance personnel in order to help our maintenance system function efficiently and to preclude aircraft going to IRAN with organizational and field maintenance deficiencies.

Maj. Gen. H. H. Howze

Propaganda: Units populated with aviators who desire only to fly always have poor organizational maintenance. Ergo, with poor maintenance there are less aircraft to fly. If pilots lounge around the office, the mechanics are going to be lounging somewhere, too. An active interest and participation in maintenance of aircraft and records by the pilots will buck up our organizational maintenance.

The lack of pilot interest in maintenance—where it appears—is a serious deficiency and is a long way removed from a basic concept of our aviation. Originally our pilots were rated not only as a pilot but as an aircraft and engine mechanic. I realize the length of our flying course precludes providing complete maintenance instruction. But should graduation at Fort Rucker be the end of the pilot's association with maintenance? Certainly not. Unit training must include classes and practical work related to maintenance and supply activities. The soundness of this has been proved by numerous units in the field.

by Maj. Gen. Hamilton H. Howze

You remember that in an earlier letter I said that sufficient attention was not given to the camouflage of Army airplanes and helicopters in the field. In many instances aircraft were left standing in the open with no attempt made to take advantage of natural cover to aid in concealment. Helicopters in particular were easily seen. With the aircraft so obvious, attention was drawn to the area resulting in discovery of other activities less readily apparent.

The Corps of Engineers is trying to aid units in the camouflage of aircraft. A thorough study is being conducted on the feasibility of new camouflage paints and lightweight nets. New manuals are in the process of publication which will cover new techniques of camouflage.

But a great deal can be done by the aviation units themselves prior to the time the new manuals are published and the new paints and materials are available. FM 5-20E covers the basic fundamentals of camouflage of aircraft and can be used as a guide in training. There is no question but that much better camouflage of Army aircraft under presently established operational concepts could have been achieved at SAGEBRUSH had camouflage practices already outlined in existing manuals been applied and maintained. The failure of aviation units to use currently accepted camouflage principles and the almost complete disregard for camouflage discipline should be of primary training concern.

Frequently the question is raised as to whether outstanding individuals among warrant officer pilots may be commissioned. What follows outlines the possibilities:

Certain warrant officers currently serving on extended active duty may apply for appointment and concurrent active duty in the grade of second lieutenant in the Army Reserve under the provisions of SR 140-105-3. None have thus far made application, according to TC.

Warrant officer personnel who possess a college degree and who possess outstanding professional or technical qualifications may apply for appointment up to and including the grade of captain, under the provisions of SR 140-105-8.

Warrant officer personnel holding Reserve appointments who are qualified in aviation may apply for extended active duty under the provisions of DA Circular No. 135-9, dated 7 July 1955. Warrant officers applying under this regulation must be considered well qualified critical technical specialists

Gen. Howze Report

(Continued)

to be called to active duty and meet professional standards of grade for which applying.

Forty-three (43) applications for recall to active duty under the provisions of DA Circular No. 135-9 have been received since 1 July 1955. Of this number, seven (7) applicants were considered to meet the criteria outlined in DA Circular No. 135-9. The status of these seven applicants is: Two have received orders for extended active duty; one is in the process of having orders published; two have been tentatively approved pending transfer to TCUSAR; and two have tentatively been approved and are presently being staffed within DA. The Transportation Corps has been authorized to procure nine for extended active duty under this program for FY 1956. A limited number of additional spaces will be provided to meet requirements.

The necessity and importance of a ground check of engine and aircraft to insure a successful mission is quite obvious. Not so apparent to some aviators, however, is the equally important need for complete preflight navigational planning. The ever-increasing air-traffic rules and the growing density of navigation facilities, emphazise more than ever the necessity for thorough pre-flight planning. A flight plan made a few weeks ago is of no use today, because facilities change. It may very well require more time to plan a flight properly than it will require to fly it. A good flight plan can save a lot of adrenalin; to be relaxed in the air, be thorough on adequate desk space in a quiet place where the pilot can sit down and do his planning the ground. Provide, at each Army airfield, without contending with coke drinkers, hot air artists, and the traffic to and from the men's room. Why lose the rest of your life in the air by saving a few minutes on the ground?

A violation has come to our attention which apparently resulted from poor preflight navigational planning. I say "poor preflight planning" because the documentary means of accomplishing complete and thorough pre-flight planning are available to every Army aviator through the media of NOTAM messages, radio facility charts and other data available in each Army Aviation Operations Office. The Jeppesen Airway Manual (TM 11-2557) was designed and has been selected to provide the most accurate and complete Flight Inforation for day-to-day Army aviation operations. This document, although containing a wealth of technical data useful in pre-flight planning, was developed primarily for airborne use. This manual was not intended to preclude the necessity for referring to all available flight documents and NOTAM messages. A document that would fulfill both pre-flight reference purposes as well as operational airborne requirements would be too cumbersome for effective use during flight. Every effort has been made and will continue to be made to improve the format and design of TM 11-2557. Its continued usefulness to the Army aviator is premised upon the generation of ideas, comments, suggestions and criticisms from two major sources—the Army Aviation Flight Information Division, which is constantly engaged in monitoring the flow of all operational data, and the large group of editors and critics—Army aviators. You as a user of TM 11-2557 can make this document the best and most effective vehicle for flight information in the aviation field. Comments and suggestions concerning this operational "Little Black Book" are invited and, as you probably already know, will be acknowledged almost immediately and acted upon.

I plan to include information regularly in these letters on our procurement and research and development activities. Understand that I am limited by security regulations. I do not think that you desire to receive a classified letter from me with its attendant paper-mill processing and handling.

Many of you have correctly heard that we are procuring additional L-23's. The quantity is small—only 24 to meet approved requirements. (I might point out to those who wonder why it takes so long to receive an end item in the field that we program funds and buy after a requirement is stated —generally by the field—and approved by DA.) Features of these L-23's include supercharged engines of higher horsepower, deicing and antiicing provisions, oxygen system, improved lighting system with anticollision lights, and UHF radio communication equipment. Hot stuff. However, we cannot look for these aircraft before third quarter FY 57.

It is anticipated that L-23's already in the system will be provided some of these improvements through modification and retrofit. Procurement has already been initiated for forty sets of de-icer equipment. The first of these has been installed on an L-23 at CONARC Board No. 6 for test; a second kit is going to Wright Air Development Center for bench testing. The remaining thirty-eight sets will probably be received this spring. We hope that all L-23B's will be retrofitted by next fall. The A's won't take it without other modification.

Military type handbooks for U-1A, R1340 engines, and propellers are not expected to be available until early 1957. Currently, commercial type handbooks are being received with the aircraft. Inasmuch as inspection requirements are not included, TSMC is publishing a TB AVN tentative distribution scheduled for 13 February as an interim measure.

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

New lift for the H-13 *by Lycoming*

Installation of the Lycoming model 0-435-23 vertical engine in the old familiar Bell H-13 helicopter has opened a new era in helicopter performance. The new model, under the old disguise, promises to offer both the altitude performance and the power reserve long coveted by Army pilots—and this power reserve is more than idle chatter.

The new Lycoming engine is CAA type-certified for 250 maximum continuous horsepower at 3200 rpm, 100 rpm higher than the normal H-13 operating range. Though overspeeding should be unnecessary with this added power reserve, a take-off rating of 260 horsepower at 3400 rpm has also been approved as extra, hot-day insurance.

Reserve Power. Power reserve and altitude performance, such as normally obtained by supercharging, have been achieved in the new H-13H by utilizing the larger Lycoming engine derated to 200 horsepower. Full power is available to the pilot for emergencies, since derating is accomplished by observing maximum manifold pressures specified in a manifold pressure versus temperature-and-altitude chart. "Supercharged" performance is thus obtained *without* the added cost and complexity of a supercharger, and the full 200 horsepower is maintained to the helicopter transmission under most altitude and temperature conditions encountered.

Altitude Performance. The added power available for altitude operation is shown in Figure 1. A dotted curve representing power available from a 200-horsepower engine has been superimposed on the 0-435-23 power curve graphically illustrating the altitude power boost obtained. By use of the derated Lycoming engine, the full 200 horsepower is maintained at above 6000 feet without exceeding 3100 rpm. This difference in power available can save the pilot, mission, and helicopter—and, as shown in the figure, the power boost is still significantly far above the critical altitude.

An interesting side benefit of the power reserve which greatly increases flight safety is the wider latitude in engine-rotor rpm control which is gained. Lost rotor speed can be disastrous in tight spots when power available drops in direct proportion to rotor rpm. However, in this installation, the Lycoming engine provides the full 200 horsepower, under most operating conditions, at engine speeds well below 2800 rpm. Thus, excess power is readily available to safely recover lost rotor rpm, providing greater safety, particularly for pilot training.

Desert Performance. To the desert pilot in midsummer, the added power of the Lycoming installation is real—like an extra ace in the hole—and more than compensates for the weight added by the larger engine. Power deterioration on a normal unsupercharged aircraft engine is approximately 1% for every 10°F increase in carburetor-air temperature. This means a loss of 5% under normal summer temperatures of 110°F, or 10 horsepower for a 200-horsepower engine. In the H-13, this 10 horsepower represents approximately 130 lbs. of gross weight, or 300 ft/min in vertical rate of climb. This additional power can frequently represent that required for pilot and load to ascend vertically from a tight spot and return to the sand dune called home. By manifold-pressure correction to compensate for temperature increases, the Lycoming engine provides the full 200 horsepower under sea-level conditions at temperatures exceeding 125°F.

Durability. The Lycoming 435-cubic inch engine gives a new lift to the H-13 helicopter, but it is not new to military aviation. Model 0-435-11 engines gave excellent service in the L-5 liaison aircraft, and many were still in service in the recent Korean conflict. More recently, the 0-435-17 geared engine has proven dependability in the Army L-23 Beech aircraft. The geared 0-435-17 engines, rated at speeds up to 3400 rpm, have built up a wealth of experience in high-speed operation forming an excellent background for durability and dependability in helicopter service.

Initial helicopter experience for the Lycoming 435-cubic inch engine was obtained in the Kaman HTK. The 0-435-4 engine, mounted horizontally, was both AN and CAA approved for helicopter operation, with a continuous rating of 250 horsepower at 3200 rpm. In the Kaman HTK, the 0-435 engine cut its teeth on dusty helicopter service, and chrome-plated cylinder barrels were incorporated to further increase engine life and decrease maintenance costs.

The power reserve provided by the 0-435-23 engine in the H-13H can also be expected to greatly increase engine life. With engine derating, the percentage of maximum power used for normal operations drops significantly

—a factor which can be expected to allow the engine to loaf through even longer overhaul periods.

Ease of Maintenance. An angle-drive accessory case has been incorporated in the 0-435-23 engine to facilitate maintenance. By the use of angle drives all accessories are on the side of the engine, within easy reach, and overall engine length is reduced to make a more compact installation. Side mounting also removes accessory bearing seals from the bottom of the engine where they would be submerged in oil and be a constant source of leaks. The shallow sump on the bottom of the engine is scavenged by a conventional oil pump to provide dry-sump operation.

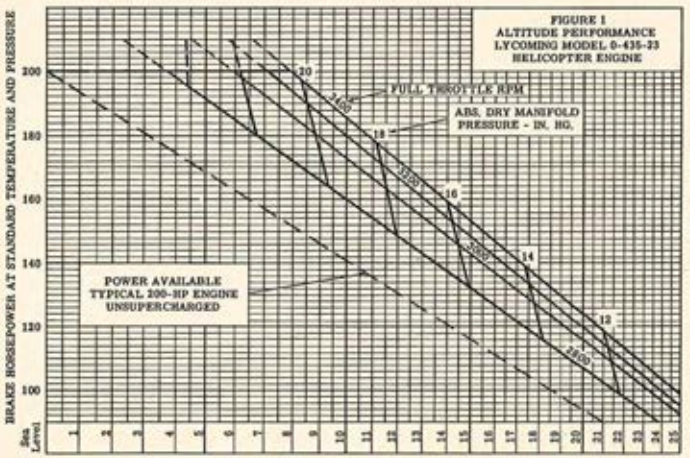
Excellent fuel distribution is assured by use of a standard zone intake system. A Marvel MA-4-5 float-type carburetor is used in the H-13H installation to preclude the necessity for a fuel pump and minimize fuel system costs. The engine can also be equipped with a Bendix PS-5 pressure-type carburetor if desired. Large 18 mm spark plugs are used, and the engine is rated on low-lead grade 80/87 aviation gasoline, all of which minimize possibilities of spark-plug fouling. These features have already proven their merit in both Army and civilian operation and testing of the 0-435-23 by demonstrating excellent plug life—another welcome relief to Army pilots and mechanics alike. Higher grade aviation gasolines, including 115/145, can also be used in the engine without detrimental effects when the grade 80/87 fuel is not available.

Standardization. Under Army direction, every effort is being made to establish a standard 0-435 configuration completely interchangeable between the various helicopter installations. In addition to the H-13H, the commercial VO-435-A1B model of the engine is in production for the Navy 4-place HUL developed by Bell, and initial flight tests of a new Hiller H-23 model are also in progress using a modified 0-435-23 military engine.

The present 0-435-23 engine configuration is satisfactory for installation in both the H-13H and the HUL, and modifications are being incorporated as rapidly as possible to provide interchangeability in the H-23 helicopter. One of the major differences is transmission lubrication requirements. An engine change has already been approved for production to provide a removable oil jet on the end of the crankshaft. When the oil jet, required for the H-13, is removed, a standard AN913-1S pipe plug, readily available in Army supply channels, can be inserted and the engine is ready for installation in the H-23.

The second main difference in installation requirements lies in the sprag mounting provisions on the engine sump. A new sump, incorporating attachment pads to cover all installations now planned, is currently being flight tested, and it is hoped that this can be released for production in the near future. The universal sump may involve a weight penalty of up to one-half pound, but this penalty is minor by comparison to the value of having fully interchangeable engines in the Army supply channels, which can be slipped into a number of different helicopters as required.

The power reserve provided in the H-13H by the Lycoming 0-435-23 vertical engine represents another big stride in Army aviation. Improved altitude performance, improved hot-day performance, and the extra power for emergency use all contribute to improving flight safety and reducing mission abortions —another step in providing the reliability and dependability essential to Army organic aviation. The 0-435-23 engine, seasoned by years of high-speed, severe operation experience, with versatility of airframe installation, represents another step in conserving maintenance and supply man hours. With many parts common to the 0-435-17 engines already in the Army supply pipeline, introduction of the 0-435-23 helicopter engine to Army aviation can be made smoothly and efficiently — a proven engine performing a new task.



Now running the gauntlet and being greeted with mixed reactions by key Army aviation authorities in widespread installations . . .

IT's Here To Stay!

Acceptance reports on Army aviation's new controversial project continue to pour in from widespread sectors. As with all projects, no two persons view IT in the same light nor accept IT in the same degree.

Following the current study now being undertaken by ZI authorities, IT will be re-evaluated by Army aviation authorities at the Pentagon level, prior to retrofit and modification.

Once modified to comply with minimum standards set forth in pertinent AGs, it will be sent to USAREUR to determine its applications in this theater.

Security measures applicable to the project remain in effect until globular approval has been achieved.

Partial acceptance reports from the field include:

1/Lt Frank Lennard, Alaska: *"It's too technical; IT should be personal."*—1/Lt Arnold Carrillo, Hq, 1st Army, GI-NY: *"I didn't mind the busses back and forth but I just can't stand IT!"*—Maj. George F. Morris, Advisor, NH-NG: *"IT's old but I'll buy IT!"*—Capt. Harvey W. Huntzinger, TRADCOM, Ft. Eustis: *"Don't tell me IT didn't blackjack us!"*

521st Engr. Co., 30th Engr. Gp., Stockton Field, Calif.: 1/Lt Lawrence J. Herman: *"I'm stuck (on IT)!"*—1/Lt Brooks Homan: *"What can I say, dear, after I say I'm . . . flabbergasted?"*—Capt. Samuel Boyer: *"Far too hot for my hands!"*

6th Army Fld. Maint., Sharpe General Depot., Lathrop, Calif.: Capt. Walter Yenne: *"IT sure is just that."*—1/Lt Edward J. Sumek: *"Torrid!"*—Capt. Forrest Harris: *"SNAFU!"*

Hq., 6th Army Aviation, Presidio of San Francisco: Capt. Lee E. Perdelwitz: *"Wow! Glad IT finally arrived!"*—Maj. Jack W. Ruby: *"IT wasn't what I expected."*—Capt. John Cecil: *"Glad to have IT on the West Coast."*

Hq., 6th Army Trans. Sect., Presidio of San Francisco: Capt. Frank C. Jarrard: *"Time for IRAN?"* Capt. William H. Noble: *"This is IT?"*—Rita A. Smith, Secretary: *"As a woman, I must ask—Is IT real?"* Lt. Col. Richard W. Davis: *"Too hot for me."*—Col. L. L. Whittle: —*"What next?"*

6th Army Flt. Det., Presidio of San Francisco: Maj. John D. Gillespie: *"Don't know how we're going to get along without IT but we'll try."*— Capt. Henry C. Vineyard, Jr.: *"And so there we are."*—Capt. Wallace J. Fenn: *"Am eagerly awaiting ITs implementation into the new TA being drawn up by CONARC."*

416th Signal Aviation Co., Fort Huachuca, Arizona: 1/Lts William F. Denman and Glenn W. Davis: *"A loud No Comment."* 1/Lt Charles Nelson: *"We were lucky to get IT."*

(*Ed. Note: The wider the acceptance of the project—and from this month's reports a certain amount of resistance is evident—the greater are the chances that IT will be brought to the general public on a nationally televised coast-to-coast show. Preliminary discussions with one major network have been most encouraging. IT is your project to approve or disapprove.*)

HEAD UP AND LOCKED?

BALTIMORE, MD.—An annoying buzz will soon sound in the headgear of pilots coming in for landings . . . It is to remind pilots to lower their wheels.

The new device, invented by John W. Teegarden of the Wright Air Development Center's equipment laboratory, is expected to replace the horn used currently, which is difficult to hear and easy to ignore.

Continuing their efforts to alleviate current maintenance and support problems, TRADCOM's Air Division points to its semi-trailer mounted . . .

Maintenance Shop

by Capt. Harvey W. Huntzinger

FORT EUSTIS, VA.—The mission of the TRADCOM aviation division is to improve ground support equipment and increase reliability and maintainability of aircraft and their components. To accomplish this mission a considerable amount of time is expended in attempting to anticipate future requirements so that new type aircraft will arrive in the field with adequate support equipment. However, not all of the effort is expended in crystal ball gazing. Continuous effort is being taken to alleviate current maintenance and support equipment problems. One project that is nearing completion that will neutralize some of today's problems is the semi-trailer mounted maintenance shops.

The van body will be mounted on the semi-trailer M-295. It can also be mounted on the M-42, 2½-ton chassis. The van will measure 204" long, 78" high with a maximum outside width of 96". The side panels are longitudinally bisected to allow the lower half to fold downward to form a work bench or a working area and the upper half pivots upward to form a roof. All the body panels will be insulated with fibre glass to provide insulation against temperatures ranging from minus 65° to 125° F. Each van will be equipped with 2 Hunter gasoline burning heaters each with a capacity of 60,000 BTU. The vans will have eight 120 volt recessed 100 watt flourescent lamps with switches located inside the rear door. Automatic door switches have been provided to shut off the lighting system during operation under blackout conditions. Ten female wall outlets, with individual switches, will be conveniently located for utilization of power tools. Four stabilizing jacks, one located at each corner of the body, will be provided to level the body prior to operation.

To itemize all the equipment that is being installed in the vans would require reams of paper. However, one shop that will be issue to all maintenance support units is the flaw detection van. The major components of this one van are Compressor, 5 CFM; Generator, 25 KW; Inspection Kit, dye, Model 100; Inspection Kit, magnetic particle, magnaflux model DR 545; Inspection Kit, magnatic particle, magnaflux model KCH-3D; Inspection Kit, magnetic particle, Sonoflux model 3-SX; Inspection Kit, Penetrant fluorescent, magnaflux; Inspection Kit, Portable, ultra violet, Sonoflux model 11MV.

An adequate number of vans are being procured to equip one each of the following TO&E type units:

TO&E 55-500 A (KC and KD teams) units will be equipped with 2 semi-trailer mounted shops. A tool crib set and a flow equipment set consolidated into one mobile shop set; a battery and electrical set, hydraulic maintenance set, sheet metal set and welding set will be installed on the second semi-trailer.

TO&E 55-457 (TAAM Co) units will be equipped with 5 semi-trailer mounted shops. They are: a tool crib van; an electrical and instrument van; a hydraulic and flaw detection van; a sheet metal and welding van; a machine shop van. This unit will also have a 1½-ton trailer mounted paint shop and a 1½-ton trailer mounted battery shop.

TO&E 55-458 (TAAHM and S Co) will be equipped with 8 semi-trailer mounted shops. They are: a tool crib van, an electrical system van; an instrument repair van; 2 sheet metal and welding vans; a machine shop van; an engine and hydraulic van; a flaw detection van. The heavy TAAM Co will also have a 1½-ton trailer mounted paint shop and a 1½-ton trailer mounted battery shop.

The shop sets above have been equipped with the best tools and equipment available for aircraft field maintenance. These mobile shop sets are scheduled for completion on 1 May 1956 and will be issued to TO&E units for engineering and user tests approximately 1 October 1956.

The total authorized strength of TRADCOM's Army Aviation Division is 22 officers, 40 civilians, and 43 enlisted men. A few of the officer personnel presently assigned are: Lt. Col. David Bisset; Majors H. P. Crane, J. F. Denhart, T. E. Hall, and S. C. Lenic; Captains R. A. Filby, H. W. Huntzinger, S. A. Sundby, and A. J. Wolfe; WOs W. B. Feuerstein, and G. E. Spaulding.

Assisting 17 of the 21 countries of South America as well as Mexico, the 937th Engr Avn Company adds mobility, flexibility, and speed to survey work . . .

The Inter Americanos

by Captain John Bergner

FORT CLAYTON, CANAL ZONE—We *Inter Americanos* down here haven't been too communicative of late; however, we wish to correct this condition posthaste in order to spread the word that there are Army Aviation elements working diligently among our Latin American neighbors here south of the border.

Our 937th aviators have written piecemeal for *"Army Aviation"* from their various projects in the past, but we believe this will be the first comprehensive coverage since our reorganization last year. We've requested each officer in charge of aviation detachments in the field to prepare a summary of his project for this article and what we present is a summation of our numerous efforts and not merely yours truly expounding.

Down here we work for the Inter American Geodetic Survey (IAGS) and are consequently deployed throughout its area of responsibility. The IAGS is a major subordinate command of USARCARIB with Hq at Fort Clayton, C. Z. It is responsible for directing and assisting 17 of the 21 countries of South America plus Mexico and those countries of the Antilles in the first coordinated survey of this hemisphere. It was determined that the mission could best be accomplished through collaboration and diplomatic agreement with participating governments. Through these agreements a coordinated effort was effected with the U. S. providing school facilities in the C. Z. for host government personnel plus technical assistance in each country. This assistance includes the loan of army aircraft and army engineer officer pilots in numbers proportionate to requirements. Col. Robert R. Robertson, present director of IAGS, is a firm believer in functional army avaition support of topo field operations. He states, *"In this part of the world it's: NO AIRCRAFT—NO MAPS!" "W couldn't do our job without air support."*

The 937th EAC (Aviation) (IAGS) was organized back in July, 1952 at Ft. Belvoir as the 537th Engr Avn Det with the mission of rendering IAGS aerial support with L-19 aircraft. Maj. Thomas J. Sabiston, the first CO, ramrodded this effort. It was soon evident that more aircraft of diversified types were necessary to render support to this survey effort that extended from Mexico to Brazil. The unit was reorganized and redesignated the 937th Engr Co in '53 and authorized 10 L-19, 6 L-20s, one L-23, and 13 H-13s.

Status quo in aviation being a nonentity and the clamor from field parties for more aircraft precipitated the last change in organization structure which took place on 2 Dec. 54. The unit was redesignated the 937th EAC (IAGS) and assigned its present complement of 10 L-19s, 6 L-20s, 6 U-1 "Otters", 2 L-23s, 7 H-19s, and 13 H-13s. To crew and operate the 44 aircraft, we have 56 officer pilots, 1 WO, and 101 EM. Col. Robertson found that when the additional aircraft were utilized in the field, IAGS military personnel and collaborating governments were quick to find out the flexibility, mobility, and speed that they afforded the normally tedious work in the remote jungle and mountainous areas being surveyed.

Consequently, they have asked for more aircraft. Helicopters were, of course, the biggest boon in jumping over the natural barriers once negotiated by canoe, mule, and on foot. However, the L-19 aircraft has proved highly succesful for reconnaissance and limited resupply. The L-20 aircraft is

excellent for large scale resupply of field camps and aviation elements. The H-19 helicopters were introduced to field work last April in Latin America and have since demonstrated they are the answer to carrying large loads over extended distance. Their extra range is an added big improvement over the H-13, as the ability to lower a man down by hoist to prepare helicopter landing areas and survey sites.

The unit's two L-23 aricraft have the high speed transportation for staff. One ship, however, has been modified with oxygen, an electrically operated camera port, and an aerial camera for priority special purpose missions.

Maj. Don R. George is our present CO. Assisting are Capts. John Bergner, Paul R. Dome, and Joseph R. Gayhart; Capt. Edward T. Walker; CWO James V. Forsythe; Lt. Jack D. Thompson; Capt. Jack C. Coffman; and Lt. Paul R. Curry, with SP2 Arthur E. Boucher, crewchief. fly the modified L-23 plane on special missions directly out of headquarters. So far they have worked Haiti and Honduras, with Cuba coming up next. That's a nice area for February. The following personnel are awaiting aircraft and reasignment:

Capt. Hector H. Mendieta (tentatively assigned U-1 pilot, Brazil); Capt. Wilbur G. Hudson (U-1 pilot, C. Z.); Capt Joseph M. Balint (U-1 pilot, Canal Zone); Lt. Walter C. Harvey (tentatively assigned L-20 pilot, Chile); and Lt. John L. Finley (tentatively assigned L-19 pilot, Cuba).

The following personnel are assigned to the projects indicated for field transition and indoctrination training: Lt. George R. Hockett—Guatemala project; Lt. Elwood K. Shelton—Colombia project; Lt. Wallace L. Hickman—Dominican Republic project; Lt. Dennis E. Newport—Costa Rica project; and Lt. Thomas W. May—Nicaragua project.

The 937th Engr Co maintains its headquarters at Howard AFB, Fort Kobbe, C. Z. Our facilities are among the best and include a 200' x 200' hangar with machine shop, sheet metal shop, medium frequency and VHF radio station, operations office, radio repair shop, and a complete supply setup capable of reshipping parts and equipment over most of Latin America to the outlying detachments.

Aviation in support of the survey efforts is organized in the form of detachments for each IAGS project. The size and composition of the detachments is governed by the size and extent of the projects effort. Current detachment strengths vary from the lone L-19, with pilot and mechanic in Ecuador, to the L-19, L-20, two H-13's and 8 personnel in Colombia. Here is a rundown by project:

MEXICO

Capt. John A. La Montia is the Mexico Avn Det. Comdr. He is based in Mexico City with an L-20 airplane. The aircraft has been in support of supplemental map control, low altitude photographis and resupply of field parties. His biggest problems are the high altitudes of terrain (10,000, 16,000) and lack of radio and navigation equipment. Sgt. Richard Wooley, crewchief of the L-20, keeps the aircraft flying on the project. The Mexico project expects to trade the L-20 for a U-1 "Otter" in February. The army gained added repute in Mexico when Capt. La Montia located theree lost ships in the aftermath of hurricane *"Janet"* and directed rescue parties to them.

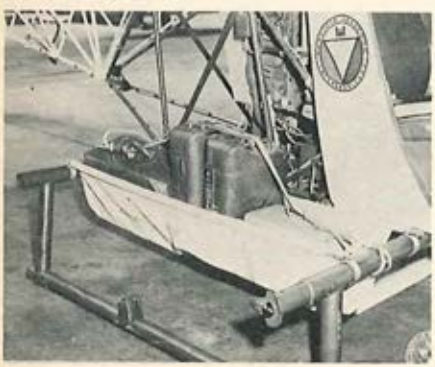
GUATEMALA

Capt. Victor M. Hernandez, based in Guatemala City (elevation 5,000') is the boss of the Guatemala aviation effort and he is assisted by Lt. Roger F. Giles and Lt. Norman R. Michelson, both flying H-13s in the back country. Vic flies an L-20 for the project and reports that Guatemala City is a place of beauty just like the toiurist ads say. *Every bit of gas, food, and equipment* that the choppers use in the back country is flown in by L-20 and the aircraft sustained in operation in this matter. Landing pads in the interior for the choppers used in the back country are constructed by local Indians who will work for *corn only*—no money, thank you. So Vic hauls 1,000 pounds of corn per week plus his fuel, food, parts, etc. and personnel are paid off by the bushel. Problems on the project include extremely high mountains which precipitate poor weather, and the normal poor communications in South America. Crewmen on the project include: PFC. Robert J. Leyko and PFC. Keith D. Snyder crew the two H-13's and SP3 John L. Geideman crews the L-20.

EL SALVADOR

The El Salvador project is the most recent recipient of Army aviation and has Lt. Joseph V. Turner as Det. OIC. He flies an H-13 in the bush with Lt. George H. Lincoln and is supported by Lt. Thomas R. James in an L-19. Their big job is the Honduras—El Salvador border survey which keeps them out in the boon docks and among the 10,000 foot mountains in that remote area. The L-19 and project head-

BELOW: Aluminium sling rig developed as a field expedient by 937th personnel.



quarters is in San Salvador, capital city of El Salvador, and it's only about 1 hour flight time to any work area in this small country. PFC. Primo J. Borella and PFC. Eugene O. Lloyd crew the two H-13's and Pvt. Ronald J. Fillous crews the L-19.

HONDURAS

Lt. Thomas W. Coley is based in the capital city and mountain stronghold of Tegucigalpa, Honduras (TA-goose to most folk). He and his mechanic, Pvt. Bobby D. Leach, *are* the detachment and Lt. Coley is the detachment OIC. He flies an L-19 in support of the efforts there. There are less than 1,000 miles of road in the country, so everyone flies. Tom and the project are working very closely with the El Salvador project on the border survey, so he has friends to talk aviation with and H-13's to escort frequently.

NICARAGUA

Capt. Earl W. Nielsen runs the Nicaragua Avn Det which includes one H-19, one H-13, and one L-19. They are based in Managua, Nicaragua, but are most frequently elsewhere in the back country which features some of the densest jungle in the world. Lt. Dean C. Wesner flies the L-19 while Lt. Jorge Ortiz-Santiago is H-13 and H-19 qualified and 1st Lt. Danald E. Foley flies the H-13. The problem flying area in Nicaragua is the Rio Grande Valley area in the center of the country which is undeveloped, unsurveyed, unusual, and under 200 feet of jungle. *No walking out there.* The country features the largest (110 x 50 miles) fresh water lake in the world (Lake Nicaragua) supplied with honest to goodness sharks and as an added tourist attraction, has six active volcanoes (elevation 5,000 feet) surrounding the lake. Crewing the aircraft are: PFC Warren A. Krott and PFC Clarence K. Wiles crewing the H-19, PFC Kenneth C. Wood crewing the H-13, and SP3 Lee Worden crewing the L-19.

COLOMBIA

Capt. James R. Woods is the Det. OIC of the Colombia project and he is based in Barranquilla, Colombia. Assisting Capt. Woods are Capt. Cletus C. Culp flying the L-20 based in the capital city of Bogota, Lt. *"Jungle Jim"* Jack D. Joiner based in Buenaventura, Colombia, with his float equipped L-19, and Lt. John L. Chapman who assists Capt. Woods in operating the two H-13's in the Barranquilla area. Capt. Woods has to travel quite a bit himself just to check the detachment and they have some wild terrain. There is a 19,000 foot peak within 30 miles of the Caribbean near Barranquilla and it is jungle all the way up. The choppers have worked (carrying loads) up to 5,000—6,000 foot stations, which is marginal flying but necessary business. Bogota is 8,000 feet and a loaded L-20 groans going out with tropical pressure altitude conditions present. Lt. Joiner can bear testimony to the thickness of the jungle; he walked for 3 days through it after his L-19 came to rest in the trees in the Choco Indian Region. He didn't see an animal or a soul, but states he got good and wet, thoroughly hungry, despite survival rations. He finally met a gold mining Indian on a stream bank who transported him in a canoe to a mining barge, one day down the river, where an H-9 picked him up. Lt. Joiner says he saw and heard rescue planes but couldn't signal in the jungle. Crewing the Colombia project aircraft are: SP2 David S. Carlton and SP3 Edward L. Robertson crew the two H-13's, SP3 Raymond E. Curtis crews the L-19, and PFC Michael A. Molina crews the L-20 aircraft.

ABOVE: Capt. Harold L. Baker, Det CO, Brazil Project, reports that the project's living conditions have improved now (Obviously!) and that they're on the coast of Recife.

HAITI

Lt. Ritts (*the "Cracker Kid"*) flies the L-19 assigned to the Haiti project. The L-19 is based in Port au Prince. He flew the ship there from the Canal Zone, via Colombia, Venezuela, Trinidad, and the Antilles Archipeligo which included lots of island hopping and several hours of overwater flying (escorted by L-23) in the 2,000 mile trip. He works closely with Capt. McKeown in the Dominican Republic, giving him cover and support when required. PFC Roy T. Fujihara crews the L-19 in Haiti.

DOMINICAN REPUBLIC

Capt. William L. McKeown flies an H-13 helicopter which is based in Cuidad Trujillo, the capital city of the Dominican Republic. He exercises supervision and responsibility for the Haiti-Dominican Republic detachments which share the 425 mile island. A very efficient coordinated system of reconnaissance and supply has been set up which materially aids both countries mapping efforts.. The weather is good and all are happy except Willie wishes he had a copter that could tackle the 10,000 central mountain chain. Crewing the project's H-13 is PFC Raymond R. Reagen.

VENEZUELA

937th aeraial support of the Venezuela project consists of an H-19 and an H-13 helicopter. Capt. Glynn M. Harris, Det. OIC and Lt. Lawrence C. Mattera crew the

H-19, while Lt. Frank Y. Rasa flies the H-13. The ships are based about 150 miles apart and 250 miles from Caracas, the capital city of Venezuela and project headquarters. Terrain varies and while there is some surprisingly flat and open country, the H-19 has been operating in hills 4,000 to 5,000 feet in its reconnaissance and support work. Prices are fantastically high in Venezuela with a can of Campbell's soup priced at fifty cents, American cigarettes at sixty cents a pack, and the cost of laundering a pair of khaki trousers and shirt is two dollars. So, needless to say, per diem is stretched. Crewing the aircraft on the project are: SP3 Stuart K. Packard and Pvt. Richard J. Sebacher on the H-19 and SP2 Roland W. Robbins on the H-13.

BRAZIL

Capt. Harold L. Baker is aviation Det. OIC in Brazil and the group is presently supporting survey work along the eastern coast of Brazil on an arc from Salvador to Natal and progressing northward. Field headquarters is in Recife and aircraft assigned at present are one L-19, one L-20, and one H-19 helicopter. The L-19 conducts reconnaissance and is piloted by Lt. Anthony J. Pietro, while Lt. Dalton J. Smith performs utility and resupply flights with the L-20. Lt. George L. Dowdy and Capt. Baker crew the H-19. Brazil's biggest problem is being at the bottom of the supply line—and then some. If they need parts in Brazil, they request them from the Canal Zone headquarters by TWX or letter. When Canal Zone supply ships the parts they have to go 7,000 miles back to the detachment; via Mobile, Puerto Rico, Rio de Janeiro, and Recife. Now, if the parts requested come directly from the States (Mobile), the mileage is only 5,500 miles. Oh well, let us say it's frustrating and we haven't even mentioned customs problems yet. The field party is 1,500 miles from the project headquarters at Rio de Janeiro (New York to Miami) which means Brazil is a big country, especially at 100 miles per hour. PFC Louis W. Kalberman and PFC John P. King crew the H-19, SP3 Revis A. Morton crews the L-20, and SP3 Martin Toole crews the L-19 aircraft on the Brazil project.

ECUADOR

The lone L-19 pilot in Ecuador is Lt. Thomas I. McMurray (*The "Beachcomber"*) and his crewchief PFC Richard Castillo. Project headquarters is located in Quito; however, the crew and airplane are PCS to Esmeraldas, a small banana port on the Pacific Coast. There are no roads at all in the region and this survey is the first. To those who have flown over this terrain, nothing further need be said other than, *gulp!* It is a truly inhospitable area with uncharted jungle running from the coast right up to the 22,000 foot Andes. The L-19 is used for reconnaissance, resupply, and surveillance for jungle crews. The L-19 is based on an airfield across the river from

Esmeraldas, hence Lt. McMurray must get one hour of dugout canoe time every day prior to getting into his airplane.

PERU

Capt. Henry P. Leighton, pilot, and PFC Edward E. Bussell, crewchief, with an L-20 aircraft recently received from the Antilles Air Section make up the Peru detachment. However, by the time this is published, Lt. Thomas L. Long and the Bolivia-based L-19 will be transferred and operating under Capt. Leighton on the Peru project. Lt. Long's crewchief for the L-19 will be Pvt. John W. Orth. The L-20 is based in Lima for Pacific coastal operations and Iquitos on the other side of the Andes, at the headwaters of the Amazon, for jungle operations. The country is large and flights are made from the Ecuador border to the borders of Chile and Bolivia. Peru is a member of ICAO and Peru Air regulations are similar to U. S. CAA regulations. Diplomatic clearances, passports, and visas are required, as in all other 937th international flights, for flights to and from Peru. A flight plan is required for *all* flights (How's your Spanish!) and must be filed by IAGS radio or through CORPAC (Peru ATC). Panagra is most cooperative for maintenance and communications. Capt. Leighton and family live in Lima and report it to be comfortable and cosmopolitan. When passing through, look up Hank.

BOLIVIA

Presently assigned to the Bolivia project is one L-19 aircraft with pilot, Lt. Thomas L. Long and his mechanic PFC Douglas D. Morrison. Bolivia is known for its poor weather, extremely rugged terrain (strips used vary from 1300 to 13,404 feet) and lack of radio navigational aids. The aircraft was formerly used for reconnaissance and general logistical support of triangulation parties located throughout the land bound country of Bolivia.

A recent flight of interest (22-26 Sep. 55) was made to La Paz (elevation is 13,404 feet) the capital of Bolivia and headquarters for the project. The city of La Paz boasts the highest commercial airport in the world. Our L-19 was equipped with a portable oxygen system consisting of two face masks and two low pressure demand type oxygen bottles. The purpose

(*Continued on Page* 32)

Informal, voluntary articles on current Army aviation happenings as they occur in the line outfits scattered throughout the world . . .

PRO'S SAY

►► ALL-WEATHER

HEIDELBERG, GERMANY—Just a short note to let all of our friends know that we at USAREUR Hq are still in business. We're actually short one pilot now that we have our new T/A approved. Once we get everything we are entitled to we will be a big outfit.

Our tower is just about completed and our approach controllers are getting real anxious to climb up there and go to work. With our Approach Control in operation, the HBG Radio Beacon, Rotating Beacon, High Intensity Runway Lights, Air Force weather detachment and full time crew, Heidelberg has graduated from a former L-4 type sod strip into a full fledged *All-Weather Army Air Field,* the only one in Europe.

We cordially invite all Army Aviators to drop in at any time. At Heidelberg all aircraft are met by the full time alert crew and there is never any question as to parking, service, snack bar, transportation and transient quarters.

We now have six green card pilots in the outfit with Capt. George Thayer being the latest addition to the inner sanctum. By the middle of this summer we will be short six twin-engine, instrument-qualified AAs so if you know anyone who meets the requirements, just drop a line to Maj. Norman W. Goodwin. YC, Capt. Fred McGowan. ◄◄

►► BEG, BORROW—NO STEAL

FORT BENNING, GA.—Since last writing to you, the 37th Med Det (Hcptr Amb) has suffered through some of the expected growing pains a newly activated unit necessarily experiences. On the other hand, little has taken place to bring on the welcome pains of establishing that portion of our unit which pertains to helicopters. To fly helicopters on a loan basis is still our lot, but not for long, we hope. If we cannot have our own, we will fly them any way we can.

To add insult to injury, rather than gain more EM to fill our T/O&E vacancies, we lost our company clerk (discharged), 1st Sergeant (withdrawn from DS), and supply sergeant (surplus in MOS). Lt. Deliere, as a result, wears the hats of CO, 1st Sgt. and company clerk.

Back in December, a little before Christmas, an incident occurred which gave some cause for a small degree of excitement. Lts. Deliere and MacLennan set out on a round robin cross country flight. Montgomery was the first gas stop from Benning. After gassing up, we started out in our H-23 for Birmingham. We flew for about 15 minutes when we noticed low oil pressure, high oil temperature, high cylinder head temperature, and smelled something burning. Our decision to land was the correct one because the transmission oil seal was *kaput* was well as the morflex coupling which put the fan out of commission. A call to Flight Service resulted in a tech rep and a maintenance officer from 3d Army Field Maintenance coming out to save us. A quicker temporary repair to the morflex coupling and a sump full of oil enabled us to head for home. We limped home in complete darkness, but safely. We are once again looking forward to another cross country flight.

On 15 Feb. '56, the 37th Med Det was transferred from the 54th Med Gp, Fort Benning to the Lawson Army Airfield Command, Fort Benning as were the other aviation units on the post. Enough said for now. YC, (Lt.) Robert J. MacLennan. ◄◄

►► SPOTLIGHT

SYRACUSE, N. Y.—Did you watch *"This Is Your Life"* on TV recently? The 40th Div. (Calif-NG) pilot who landed Governor Joe Foss of S. Dak. in front of the cameras was Capt. Flotron, a Korean combat AA. The helicopter used, I believe, was a Hiller. Flotron, judging from the braid, is probably aide to Governor Goodwin Knight of California. Sincerely, Dario Politella. ◄◄

PLAY IT SAFE

If you're on active duty and go TDY for a brief spell, what happens to *your* issues? Some are returned to us (Return Postage Guaranteed); many are not. Play it safe and have your issues sent to your home or quarters address.

Pro's Say

Active Service Aviation

►► GROWTH FACTOR

CHICAGO, ILL.—Fifth Army Aviation, based at Fort Riley, Kansas, is growing more wings.

The 52nd Transportation Battalion, which operates Army helicopters, was scheduled for transfer to Riley from Fort Bragg, North Carolina, in mid-March.

The 2nd Army Aviation Company was activated at Fort Riley on April 2, to operate a fleet of 21 of the new U-1 *"Otter* light aircraft, manufactured for the Army at the De Havilland aircraft plant in Toronto. Company strength will consist of 45 officers, a warrant officer and 61 enlisted personnel.

These new units will supplement Army aviation organizations already on the job at the Kansas post: the 71st Transportation Battalion which has command responsibility for the operation of both fixed-wing aircraft and helicopters; the 14th Army Aviation Company organized last fall; the 92nd Transportation Helicopter Company which operates a fleet of 21 H-21 assault helicopters; and the Army Aviation Unit Training Command, the parent training organization for the other units, commanded by Lt. Col. Gerald H. Shea. (PIO Release). ◄◄

►► AS IT WAS

WASHINGTON, D. C.—Lt. Henry H. Arnold, U.S.A., one of the veteran flyers of the Army Corps of Aviation, in the current issue of the *Infantry Journal,* the official publication of the U.S. Infantry Association, the organization of the infantry officers in the Regular Army, writes about *"Air Craft and War."* He deals exhaustively with the flying machines as an instrument of war.

Air craft in the opinion of Lt. Arnold may be employed in five ways for military purposes; namely, reconnaissance, warding off hostile air craft, messenger sevice, observing artillery fire, carrying supplies, and offensive operations. The Army aviator then discussed the merits and demerits of the various types of flying craft, after which he says:

The strain, mental and physical, on an aviator is so severe that even under the most favorable conditions, a pilot or an observer can scarcely make more than one long flight on any one day. By taking things easy and resting on their return from each flight, they may be able to make a number of short flights. but after one long flight of three or four hours is finished they will rarely be able to do any more work until the following day. *New York Times, September* 8, 1913.

(Ed. Note: This 46-year-old report by a respected Army aviator delineates the missions of the Army Corps of Aviation in an interesting manner.)

►► MIZDAKES!

FT. RUCKER, ALA.—I have just purchased a new Olympia (*German made*) typewriter. It writes in both UPPER and lower cases and in black and red print. In addition, it has a + and a = sigh. Besides that, it has the usual ½ and ¼ *plus* a ¾ key. Another handy item is a !, which is not a ' with a . under it. As a matter of fact, the only thing I really dislike about the machine is that it, like all other typewrters, still makes miz-Dakes.

With a new typewriter and my natural flair for boring people with my drivel, what could be more natural than my writing to you with a little *"poop"* that may or may not be of interest to the readers.

WE'RE STUCK . . .

for a caption, that is. Joe Gayhart submitted this dry run cartoon and would like to test your H.Q. . . . (Humor Quotient). Send in your cartoon caption on a postcard and we'll publish the best 5 next month; No. 1 gets a 2-year subscription gratis . . . Address: "Army Aviation," Westport, Conn.

TOP:—The Army H-23C, built by Hiller Helicopters, Palo Alto, Calif., is the latest model of the three-place H-23 series aircraft used in Army helicopter training and reconnaissance missions. Hiller Helicopters has just been awarded a contract totalling approximately $3,500,000 for aircraft of this type.

BOTTOM LEFT: The Model XRON-1 Rotorcycle—an ultra-small, one-man helicopter developed by the United States Navy—has completed its first flights successfully. Designed, manufactured and flown by the Gyrodyne Company of America, Inc., St. James, Long Island, New York, in less than one year, the tiny craft was recently put through its paces for observers from the Navy's Bureau of Aeronautics. Although still "under wraps" as far as performance is concerned, the midget 'copter, which weighs less than 500 lbs. fully loaded, with pilot, performed all basic helicopter maneuvers and cruised with great ease.

BOTTOM RIGHT: Mr. Stanley Hiller, Jr., President of Hiller Helicopters (left) being introduced as guest speaker at the 2nd meeting of the Fort Rucker, Ala. Section of the American Helicopter Society, by Col. Jules E. Gonseth, Jr., Assistant Commandant of the Army Aviation School at Fort Rucker. (US ARMY PHOTO)

Pro's Say

Active Service Aviation

My last correspondence originated at Fort Hood, Texas; this little manuscript comes to you from the Army Aviation School. For the past 7 weeks I have been attending the Instrument Course, ably headed by Captain *"Pappy"* Rogers. Since I passed my final Instrument Check ride two days ago, I now feel free to pass on to all Army Aviators a little information, possibly suspected but unpublished until now. It has not been without a great deal of work and research on my part that these facts can now be known. Many of these things will come as a great surprise to people already Instrument qualified as well as those of you that have not yet been fortunate enough to attend the school.

The greatest surprise will probably be the knowledge that all of the instruments used are controlled by either electricity, vacuum, or some pressure. I realize that this has been rumored before but I found that it is actually true. *Gremlins, Snarks, Spooks, etc.* are not responsible for the operation. However difficult for you to believe this statement, it remains a fact.

Other more specific items include the following: The ball (*of the famous needle and ball combination*) is *not* a Mexican jumping bean. The directional gyro does *not* normally operate 80 degrees out of phase with the magnetic compass. The Omni course selector knob is *not* connected to the rudders and ailerons (*this popular belief is actually caused by inadvertent pressures of the body upon the control column*). There are *no* magnets in the Rate of Climb indicator. A smooth functioning Artificial Horizon will indicate level flight (*despite the feeling in the seat of one's drawers*). The needle on the Altimeter will move if you descend or climb.

There! Are you surprised? I thought you would be! Interesting how we could misunderstand something as simple as instrument flying, isn't it? There is just one other point that I would like to emphasize — *Believe your instruments at all times!* Let us just say for example that you break through the lowest cloud layer into the clear and note that a nearby water tower appears to be standing *upside down* beside a barn and a group of people that are *also* upside down. Your instruments all indicate that you are right side up. What would you do? (A) Turn the aircraft over, or (B) Assume that the buildings and the people are just "Unusual". Obviously, the answer is (B). (*In this particular case, however, I would suggest an investigation into the matter — right after the Accident Board convenes.*)

VTY, (Lt.) Bob Koepp.

►► EXPERIMENTAL

FT. LEONARD WOOD, MO. — Being blessed with *twenty-one* of that species of homo sapiens known as Army aviators, we found that we continually had an acute shortage of aircraft (3 L-9s, 3 H-23s, and a *Beaver*). So—we've set up a system of five flights under five department heads: Operations, Supply, Maintenance, Training, and Air Installations.

This "Flights" system is designed to make certain that all 6th Armd. Div. pilots get maximum utilization out of the aircraft and to assure an even distribution of the flying time. Each flight leader is responsible for seeing that *all* of the pilots at Wood get their share of flying time, achieve their annual minimums, and attend all of the classes conducted by the Training Department.

The Training Dept. is running a program for both officers and EM that includes everything from instrument flying to tech orders. They even included a 20-hour review for the Annual Written. They also schedule safety lectures every 2 weeks.

Among our AA personnel here are Maj. William C. Tyrrell (AO), and Lts. Jack W. Branning, Allen T. Carey, Richard E. Hanson, Charles E. Nickolls, and Dean R. Paquette. PIO, 6th Armd. Div. ◄◄

►► FAIR SHAKE

FT. MONMOUTH, N. J. — It's been a long time since an article from this section has appeared in *"AA."* Our own fault, we realize. Our Aviation Section is continually growing and improving. Ten of the aircraft asgd are designated as experimental and they are continually being modified to accept all sizes and shapes of electronic equipment.

The only consolation for all of these drilled holes and patches is that a good part of the equipment is used for air navigation and IFR flying. Another project being tested by the Signal Labs are the two GCA units on the field which were developed for and are being tested by the Army.

Among our personnel at the Army Aviation Section are Maj. J. T. Lala (AO); Maj. R. N. Dragoo; Capts F. J. Winslow, E. V. Norris, J.E. Manthei, and D.F. Wainer; and Lts. J. K. Andrews, A. J. Dornseif, D. S. Knauss, G. S. Lapinskes, E. D. Richards, G. J. Torpey, and R. J. Turner. Lts. Forrester and Darrah are here with the 585th Sig. Sup. Co.

Other pilots, on post but not asgd this section, are Maj. T.B. Richey, Mil Proj Off for SigC Eng. Labs, with Capt. J.E. Paquin and Lt. R.H. Jacquot as his assistants. Capt.

100% UNIT—4TH Armd Div Avn, Co Ft Hood Tex. *Back Row* (Standing): Capt. Breckons and Capt. Moortel; Lts. Schuster, Hierholzer, McNeese, Lee, Stephens, Brown, Hubbard, and Sanders. *Third Row* (Standing): Lts. Zesch, Phillips, Rawlings, Glover, Holloway, Mooney, Hurlburt, Akin, and Woodbeck. *Second Row* (Kneeling): Capt. Roehl and Ewing; Lts. Woodbridge, Starkey, Anderson, Banks, McDoniel, and Seliskar. *First Row* (Kneeling): Lt. Davis; Capt. Westphal; Lt. Brown; Capts. Crofoot and Bockbrader (CO); Lt. Jones, Capt. Burrus and Faucheax; and Lt. Clark.

100% UNIT—TRADCOM Aviation Division, Ft. Eustis, Va. (L. to R.) 1st Row: Capt. S. A. Sundby; Maj. H. P. Crane; Lt. Col. D. Bisset; Majs. T. E. Hall and S. C. Lenic. 2nd Row: Capts. P. E. Thornton, P. G. East, and R. A. Filby; WO G. E. Spaulding; Lt. R. C. Kennedy. 3rd Row: Capt. H. W Huntzinger; WO W. B. Feuerstein; Capt. R. C. Stem; WO L. E. Schmitz; Capt. A. J. Wolfe.

R.E. Hill serves as Liaison Officer for the Signal School.

Our aircraft total 17 in number and include an L-23, two *Beavers*, nine L-19s, an L-17 that is being modified as a drone, two H-19s, an H-13, and Link trainer. If you add those up you'll find we *include* the Link. We fly it enough to consider it an aircraft. *Spring! Where art thou?* YC, (Lt.) Sumner C. Burns. ◄◄

◄◄ TECHNICAL HELP

FORT RUCKER, ALA.—The Army Aviation School Library is the library of Army aviation. In the short period of its operation it has established itself locally as the arsenal of bibliographic services and resources serving the several requirements of the Army Aviation Center and the educational, doctrinal and research programs of the Army Aviation School. Its wider scope reaches out to the needs of the DA Division of Aviation, CONARC Test Board No. 6, and other Army oriented offices, as required. The Library serves Army aviators wherever located—in residence at Fort Rucker as staff, student, or faculty, and afield and abroad.

The Librarian, Dr. William A. Kozumplik, reports to the Assistant Commandant and to the Secretary for staff assistance. Resources are currently light as to quantity, there being little more than 5000 items on hand; but they are loaded as to quality. The deepest concentration lies in report-type literature and primary research reports; this is supported by pertinent publications of the Army, Navy, AF, and other government agencies and by the product of the commercial presses. Security documents form a separate collection that is growing rapidly and offers effective support to staff and faculty who are generating doctrinal and tactical employment concepts. Primary fields of interest are covered on a current basis by the several hundred journals received.

The collections cover all fields of knowledge, with emphasis on military aviation, aeronautics, military science, and educational methods. In this way the professional soldier has at hand the bibliographic resources to advance his education, interests, and hobbies; to prepare for more effective participation in community programs; and to deepen his military specialization.

This is the professional military library of the Army aviator wherever he may be. However distant he should feel free to call on it for services and resource assistance. *YC*, Maj. Dan A. McCartney. ◄◄

NOTAM—Beginning with the May issue, ARMY AVIATION will be published on the 15th-18th of the month. To have copy appear in subsequent issues, be certain to mail it on or about the 1st of the month.

HAVE YOU A NOMINEE?

Crew Chief of the Month

Specialist 2/c HIRO H. TSUKIMURA of the 580th Helicopter Company, Fort Bragg, N.C. has been selected as *"Crew-Chief of the Month"* for the month of March. Known in the Company as "Suky", he is responsible for the maintenance of a Piasecki H-21, the largest helicopter used by the Army.

Sp-2 Tsukimura's Section Chief says, *"Suky can always be relied upon when an extra hand is needed, whether the job is tying the helicopters down in a high wind storm, or going on long flights where a mechanic is needed."*

A native of Fowler, California, Sp-2 Tsukimura enlisted in the Army in July 1953 and attended the Army Aviation Maintenance School at Fort Sill, Oklahoma, prior to his assignment at Fort Bragg. He has participated in several maneuvers, including *"Exercise Follow Me"* and the recent *"Exercise Sagebrush."*

When Sp-2 Tsukimura returns to civilian life this summer to continue his schooling, he will leave behind a record that is a credit to Army aviation. WO Donald R. Joyce, 580th Helicopter Co.

CLANK STORIES

Here's an *"I Didn't Learn Anything About Flying From That"* tale from the WWII memories kit of Capt. Johnnie Kerns of Richland, Wash. Like a lot of other WW II Grasshopper pilots, Kerns had his try at bombing the enemy with grenades.

With T/3 Kennis Allen, his crew chief, serving as bombardier, Kerns was scouring the Maffin Bay area of Dutch New Guinea one day, armed with fragmentation hand grenades with the so-called *"5-second fuse."*

The aviators spotted a small Japanese patrol which, as the Japs usually did, froze in its tracks at the sight of their L-4. The firmly incorporated Kerns and Allen made a pass at the Japs. Allen let go a grenade which exploded too high in the air to be effective. The patrol dropped to the ground and crawled for the gopher holes.

Kerns instructed his bombardier that when the next and lower pass was made at the enemy, Allen was to pull the pin, hold the grenade out the window, and release it on command. When the pilot banked around to get back on the bomb-run, he heard a flat *"pop"*, an unprintable exclamation from Allen, and a wild flurry of action in the rear seat.

He looked back to see *"Old Kennesaw"* frantically clawing under the seat for the grenade. Like a hot potato drawn from a campfire, the grenade was flipped through the open door of the Cub. Almost immediately, Kern heard the explosion below the plane.

Kerns and Allen nearly parted company over that 5-second grenade. Did he learn anything about flying from that? Hell no, Kerns says. Allen had to do the patchwork on the belly of the L-4. And Kerns was only twenty-three! —*Dario Politella*

PERMANENT CHANGES OF ADDRESS

Archer, Waite H., Lt. ..... **Post Aviation Section, TAC, Fort Knox, Kentucky**
Ashworth, J. Edward, Mr. ..... **375 West 1st Street, Dayton 2, Ohio (By PO)**
Battey, Edward III, Lt. ..... **Hq & Hq Company, 508th ARCT, APO 51, SF, Calif.**
Baugh, Russell E., Capt. ..... **Hq Co, 9th Inf Div Air Sec, APO 111, N.Y., N.Y.**
Benton, L. C., Capt. ..... **Hq, 1st Corps Artillery, APO 358, SF, California**
Bergeron, Leo E., Capt. ..... **Army Section MAAG, APO 63, SF, California**
Bollin, Jack F., Sgt. ..... **90th Replacement Battalion, Ft Lewis, Washington**
Booth, Maynard B., Lt. Col. ..... **Army Section MAAG, APO 500, SF, California**
Bowden, Walter D., Lt. Col. ..... **71st Trans Battalion (Hcptr), Ft Riley, Kansas**
Brabson, William H., Jr., Maj. ..... **2311 Surrey Lane, Falls Church, Virginia**
Broadhurst, Edward C., Maj. ..... **Hq, 8th Trans Bn (Hcptr), APO 108, NY, NY**
Carter, William C., Lt. ..... **94 Mathews Drive, Columbus, Georgia**
Covin, John O., Lt. ..... **3rd Combat Aviation Company, Fort Benning, Georgia**
DeBoer, Henry W., Jr., Capt. ..... **4419 C Washington S.E., Charleston, West Virginia**
Franciscovich, Gerald F., Lt. ..... **6805 S. E. Clinton, Portland 6, Oregon**
Guisto, Anthony S., SFC. ..... **9224th TU TC Training Command, Fort Eustis, Va.**
Guisto, Anthony J., SFC. ..... **9224th TU TC Training Command, Fort Eustism Va.**
Harris, Louis C., Capt. ..... **Det G, KMAG, 8202 AU, APO 102, SF, California**
Hickman, Wallace L., Lt. ..... **IAGS, c/o US Embassy, Ciudad Trujillo, Dom. Repub.**
Jarvis, Jack O., Mr. ..... **302 West High Street, Lima, Ohio**
Jarvis, Ronald, Lt. ..... **143rd Armored Signal Company, Fort Knox, Kentucky**
Jaubert, G. Wilfred, Maj. ..... **PO Box 748, Spence AB, Moultrie, Georgia**
Jones, Charles W., Capt. ..... **302 N. Iriquois, Dothan, Alabama (By PO)**
Kallsen, Keith C., Mr. ..... **Cottonwood, Star Route, Arizona**
Lefever, Charles W., Lt. Col. ..... **26702 Westvale Road, Rolling Hills, California**
Luttinger, William W., Capt. ..... **Box 1492, Hq AMC, Wright-Patterson AFB, Ohio**
Mangle, Donald L., Mr. ..... **121 Third Street, West Fairview, Pennsylvania**
Montgomery, Homer T., Maj. ..... **V Corps Aviation Section, APO 79, N.Y., N.Y.**
Moore, Theo., Capt. ..... **7th Engr Bn, 5th Inf Div, Fort Ord, California**
Morrow, Thomas O., Lt. Col. ..... **3461st SU, ARMAV, Fort Rucker, Alabama**
Mosley, Douglas, Capt. ..... **Hq Co, VII Corps, Avn Sect, APO 107, N.Y., N.Y.**
Mullis, Ray E., SP-2 ..... **424 Wesley Place Greensboro, North Carolina**
Murphy, Allen P., Capt. ..... **Board Nr 6, CONARC, Fort Rucker, Alabama**
Nichols, Hershel R., Capt. ..... **2026 2nd North, Irondale, Alabama**
Noville, G. O. & Assoc., Inc. ..... **1666 Ninth Street, Santa Monica, California**
Passarelli, Eugene, Capt. ..... **7822d Army Unit, APO 173, New York, N. Y.**
Patton, Karl S., Maj. ..... **Det D, KMAG, APO 102, San Francisco, California**
Priem, Charles M., Lt. ..... **9223d TU Trans Arctic Gp, APO 23, New York, N.Y.**
Schirmacher, Theo. F., Lt. Col. ..... **Hq, 8th Trans Bn (Hcptr), APO 108, NY, NY**
Turner, Richard E., Lt. ..... **11th Armd Cav Regt, Fort Knox, Kentucky**
Waldron, Garald L., Lt. ..... **7290 GU, Adv Gp (101st Abn Div), Ft Campbell, Ky.**
Walker, Paul S., Lt. ..... **93rd Transportation Co (Hcptr), Fort Riley, Kansas**

***By PO: PO notice, unconfirmed as yet by individual.**

ACCIDENT REVIEW

At 1518 hours, 14 February 1956, a U1A Otter, serial number 553252, took off from Downsview Airport, Toronto, on an authorized training flight. Mr. William A. Ferderber, a De Havilland Aircraft of Canada employee, was instructor pilot with Major Aaron G. Atkisson, Capt. Louis E. Durand and Capt. James P. Dowling, all U. S. Army officers, as student pilots. The aircraft crashed and burned at approximately 1543 hours, about 1½ miles northwest of Downsview Airport, fatally injuring all aboard. The main wreckage of the aircraft came to rest upside down, the nose pointing generally southwest. Parts of the aircraft were scattered in a northeasterly direction, which was the general direction of the wind at the time of the accident, in a general area approximately 5800 feet long and 300 feet wide. All portions of the aircraft except a small area of the upper camber of the wing were recovered.

From the information received from initial witnesses available to investigators and from a study of the debris pattern, there appeared to be four possibilities to be investigated. These were: a. Collision with another aircraft in flight, b. In-flight collision with some object, c. Loss of control, and d. Interception of the wake of a CF 100 aircraft known to have been in the vicinity at the approximate time of the accident.

Physical inspection of the CF 100 and two other Otters flying in the vicinity at the time of the accident revealed no indication of a collision with these aircraft. No report of another aircraft crashing or colliding was confirmed. No damage sustained by the Otter indicated that it had been inflicted by another airplane. Collision does not seem to be a factor.

By studying the Debris Pattern, and by subsequent study of the reassembled aircraft, the sequence of the airborne disintegration was determined and all damage accounted for.

The left hand forward door, adjacent to the pilot, was not found immediately. The possibility existed that this door had come off or had been jettisoned, subsequently striking the empennage and thus causing loss of control. This possibility was investigated until the steel door handle was found in the main wreckage, the balance of the door apparently having been consumed by fire. No other evidence of collision with an object was found. Detailed examination of the reassembled wreckage resulted in the determination of the disintegration sequence. This sequence was as follows:

Entire wing span was subjected to a negative lift load resulting in bowing and incipient failure of the left wing at a station inboard of the lift strut and outboard of the wing root. The same negative lift force resulted in complete failure of the right wing at approximately the same station. The wing pitched forward and down, rolling the leading edge into the lift strut which remained intact and attached to the main air frame at this time. Subsequently, the wing, attached to the lift strut, passed under the fuselage impinging on the bottom of the fuselage and striking the left side of the cabin,in the vicinity of the cargo door. About this time the lift strut failed in three places as a result of repeated flexing. The free wing with a portion of the lift strut attached, passed up through the left tail plane cutting the spare of the tail plane, came to rest for a moment on the forward part of the vertical stabilizer and tore the entire empennage free from the fuselage. The wing then parted from the empennage and left a portion of the aileron jammed between the rudder horn and the stabilizer. The left tail plane, with the spar now cut, failed upward, impinged on the damaged vertical stabilizer and fell free. This sequence accounts for all airborne damage found on the aircraft.

Investigation was now confined to determining what had caused the excessive negative load on the wing. Two possibilities presented themselves as set out above. Loss of control resulting in the aircraft becoming inverted, or intercepting the wake of the CF 100, or a combination of these.

Since there is some difference in control and behavior characteristics with flaps up and with flaps down, and with varying trim settings, investigation was made as to the position of flaps and trim at the time of the accident. This study disclosed that the flaps were probably up and the airplane in a cruising atitude.

Considering all of these studies, the fact that the instructor pilot was very experienced, and that the student receiving the instruction was considered an experienced pilot and had approximately 17 hours in this type of aircraft, indications are that loss of control did not occur prior to failure of the wing. This was substantiated on 22 February when a witness stated that the aircraft was in a normal attitude when the wing failed.

The only remaining possibility, interception of the wake of CF 100, was then pursued. The study of this possibility revealed that circumstances were such that the Otter could have intercepted the wake, and had it down so the negative gust loads would have exceeded design strength. Although it can not be definitely stated that this was the cause of the accident, it is the only plausible possibility coming to the attention of the investigating board.

From the standpoint of survival, it was found that any of the occupants who were alive at impact would have been killed by impact forces. There were no survivors at at the time of the fire. It is quite possible that there were persons alive in the air-

(Continued on Back Cover)

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.

(Dear Editor): I have followed with interest the articles appearing under the title, *"A Many Sided Thing,"* and after due consideration I would like to say that the most pressing need in Army aviation—in my mind—is to rid our ranks of the detrimental *four-hour-a-month pilots.*

In mentioning *four-hour pilots* I do *not* include or refer to pilots now engaged in staff duties or special assignments for I have little knowledge of their problems or immediate duties. Instead, I refer specifically to the pilots of the small air sections, those with a total of less than 12 pilots and those whose immediate concern is the *support* of ground units.

Large responsibility rests with these pilots for it is the smaller air sections that must in the end prove that they are dependable as well as capable of performing their present mission. Pilots of these sections should remember that Army aviation as a whole will be judged by their actions, attitudes, and appearance.

In recent months I have noted an increasing number of *four-hour pilots.* I have found that these pilots usually fall into one of three categories:

The indolent type: This fellow is usually a well fed, surly, phlegmatic person who considers himself an authority on Army aviation. He doesn't really *need* four hours a month, for he *knows* all about everything. He never makes mistakes while flying *because* he doesn't fly. Nevertheless, this pilot is quick to make disparaging remarks about the flying skill of others instead of giving helpful advice.

Can one say that anyone of such character really wishes to advance the efficiency of his unit? On sunny days, he has been known to stretch himself and announce that he will be flying in the local area and "please call via the air-ground radio if I am needed." Who the h--l needs him? Certainly not Army aviation!

The second of the *four-hour pilots* is the *energetic type*: He is thin, nervous, apprehensive, and always on the move. He seldom knows what he will do next, but always is doing something. He is overburdened with responsibility, and feels certain that without him the air section's efficiency would drop one-hundred percent.

He may be seen (sometime he is heard before he is seen) bursting through a door for a quick tour of the gasoline dump. Two minutes later, he is back inside calling someone on the phone. Five minutes later, he spot-checks certain records, shouts some instructions, and is away through another door. You may be sure that when this pilot flies it is an *important* mission.

The third type is overly *safety conscious.* This *four-hour pilot* may be short or tall, overweight or thin, lazy or energetic, but he is overly safety conscious. No one is going to order him into the air when he knows that unsafe conditions may exist. This pilot possesses an agile mind and can think of more excuses *not* to fly a mission in five minutes than the ordinary aviator can think of in two days. Usually he is not a combat veteran. Almost everyone in Army aviation is quite safety conscious, which is well and good, but some tend to use it as an excuse to shirk their duty.

Army aviation does not need pilots with these traits. Ground commanders tend to lose faith and respect for *all* pilots after an encounter with one or several of the types mentioned. We can help Army aviation by ridding our sections of these personnel.

We should ground them and give them work in which their interest is aroused.

For incentive, remember the amount of money that we may save by doing this. Think of the enormous amount of money spent in keeping these pilots on flight status. Then visualize if you will, the stock of radios, aircraft, and related equipment it represents. I strongly suggest that we do away with these detrimental dodos on flight pay. Return these flight pay frauds to ground duty and our problem of branch qualification will be partially solved; at least, they will help to fulfill the demand for officers in army ground units. *—An Army Aviator*

(Dear Editor:) I keep my ear pretty close to the ground and I have a fairly sensitive assignment that brings most projects to my attention, but I cannot say that I fathom this "IT" business. Are you sure you're not being led astray? *A Staffer.*

(Dear Editor:) We give up! Is IT animal, vegetable, or mineral? I've never read such diverse comments. *Thoroughly Confused.*

(Dear Editor:) I wondered what happened to IT. We were following ITs progress and are happy IT is being reviewed again. When do we peons pass on IT? *Joe Peon, Rucker.*

(Dear Editor:) We don't want a *Special Issue.* We just want a crack at IT. When do we get a copy? *The Boys at Knox.*

A Many Sided Thing!

Letters to the Editor

(Dear Editor:) I've just come across the fourth article in a magazine and service paper showing photos of the H-34 lifting the 105 mm. howitzer and claiming this as the *first* time a 105 has been lifted by a chopper. Our unit pride insists that a correction be made. The Piasecki H-21 lifted a 105 *over a year ago.* For verification, write Peg Coale, editor of Piasecki's *Tandemeer,* and she'll forward photographic proof. The Feb. issue of the *Digest* captioned the photo correctly: "The first time a 105 has been lifted, intact and ready to fire, by a *single-rotored* helicopter." Please correct this injustice to us H-21 jockeys. —*A Fort Bragger.*

(Dear Editor): I ain't interested in your picture, dartboard or no dartboard. I want to see what *The Publisher* looks like.—*Out of Contact.*

(Dear Editor:) I regret that my news reporting from my unit has been nil, but I am one of thhse AAs who have assumed a ground job (Company Commander). Someone is still going to have to show me how to do a ground job *completely* unrelated to flying and still remain *fully* proficient. I maintain that it's impossible to keep an instrument card plus the balance of safe flying proficiency and still perform an effective ground job as a *primary* duty. Time will tell!

I could write you a wonderful discourse on the problem of ground duties combined with flying duties, but I wonder if it would be worth the effort? It seems the AAs argument falls on deaf ears. D/A has ideas that *every* AA is a potential Army Commander.

I wonder if they ever checked on the number of 20-year Reservists who rose to this position; most would be very lucky if they made light colonel (and even Major at the present promotion rate) prior to retirement.

I think they'll receive more value for the dollars spent on us USARs if they concentrate on letting us do what we are *trained* for—the RAs have 30 or more before they go to pasture. (Better not print the above or I'll be back selling insurance before my category is up). Regardless, Army aviation is still the best career in the Army to me. —*Two-Headed.*

(Dear Editor:) I read the advertising copy in last month's Hiller ad and was quite surprised to learn that *Army funds* financed the *Flying Platform* project. Despite the fact that the photo now shows a U.S. Army on the *Platform,* the more I thought about it, the more upset I became.

I distinctly remember what happened when the news of this development first broke. Many of the AAs in my unit discussed the *Platform* pro and con and I will frankly admit that many of us took the Army top echelon brass to task. The general thought was: The Navy's on the ball and they're not afraid to gamble on or finance new concepts, i. e., the *Platform, VTO,* etc. We must have dodos in R & D. Within the week the *Platform* was in everyone's conversation. It was featured in a lengthy *Colliers* article and *Colliers* gave it the front cover treatment. Since then, it has been pictured in *Click, Snip, Snap, Vogue,* and *Vague* with its prominent ONR label.

Now I read . . . *"Although the Office of Naval Research was the developmental agency . . . Army funds were used for the project, and further development will be accelerated by Army requirements."*

Why wasn't *U.S. Army* painted on it to begin with? We financed it and we'll no doubt use the greatest number of them.

Is it that we need an *Office of Army Research?* An *OAR?* I thought we had R & D. I'm not blaiming the manufacturer in the least. He has to take orders, too... But why did we miss the boat?

Army aviation needs to be publicized; it needs the acceptance of John Q. Public. Moreover, it must consistently interest young men in pilot and maintenance careers to sustain itself and the revolutionary *Platform* may have captured their imagination and dispelled the thought that most Army people do little but sit on their trousers.

The odd part of this deal is that some time ago Gen. Ridgway embarked upon a program of re-labelling all Army equipment. Branch labels were painted over and everything read: *U. S. Army.* How did the *Platform* escape?

I chafe—and I think you will chafe—when you consider this thought: How many other revolutionary projects are now in the mill that are financed by Army funds and will eventually be publicized to the high heavens with ONR and Air Force labels.

Sure—we all serve the same country. Why the palaver? Well, Buick executives serve their parent organization. General Motors, and I firmly believe these Buick executives would drop dead if one of the futuristic jobs developed and built with Buick research and prototype funds were lifted by the Oldsmobile Division and given national press, magazine, newsreel, and TV coverage with *Oldsmobile* markings. I'd like to see this letter answered in this column.—*Confused*

(*Continued on Page* 32)

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Thompson, Robert C., Jr.

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Vann, David M.

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King, Robert T.
Glasgon, Lowe
Simpson, Lowell M.
Erwin, Tommy

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MacDonald, James

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Crisp, Jerry
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A Many Sided Thing!

Letters to the Editor

(Dear Editor:) I read about the 100% Pregnant Unit in the recent March issue and readily admit that they will remain a unique AA outfit. We've got 86 pilots in the 30th Topo and I don't think a *maximum effort* on our part will be gladly received by local medical authorities. We've got *esprit* to top any unit but I'm afraid that we can't contest 'em in this respect. As an afterthought, since the *Four Fathers* have generously offered to send free bottled samples of the air and water to AAs everywhere, why not cook up a deal with them and offer the samples as the *fourth* prize in your new subscription contest?—*Father of Two.*

(*Ed. Note: The Pure Food and Drug Act is specifically worded and says,—Nix. If the Four Fathers peddle their panacea, their next unit story will be captioned:* 100% *Bootleggers.*)

(Dear Editor:) Until I read *Army Aviation,* I didn't realize that Army personnel played an active part in the Auca massacre in Ecuador. *Life* painted it as a pure Air Force deal. Thanks for letting us know. —*J. C. Benning.*

(Dear Editor:) The report from the Holloman AFB Aviation Section states that good weather prevails in that part of New Mexico and they generally have 360 good flying days per year. This makes one pause and reflect, doesn't it?—*A Wetback from You Know Where.*

(Dear Editor:) It IT can be mass-produced, Vertol's research and production facilities are at your disposal.—*Frank K. MacMahon, Military Liaison Administrator, Vertol Aircraft Corporation, Morton, Pa.*

(Dear Editor:) How come CONARC Board Nr 6 hasn't received IT?—*Capt. Richard Johnson.*

NOTAM—Beginning with the May issue, ARMY AVIATION will be published on the 15th-18th of the month. To have copy appear in subsequent issues, be certain to mail it on or about the 1st of the month.

ACES CLUB

TOP FIVE

1	WOJG Clarence M. Hulett, Ft. Eustis	249
2	Capt. Robert J. Lessard, Ft. Riley	130
3	Mr. Jackson E. Beighle, Sikorsky	72
4	Maj. Lloyd O. Borgen, 7th Army	68
4	Capt. Max E. Young, 9th Inf Div	60
5	Lt Col. Harry T. Shiveley, 3d Inf Div	53

◄◄ INTER AMERICANOS (Cont.)

of the flight was to test the ability of a stock L-19A to operate saftely at altitudes of 13,000 feet as required for our low level reconnaissance work. The tests proved unsuccessful as the full throttle indicated airspeed obtained was only 70 MPH and the well-known stall occurs at 60 MPH IAS. Also, ground control on take-offs runs, varying from 6/10 to 12/10 miles (downhill and downwind) was extremely marginal. The flight to and from La Paz (altitudes flown up to 17,000 feet) was completed with "no sweat". However, the proximity of the ground and adverse mountain thermals at 13,000 feet proved too much for our gasping L-19 and its crew. The aircraft has been in the country for 24 months and has almost accomplished all available missions.

Well readers, there you have our rundown. Touched on briefly or not at all were the common lack of navigational aids (or Spanish speaking facilities only), lack of charts (what are we here for?), E-X-T-E-N-D-E-D supply lines, primitive maintenance facilities, and the ever-present danger of disease and sickness. On the credit side of the ledger are lots of interesting flying over beautiful country seldom seen by other folk, a chance to learn Spanish (or starve), and the realization that you are doing a job that will enlighten conditions for our Latin American neighbors. The Army Aviator is well represented and thoroughly respected in Central and South America.

We of the Inter American Geodetic Survey are proud to have a part in making Army aviation a working proposition and a mission that no other service is trained for, equipped for, or can perform at this time. *Hasta Luego,* Capt. John Bergner. ◄◄

The Question:

As a pilot gets older in experience, do you find that he generally flies at higher altitudes?

Next:

Alone and over water in an L-19 with a dead engine and no shore within reach, would you bail out or ride the ship down?

JAMES E. BENTLEY

1st Lieutenant
1st Infantry Division
Fort Riley, Kansas

"No, I believe that all things taken into account—such as terrain, winds aloft, etc.—that as a pilot gets older in experience he becomes more familiar with emergency procedures and needs less altitude to put them into effect. He also becomes more familiar with the terrain and finds it easier to fly in marginal weather if he become accustomed to flying at the lower altitudes."

L. WAYNE BEST

Major
Army Avn Unit Trng Comd
Fort Sill, Oklahoma

"True . . . The flying period between 250 and 500 hours is the most dangerous. During this period the pilot evolves from the rudimentary stage to a more experienced and dependable pilot. A few near acidents at low altitudes, acquisition of an instrument certificate, transition into heavier aircraft, and experience all teach that altitude on *top of the wings* never does a pilot any good."

WAYNE E. DOWNING

Colonel
30th Engineer Group
Presidio of San Francisco, California

"Those who flew combat in Korea certainly flew higher than they did in World War II. It was necessary in order to see over the ridge (that was always) ahead. Also, those ridges eventually had Communist ack-ack on them. Other than in combat, I haven't noticed any such trend. New pilots who can't resist flying low don't last long enough to get either older or more experienced."

JOHN L. ROWAN

Lieutenant Colonel
Army Aviation Directorate
DCS Operations, DA
Washington 25, D.C.

"I believe that a pilot indulges less in casual low flying as he gains experience and I think that's what is asked for here. As one gets older, the thrill of flying between close-set trees becomes tempered by the thought that telephone wires may be strung between them. I'm a firm believer in the old saying that there are no old, bold pilots."

ROBERT E. BRIZEE

Captain
Army Elec Prvg Ground
Fort, Huachuca, Arizona

"Several of us were just discussing this very thing not so long ago. I must confess that I, and my contemporaries, do exactly that . . . We do fly higher than we all once did . . . I don't believe I am any more fearful than I was (as a fairly new pilot), but I do know that I don't look at that possible night parachute jump as I did years ago."

DONALD H. BISHOP, JR.

WO-W1
509th Trans Co (Hcptr)
Fort Belvoir, Virginia

"I have found, in my limited experience, that a cautious student is a cautious pilot. It's my opinion that being over-cautious is in a man's makeup and is not modified by experience, but by age. Likewise, a foolhardy pilot remains a foolhardy pilot if he remains at all. Of course, this is a general rule, and, as to all rules, there are exceptions."

ERNEST L. HAMILTON

Lieutenant Colonel
Hq, Board Nr 6
Fort Rucker, Alabama

"The altitude of the aircraft on past, present, as well as future flights will continue to be governed by the characteristics and capabilities of the aircraft being utilized, mission to be flown, terrain to be flown over, weather conditions, density of air traffic, and applicable air regulations. Now—if it's "buzzing" you're interested in. I'd say: "Young or old, it's strictly for the birds."

JAMES A. MURPHY

Major
94th Inf Div (USAR)
Boston, Massachusetts

"By no means! Since I take an inference of *more cautious* from the question, then to that a lusty yea. Experience in the third dimension begets an ever-growing and healthy respect for altitudes and attitudes—mental and structural. A full flap stall five feet over the ground is as impressive as a frosty dying engine at 8,000 feet while playing just over the cloud base."

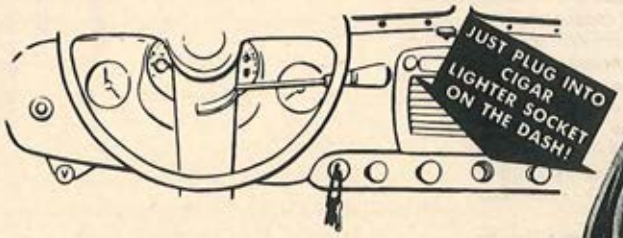
◄◄ NEW CONTRACT

PALO ALTO, CALIF.—Hiller Helicopters was awarded a contract totalling approximately $3,500,000 by the Department of Defense for an undisclosed number of Army H-23C helicopters, it has been announced by Stanley Hiller, Jr., President of the Palo Alto, California firm.

With the award of this contract, Hiller's backlog of unfilled orders to the government now totals approximately $12,000,000, and carries production through late fall of 1957 with current schedules.

The new contract, placed through the Navy's Bureau of Aeronautics, is for the company's latest three-place production model, which is to be used by the Army in helicopter training and reconnaissance missions. Previous production model H-23Bs, delivered in quantity over the past few years, are currently used by Army and National Guard units throughout the U. S. (Hiller Release). ◄◄

JOIN OUR NEW SUBSCRIPTION CONTEST



We'd like to pay off—You almost doubled the circulation in '55 with little reward and we would like to start bringing you the dividends. Here are the prizes:

FIRST PRIZE

Total Subscriptions*—A *$25.00 U.S. Government Savings Bond

SECOND PRIZE

Total Subscriptions*—A genuine leather traveling kit, complete with all of the accessories ($16.95 value).

MINIMUM PRIZE

An all-chrome, GE sealed beam Jomalite to each contestant who reaches the twelve subscription mark, our low minimum. This utility light plugs into the cigar lighter outlet in your car, boat, or plane and needs no installation. Its 40,000 CP beam of concentrated light gives you light where you want it. Fishtail handle. 12½ foot electric cord so that you can reach any part of your car. Available in 6 or 12 volt models. Shipped postpaid to you. ($9.95 value).

No plastics—No fragile parts—Lasts a lifetime!

*Sorry, but renewals of existing or expired subscriptions do not count in this Contest.—We just want new blood!

THE JOMALITE IS YOURS FOR JUST 12 NEW CLOBBERS

FEB. 1ST thru AUG. 1ST

ARMY AVIATION MAGAZINE, WESTPORT, CONN.

Accident Review (Cont. from P. 28)

plane during descent, for it was determined that the engine was idling during descent to the impact. At least one person in the pilot's compartment and one person in the aft compartment had safety belts fastened. No parachutes were aboard the aircraft; it was not possible to determine whether or not the occupants could have survived had parachutes been worn.

(Ed. Taking part in the accident investigation were observers from the Flight Safety Foundation. This Foundation has extensive historical data on similar accidents . . . The Army and the Air Force will cooperate in a joint user-test in which light aircraft will be flown into the wake of heavy aircraft. Through wing instrumentation and accelerometers which will record + or — G-forces, important data is expected to be obtained. The light aircraft are expected to enter the wake with a 6-minute lapse and this lapse will be gradually reduced under controlled safety conditions.)

PLAY IT SAFE

If you're on active duty and go TDY for a brief spell, what happens to *your* issues? Some are returned to us (Return Postage Guaranteed); many are not. Play it safe and have your issues sent to your home or quarters address.

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