ARMY AVIATION

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Col. George P. Seneff

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SIOUX

on the war path..

The Army Sioux (the Bell H-13) has tasted battle more than once. In Korea it evacuated more than 18,000 United Nations troops under enemy fire In Algeria, today, it is repeating its warrior role for the French Army. It is serving our own armed forces here and abroad.

We hope American military men are never again called to fight. But if they are you can be sure that the Sioux will go on the war path; for battle demands proven ability . . the kind of ability engineered and built into the H-13 . . the kind of ability that has resulted in more than 2,500,000 hours of flight experience.

When there is a job for the helicopter to do, in peace or war, the Bell will do it best. That was true yesterday. It is true today. It will be true tomorrow.

Watch **"WHIRLYBIRDS"** *on TV . . consult your local paper for time and station*

BELL H-13H FEATURES:

1. Longest approved overhaul period.
2. Interchangeable metal blades.
3. Cyclic boost (power steering) that incorporates latest Bell designed and developed lock and load valves.
4. Synchronized elevator that permits greatest range of cockpit loading without battery or ballast shift.

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1. Improved hot weather and altitude performance.
2. Maximum operating period between overhauls.
3. Reduced maintenance and greater reliability.
4. Reserve power for emergencies.
5. Maximum availability — Minimum cost.

BELL Helicopter CORPORATION

FORT WORTH, TEXAS

SUBSIDIARY OF BELL AIRCRAFT CORPORATION

World's First Unmanned 'Copter

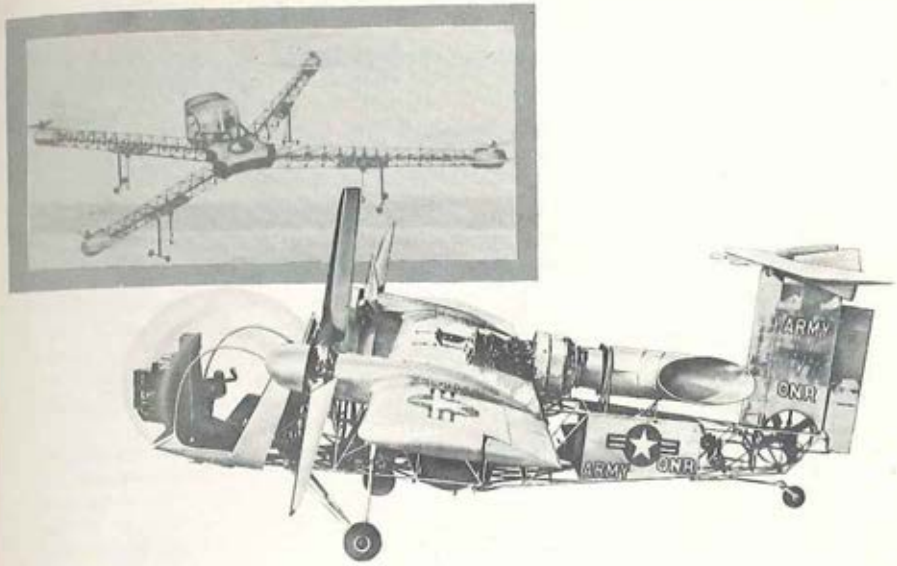
The successful maiden flight of Kaman's pilotless helicopter has added a new concept to military strategy. Flown entirely by remote control, the variety of missions possible with these ships is almost limitless. Using the Kaman robot as a flying TV or motion picture camera, complete battle-field surveillance and target marking are available without hazard to personnel. Also possible is the entry of the robot helicopter into contaminated or hazardous areas.

The control station is portable and can be operated from the ground or in air to air operations. Mission equipment such as cameras, weapons, target markers and detonators can be actuated at the control station.

Kaman is proud of this forward step which has been taken in behalf of our National Defense effort.

KAMAN

THE KAMAN AIRCRAFT CORPORATION



FUTURE AIRCRAFT

by Col. George P. Seneff

Although the aircraft the Army has are good, they do not have the characteristics that will be needed in the future. It is difficult for them really to become an integral part of the ground Army in the field. In the fixed-wing aircraft, landing and take-off runs are too long; and maintenance of both types is too difficult for forward operations.

In its development of future aircraft the Army is attempting to insure four things:

First, true ease of maintenance under battlefield conditions;

Second, a true short take-off and landing capability for fixed-wing aircraft. In effect, this means that we should not in the future consider any airplane which will require more than 600 feet to take off or land over a 50-foot obstacle (i.e., a ground run of about 250 feet).

Third, the capability in fixed-wing airplanes of landing or taking off on rough, unprepared, even plowed fields.

Fourth, for all aircraft, a high degree of all-weather capability. This means that the aircraft must be able to operate under any conditions of visibility under which ground vehicles can be effectively operated. Attaining this capability involves development of better instruments and better navigational and air traffic control systems.

To give the Army the aircraft it will need, the Army aviation research and development program is concentrating in three areas—

A short-range program to give the Army conventional aircraft which will be able to do the job better than those now available.

A longer-range program to replace these conventional aircraft with more unconventional types which will better perform the basic functions.

A new approach in completely unconventional aerial vehicles designed as true replacements for ground vehicles.

FIXED WING DEVELOPMENTS

In the first or short-range program, we are seeking improved aircraft in both the fixed and rotary wing field. By 1960 or shortly thereafter, we hope to replace all of the aircraft that we now have and add some new ones to the family.

For a long time to come, a large portion of the aircraft in Army aviation are bound to be small observation airplanes like the L-19. We hope to select a replacement for the L-19 within the next two or three years. This replacement will have a better payload, a better cruising speed, and a better unprepared short field landing and take-off capability.

In addition to this light observation capability, however, the Army has a strong need for a higher performance observation aircraft for shallow penetration flights over enemy-held areas to obtain information and to acquire targets for our own ground-to-ground missiles. One of its primary functions will be to carry electronics surveillance equipment, such as infra-red and radar, that the Army will use for gathering intelligence information and target acquisition data.

Accordingly the Army now has under development, in conjuction with the Marine Corps, the *"Mohawk,"* a higher performance observation airplane. Powered by twin turbo-prop engines, it will have a maximum speed of about 275 knots, a loitering speed of less than 100 knots, and a short take-off and landing capability. This last will enable it to live with the Army in the field.

The largest fixed-wing airplane which the Army is purchasing for test is the de Havilland *"Caribou"*—the first airplane in which the Army has been permitted to exceed the 5,000 pound weight limitation. Weighing about 13,000 pounds empty, it will have a payload of 3 tons, a cruise speed of about 150 knots, and will have very good short field landing and take-off capabilities. The Army is to get five for service test early in 1959.

ROTARY WING PROGRESS

In the field of helicopters the Army's first effort is to find a light inexpensive substitute for our present reconnaisance helicopters. While existing types are very good machines, they are expensive and difficult to maintain under field conditions. Accordingly we are seeking a simple two-place machine which will weigh about one-half and cost about one-half to one-third, compared with present reconnaissanse helicopters. What we are really seeking is a *"Model T"* approach—a machine that could be maintained in the front lines and which we will be able to afford to buy on a much larger scale than at present.

Next in the helicopter family is the H-40. Built by Bell Aircraft, it has already made its first flight. This—the first U.S. helicopter designed to use a gas turbine engine—will have greatly increased performance capabilities over the Army's present utility helicopters and will be more compact and rugged for forward area use.

The H-40 will be a very agile machine —a real *"aerial hot-rod"*. In addition to operating as a utility cargo, command and medical evacuation helicopter, it will be very adaptable to use in Sky Cav units, both as a fire support helicopter mounting machine guns and rockets, and as a troop carrier for battlefield transport. The Army will start getting these in 1958.

The next helicopter under development is in the three-ton payload class and will be developed as the largest internal load cargo-carrying helicopter. Again the goal here is increased performance and much easier maintenance.

One chief use of this type helicopter, besides its normal cargo carrying function, will be to provide mobility for missile units to enable them to move freely and easily on the battlefield.

Last in the helicopter family is the "flying crane." Essentially, this is a flying framework to give the Army heavy lift capability which it requires. This helicopter should be able to take payloads of up to

(*Continued on Page 29*)

Wash of 4 Helicopters Halts Fire

Special to The Chronicle

MONTEREY, Aug. 8—A "blanket" of wind, blown downward from the rotors of four helicopters, held a ranch brush fire in control today until State Forestry crews arrived to set up a fire line.

The unusual maneuver saved the ranch house and race horse barns of the Frank Enright ranch near here from what was decribed as "a very serious situation."

Lieutenant John W. Thomas of Fort Ord spotted the blaze on a routine flight between Ord and Hunter Liggett Military Reservation.

He was flight chief for four H-21 helicopters on a training mission.

"I saw all this smoke and could see that the fire was out of control," he said.

He landed to see if he could help and found no one in the vicinity. But he saw a woman taking a jeep across a field and assumed she was going to turn in the alarm.

The flames were spreading fast, riding a 20-mile-an-hour wind. They were fanning directly toward the Enright outbuildings, barns and ranch house.

Thomas ordered his helicopters into the air and maneuvered them along a 2000-yard semicircle in front of the advancing flames.

Hovering 20 feet above the ground, the helicopters sent a 250-mile-an-hour downblast upon the fire, driving it back upon itself.

They had practically blown it out at a point 400 yards from the nearest building when State forestry crews arrived.

Thomas estimated that the machines hovered about half an hour over the fire.

THE ARMY H-23D . . .
HELICOPTER WITH *TOMORROW BUILT IN*

Design of the basic H-23 helicopter was largely governed by a doctrine of *ruggedness*. It has produced a dependable helicopter, with a record of safety unequalled in its class.

Now, in the H-23D, a completely new 1000-hour+ drive system is introduced, seen as a major break-through in lower operating costs. A full-time 250 horsepower is available and, significantly, without "redline" restrictions warning of jeopardized service life. Thus, *ruggedness* has also afforded *growth potential*.

In the H-23D, growth potential assumes a new importance. Its existing components are *designed* to accept even greater power increases for the future's most challenging performance demands. Now, more than ever, the Army H-23 is an investment in *tomorrow*.

Completing his tour as Director of Army Aviation, Maj. Gen. Hamilton H. Howze writes his last letter

THE CAP: LET'S SUPPORT IT!

Gentlemen: Compliments to members of the 2nd Aviation Detachment for their rescue of **Dr. C. H. Pierson** in Alaska on the night of 18 October 1957.

Dr. Pierson, piloting a Cessna 180, with his wife and 3 children as passengers, crashed into the hills south of Eureka. After spending the night with his family at the scene of the crash **Dr. Pierson** attempted to hike 12 miles through the tundra and woods to get help.

Three Army **Ravens** and one **Beaver** enroute from Ladd to Anchorage joined the search and located the crashed aircraft and family of the doctor. A large helicopter for the 71st Air Rescue Squadron was called in to evacuate the family. The three helicopters continued the search for the doctor and at 5 P.M. on the 18th, by the aid of the faint glimmer from the doctor's last match, he was spotted by **1st Lt. William D. Brandon.** All three helicopters were critically low on gasoline and two of them departed to refuel.

Capt. Wm. H. Cox, Commander of the detachment and pilot of one of the helicopters, realizing that **Dr. Pierson** might not survive the night or might become hopelessly lost, chose to attempt a landing and effect rescue. Dense woods, gathering darkness and a 40 mile per hour wind made the landing extremely hazardous. However, **Cox** lowered his helicopter into the woods, landed, picked up **Dr. Pierson,** and transported him to Eureka Springs.

The third **Raven** was flown by **Captain Lee D. Rodawalt,** 2nd Avn Det., Fort Greely.

★ Latest reports of tests of combat fuels in the T-53 turbo shaft engine now installed in the **Iroquois,** indicates that the turbine can be operated on motor gas for approximately 10 hours **in emergency** without permanent damage to the engine. Repeated operation on combat fuels beyond an accumulated total time of 10 hours will in all probability damage the engine by burning erosion and lead deposit. This damage will ultimately result in further increase in fuel requirement and loss of turbine power.

During emergency operation on combat fuels special care should be taken during starting operations. Special attention is required after unsuccesful start to assure complete drainage of fuel from the combustor prior to a second attempt.

Saint Peter's Airway Timetable
0200 hours

Aviator retired after an evening of bridge.

0630 hours

Aviator arose; had light breakfast

0730 hours

Aviator reported for duty—made short local flight

1200 hours

Aviator took off on cross-country flight

1615 hours

Aviator arrived at destination airfield, borrowed a car, drove to nearby town to visit friends

0100 hours

Aviator returned to airfield

0206 hours

Aviator took off for home station

0323 hours

Aviator crashed and burned

Your engine stops when it runs out of fuel. So do you. But unlike your engine, you must sleep.

★ Many attempts have been made in the past to effect greater emphasis on organizational aircraft maintenance. However, such efforts have not produced the desired results, primarily because the average aviator was not qualified to supervise such maintenance.

The latest effort has been to institute the **Organization Maintenance Officers Course (OMOC)** at the Army Aviation School and in the unit APT training program. It is discouraging that the first two classes scheduled in this course had to be cancelled due to lack of students.

It is evident that Commanders and Army Aviators as a whole are not yet impressed with the necessity of good organizational maintenance—at least not impresed to the extent of doing somthing about it. No matter how good an aviator is—or how good his boss thinks he is—he can't fly on one wing.

I suggest that you pay great attention to filling your quota.

★ Indications are that Chiefs of some of the Military Districts are not on distribution for this letter. I suggest that each CONUS Army Aviation Officer make distribution to the military districts in his Army area.

★ A revised annual written examination has been completed by the Army Aviation School and is being reviewed at DA level. This will be an open book type exam and will require each examinee to have the following publications available while taking the exam:

AR's 95-8, 95-18, 95-31, 95-85, 600-106, 600-107, SR 385-10-40, TB AVN-5, and -8, TM 1-215, Flight Information Manual (overseas commands only), TM 11-2557 (Jep Manuals)

We are advising TAG that additional copies of the above regulations will be necessary. In order to prevent a last minute rush of requisitions I urge each aviation officer to take the necessary action early. I suggest these publications be requisitioned in the ratio of one set for three aviators, which means giving the exam three times. Sorry, we can't equip each aviator with his own private library.

★ Next time you have cause to refer to **DA Pamphlet 20-21,** commonly known as the **Army School Catalog,** notice the prerequisites for advanced aircraft mechanics schooling in the 670 series MOSs. Note particularly that the opportunity does exist for mechanics helpers and other organizational level mechanics to go to the Transportation School at Eustis for schooling in field level maintenance. While I don't recommend at all that you deplete your talent pool of crew chiefs and mechanics, I do say that some men just aren't cut out to be soldiers at the organizational level, yet they are well endowed with technical ability. Provid-

ed that they are well-intentioned and capable, this is one means of getting square pegs in square holes.

★ Many of you may not be aware of the efforts of the **Civil Air Patrol** in educating our school age youngsters in the general field of aviation. Poteet Canyon isn't the only actor in this play. The **CAP** acting through college, high school, and grade school teachers throughout the country, provides impartial information on aviation and flying for junior citizens everywhere in the United States. This office has recently offered (again) the services of our aviation people at all installations for community relations purposes in this field. In the meantime, why wait for them to come to you? Why not get on the horn and see what you can do for them?

★ This is my last letter; **General Easterbrook** succeeds me in just a few days. I feel that he is eminently fitted for the job, and it is time that someone with a new head of steam took it over.

I have no intention of "leaving" Army aviation. I hope to maintain twin-engine, instrument and helicopter proficiency as long as age and circumstances permit. The 82nd Airborne and Fort Bragg should permit this, at least for a while.

If you come by Bragg, look me up. Perhaps we can do a few push-ups together.

In looking about for a poem suitable to this tearful occasion, I came on no better than that of Clarence Day:

Farewell, my friends, farewell and hail!
I'm off to seek the Holy Grail —
I cannot tell you why.
Tiddley, widdley, toodle-oo,
I'd much prefer *to stay with you.*
But here I go! Goodbye!

Auf Wiedersehen!

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

Thirteen Graduate AAOAC

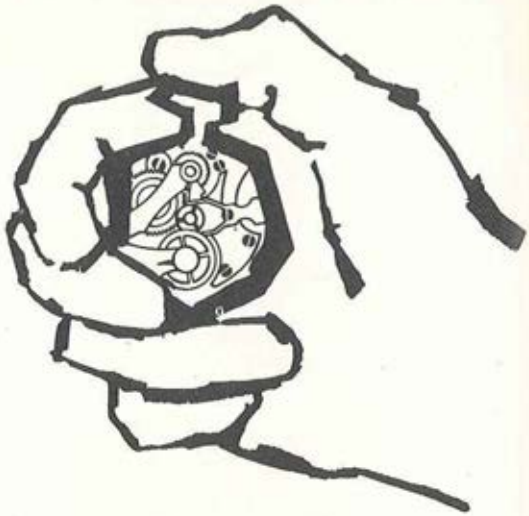
FORT RUCKER, ALA—Thirteen school-qualified staff aviation officers attending the first **Army Aviation Advanced Officers Course** to be conducted by the Army Aviation School graduated in late December.

The scope of the subject matter and the level of instruction provided in the two month course qualified the officers to plan and recommend responsive tactical and logistical aviation support for Army commanders.

The increased dispersion to be encoutered in future warfare and the highly fluid character of operations, together with the increased mobility of ground combat units have made Army commanders aware and desirous of the combat and logistical potential of Army aviation. Their desire to have this added capability organic to their command created a necessity to have highly qualified aviators meet staff and command requirements.

The eight-week course of instruction consisted of practical exercises, field trips and a program of top ranking guest speakers from the Department of the Army, Continental Army Command and other agencies within the Army concerned with Army aviation.

Brig. Gen. Thomas F. Van Nata, formerly assistant commander of the First Armored Division, Fort Polk, Louisiana, addressed the graduating class. **General Van Nata** recently completed four weeks of helicopter flight training at the Aviation Center.



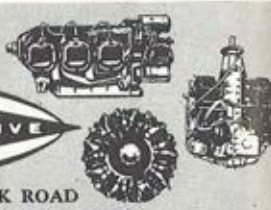
With A Watchmaker's Precision

Every aviation service, whether it be at the engine overhaul facilities of Dallas Airmotive in Dallas or at the Company's complete fixed base operation at its Island Service Division in Galveston, is performed with the precision of a watchmaker.

These services are many and varied. Dallas Airmotive continues to be the nation's leader in the overhaul of airplane engines at its extensive Dallas plant.

At Galveston, practically every other service for the airplane operator is available. The Island Service Division performs all types of modification, painting, radio-electronics — navigation sales and installation, overhaul for conventional planes and helicopters, and accessory sales, service and installation.

All services — with the precision of a watchmaker.



Island Service Division
GALVESTON, TEXAS

DALLAS AIRMOTIVE INC.

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733 15th Street, N.W.
Washington, D.C.

New York Office:
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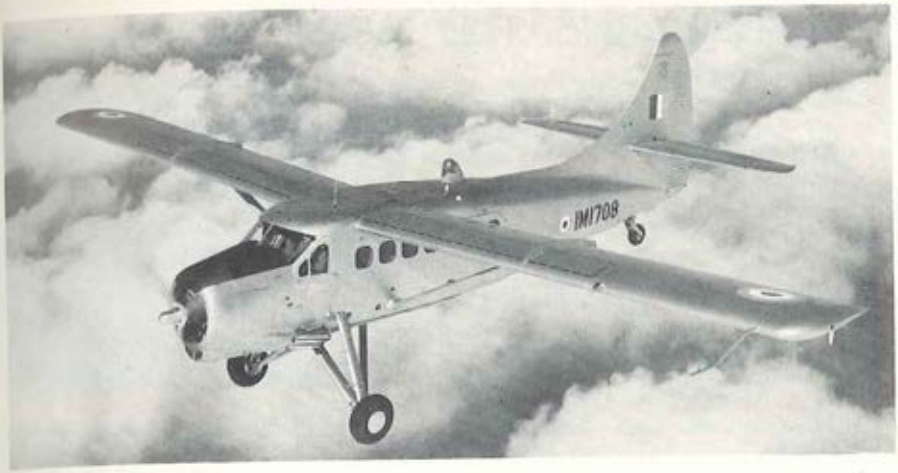


OTTERS FOR THE INDIAN AIR FORCE

In a brief ceremony at Downsview, Ontario, Squadron Leader P. N. Khanna, of the Indian Embassy, accepted delivery from C. H. "Punch" Dickins, De Havilland Canada's Sales Director, of the first six of an undisclosed number of Otter U1-A's which will be delivered to the Indian Air Force over the next 10 months.

The Otters were selected by the Indian Air Force after competitive evaluation based on rigorous tests which included mountain flying trials, high altitude and short landing checks and supply dropping demonstrations in mountainous frontier areas.

The "one ton flying trucks" of the U.S. Army will be used in India for the rapid movement of organic equipment, supplies and personnel, search and rescue missions, as aerial ambulances and for air-drop re-supply.

In addition to their military role, the Indian Air Force U1-A's will aid India's tremendous development program, providing casualty evacuation, flood relief aid, and other services to remote areas.

THE DE HAVILLAND AIRCRAFT OF CANADA LIMITED

POSTAL STATION "L" TORONTO ONTARIO

WASHINGTON REPRESENTATIVE — D. J. GIVENS

A FACELIFTING FOR ARMY 802:

KANSAS CITY, MO.—After years of faithful service, **Army 52-1802**, one of the first of two YL-23 twin engine Beech aircraft delivered to the U.S. Army, is being readied for a second face-lifting.

Flight delivery will be made to Liberal, Kan., where she will be placed in the Army's remanufacture program. Upon completion of the program **802** will emerge completely modernized and will conform to the L-23D configuration.

In early 1952, **802** was flight delivered by an Army crew from the Beech factory to **Fort Monroe, Va.**, where her impressive record was initiated. Employed as transportation for many General Officers, **802** was also used for test puropses at the '52 OCAFF facility.

In late '52, she was transferred to FECOM and assigned to Eighth Army Headquarters in **Seoul, Korea.** Primarily used for the transportation of VIPS, her passenger manifests included such distinguished passengers as President Eisenhower, Vice President Nixon, General Maxwell D. Taylor, General Matthew B. Ridgway, President of Korea Syngman Rhee, and many of the personnel involved in the UN peace talks being held during that period.

In 1954 she was shipped through Japan to the U.S. and thence to the Beech factory to be modified from a YL model to an A model. Upon reconditioning **802** was assigned to the 2d AA Regional Command at **Ft. Meade** until 1956 when she was transferred to the U.S.A. Air Defense Command at **Colorado Springs.**

In September, 1956, **802** was reassigned to the 4th Region, U.S.A. Air Defense Command, located at **Kansas City, Mo.**, where she has been in constant use to date.

Army 52-1802 has become more than a piece of machinery to the Army aviation personnel of the 4th RAADCOM. To **Capt. Elwood B. Eager** and **Capt. Wesley W. Brisben,** pilots for the headquarters, she has the character and personality of a faithful pet and it is with nostalgic memories that they will fly her for the last time.

Inexpensive Night

FT. BENNING, GA.—A **new** and **inexpensive** night landing system for helicopters has been developed by **Capt. Robert A. Michelson,** Operations Officer for the Third Infantry Division Aviation Section, Ft. Benning, Ga.

Similar to the "glidescope" method which was previously used, the **new development** is described as a simpler apparatus which eliminates the need for the glidescope generator and box.

The **"Michelscope,"** named after its inventor, is placed into operation in this manner: Three short **stakes** are driven into the ground perpendicular to the direction of landing, and placed 50 feet from the desired landing site. Then, **flashlights** with

NEW WORLD RECORDS ESTABLISHED

WASHINGTON, D.C.—Establishment of three new world helicopter altitude records by an Army pilot was announced on December 31st by the Department of the Army.

Flying an Army YH-41 type Cessna "Seneca" helicopter on December 28, at Wichita, Kansas, **Capt. James E. Bowman,** assigned to the U.S. Army Aviation Board, Fort Rucker, Ala., set new world helicopter altitude records of **30,335** feet in two weight categories and **28,200** feet in a third helicopter weight class.

The **record breaking fl'ghts** were conducted by the U.S. Army with the cooperation of Cessna Aircraft Corp. and were under the supervision of M. J. Gordon, National Aeronautics Association representative. The records are subject to confirmation and acceptance by the **Federation Aeronautique Internationale** of Paris, France. the world-wide governing body of sporting aviation, which is represented in the U.S. by the National Aeronautics Association.

These new world altitude records **top** previous records of 26,931 feet established by **Jean Boulet** of France, flying an SE "Alouette" helicopter on June 6, 1955.

During the **first** of two record breaking flights, the helicopter weighing in at 2109 pounds, proceeded to set world altitude marks for the Second and Unlimited weight categories. In a second flight later the same day, with fuel **added** to bring the weight of the helicopter to 2,229 pounds, **Capt. Bowman** established for the first time a world altitude record in the third weight category.

Manufactured by Cessna Aircraft Corporation, the YH-41 **"Seneca"** is the military version of the CH-1B, a four place CAA certificated helicopter powered by a 270 H.P. Continental piston engine. Six of ten **"Senecas"** scheduled for delivery to the U.S. Army for evaluation purposes have been delivered to the U.S. Army Aviation Center. They are currently undergoing extensive evaluation tests.

Capt. Bowman wore a parachute and a strap-on oxygen bottle for safety and emergency use. (Additional details to appear in the Feb. issue.)

Lighting System

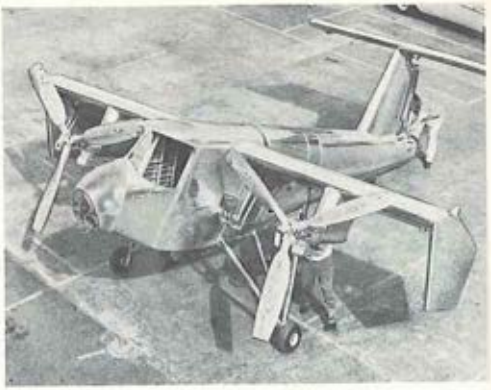
red lenses are placed atop the stakes. A fourth, and longer stake, is driven into the ground 20 feet from and perpendicular to the row of smaller stakes, and is equipped with a green lensed light.

The system is then based on what the pilot of the helicopter will see from the air. In a correct approach, the green light atop the taller stake, will block out the view of the center red light.

Benning authorities see the system as capable of **Army-wide** application. They feel it could greatly increase the effectiveness of helicopters in support of combat operations.

(Reprinted from **Wolters Trumpet**).

The RYAN Vertiplane



SAN DIEGO, CALIF.—Designed and built by the Ryan Aeronautical Company for the Army under the technical direction of ONR, the **Vertiplane**, a VTOL craft employing the **deflected slipstream** principle operates in conventional, horizontal flight attitudes.

Propeller driven and powered by a **Lycoming** T53 gas turbine, the craft has double retractable wing flaps which extend far below the wing trailing edge (photo above.)

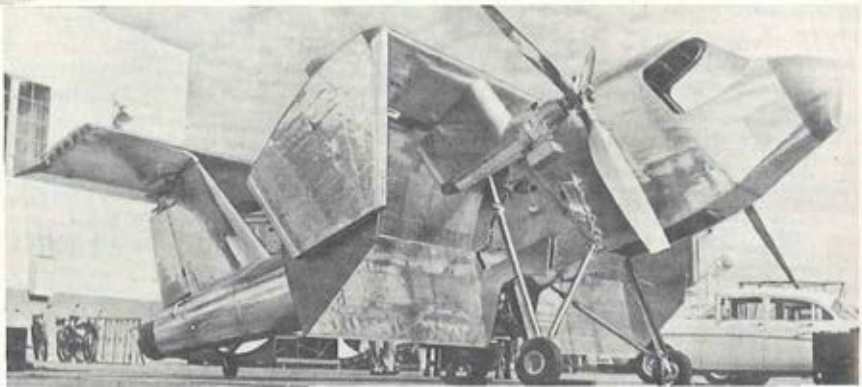
When extended, these flaps bend the propeller slipstream downward, providing vertical lift for take-off, **hovering,** and landing. For transition into horizontal flight, the flaps are retracted as the plane picks up speed, the slipstream then flowing horizontally.

The **Vertiplane** is flown with conventional stick and rudder pedals. In addition to the usual flight controls, special provisions have been made to insure adequate control during **hovering** flight.

In landing, the pilot makes his approach with power on and some flap deflection. Then, he extends the flaps and adds power until touchdown is made at **zero** forward speed. **Drag** from the flaps helps to accomplish a smooth landing transition at almost constant altitude.

An unusual feature of the **Vertiplane** is the **end plates** at both wing extremities. (Bottom photo) These provide structural support for the large flaps and **confine** the propeller slipstream to the flap span for better flight efficiency.

Measuring 27' 8" long, 10' 8" high, and having a wing span of 23' 5" the **Vertiplane** accommodates two people and has a design gross weight 2,600 pounds.



FARMINGDALE, N.Y.—**Alouette II,** a five-place helicopter powered by the **Artouste IIB-1** gas turbine engine, will be marketed in America by Republic Aviation. After a period of assembling and flight testing from French-built components to meet 1958 market demands, Republic plans to phase into domestic production under a licensing agreement with **Sud Aviation** of France, developer of the craft. Claiming maintenance-time requirements only one-eighth that of currently marketed helicopters, the **Alouette II** established a world's altitude record of 29,931 feet in 1956.

MUFTI—A **Sikorsky** S-58 **(Choctaw)** has been purchased by Chance Vought Aircraft of Dallas, Tex., and will be used in support of the company's flight program of air-transporting high priority personnel and cargo.

E. E. "Tug" Gustafson, Sikorsky assistant sales manager, turns over the ship's papers to **Harry E. Kay** (far right), assistant secretary of Chance Vought, as, left to right, **A. L. Brill,** chief of transportations; **E. E. Shireman,** pilot; and **John Lambert,** crewchief, all of Chance Vought, look on.

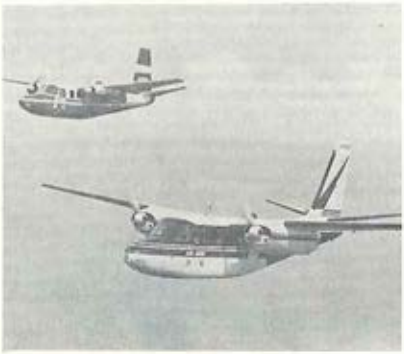
•PHOTO•

WICHITA, KAN.—Cessna Aircraft Company's YH-41 **Seneca** helicopter is shown above shortly before it received a free ride from the Cessna factory to Edwards AFB at Muroc, Calif. One of the first helicopters to be delivered to the Army under an evaluation contract the four-place, 3000 lb. **Seneca** and additional spare parts were loaded aboard an AF C-130 **Hercules** in about 5 minutes total time.

•STORIES•

FT. WORTH, TEX.—Facing a time problem while attempting to fill speaking engagements in his home state of Texas, **U.S. Senator Lyndon Johnson** "went by air," thanks to an old friend, **Joe Mashman,** the sales planning director of the Bell Helicopter Corp. **Mashman,** who flew **Senator Johnson** by helicopter during the campaign that resulted in the election of the Texan to the Senate a decade ago, piloted the Senator in a Bell 47J **Ranger.**

Photo Stories



TOKYO, JAPAN—Shown flying in the Tokyo area are the 1st and 445th Aero **Commanders** built, both ships being in the service of Asahi Shimbun, Japan's largest newspaper publishers. Both **Commanders** were flight-delivered to the Japanese firm by a professional flight service, **Commander** No. 1 making the flight in '52. The 16,000-mile flight included stops at Washington, New York, Goose Bay, BW 1 (Greenland), Keflavik (Iceland), Prestwick (Scotland), London, Rome, Athens, Nicosia, Bahrein, Karachi, Delhi, Calcutta, Bangkok, Tourane (Indo China), Hong Kong, Okinawa, Kagoshima (Japan), and Tokyo.

WICHITA, KAN.—Cessna Aircraft Company's **3,000th** Model L-19 **Bird Dog** liaison and observation aircraft has been produced since the airplane first went into production in 1950. Shown moving along **Cessna's** assembly line in the company's Pawnee Plant in Wichita, **Number 3000** is destined for foreign delivery, being one of 53 airplanes ordered by the U.S. Army for the Mutual Defense Assistance Program.

THIRTEEN—Recent AAOAC graduates at Ft. Rucker are shown below (left-right sitting): **Capt. F. Dameron; Majs R. J. Ogden, J. W. Hammett, W. S. Makuch, E. L. Davis, and J. M. Bowers;** (standing) **Lt. L. Luckett; Capts W. H. Harper, J. H. Cunha, J. T. Clark, J. E. Denney, C. C. Fox, and J. P. Shalvey.**

Fort Rucker

FT. RUCKER, ALA.—Before leaving for Washington to take up his duties as Director of Army Aviation, Brig. Gen. **Ernest F. Easterbrook** is shown paying a visit to the U.S. Army Board for Aviation Accident Research. Shown greeting the General is **Lt. Col. Edward G. Raff,** Director of USABAAR. The repository for the files of all Army aircraft accidents, USABAAR analyzes each accident for cause factors. Through correct statistical studies, the collation of these cause factors enable safety officials to recognize and correct potential "accident areas."

ACHIEVEMENT—**Brig. Gen. Bogardus S. Cairns,** right, Commanding General of Ft. Rucker and Commandant of the Army Aviation School, presents a Certificate of Achievement to **Lt. Col. Miller T. Nesbitt,** Director of the Department of Fixed Wing Training. The citation lauded **Col. Nesbitt's** "untiring efforts, organizational ability, technical knowledge and initiative while reorganizing the Department of Fixed Wing Training to cope with varying missions, workloads and problems."

PROGRESS REPORT—**Col. Jay D. Vanderpool,** left, Director, Dept of Combat Development at the Army Aviation Center, discusses a progress chart on his department's activities with, left to right, **Col. John J. Tolson,** Asst Commandant of the Army Aviation School; **Col. John Norton,** Chief of the Electronics and Aircraft Division, Office, Chief of R & D, D/A; and **Lt. Col. John W. Oswalt,** Dep. Director, Dept of Combat Development. Earlier, **Col. Norton** had given a lecture to the first Army Aviation Officer Advanced Class on current progress in the Army's Research and Development Program for Army aviation.

PINNING—**Brig. Gen. Thomas F. Van Nata** receives his wings from **Mrs. Bogardus S. Cairns,** wife of **Brig. Gen. Bogardus S. Cairns,** upon his completion of the Special General Officers Helicopter Pilot Course at Ft. Rucker.

With The Units

TSMC

St. Louis, Missouri

ST. LOUIS, MO.—The U.S. Army Transportation Supply and Maintenance Command, under the able leadership of **Brig. Gen. William B. Bunker,** has a complement of 62 officers, approximately 25% of which are AA's.

Numbered among the pilots are **Lt. Col. Ford E. "Ace" Allcorn,** Director of Field Services, presently attending the Supply Management School at Ft. Lee, Va., **Lt. Col. Richard L. Long,** and **Maj. Kennedy G. Ward,** both of the Aircraft Engineering Division and recently in Germany as a supply and maintenance assistance team; and **Lt. Col. Austin J. McDermott,** with his Special Assistant, **Lt. Jay W. Pershing,** is kept busy with his "boys" in the field.

The "boys" are field representatives of TSMC who as Contracting Officers are located with civilian contractors where they perform quality control inspections and test fly the aircraft repaired under the SCAMP Program.

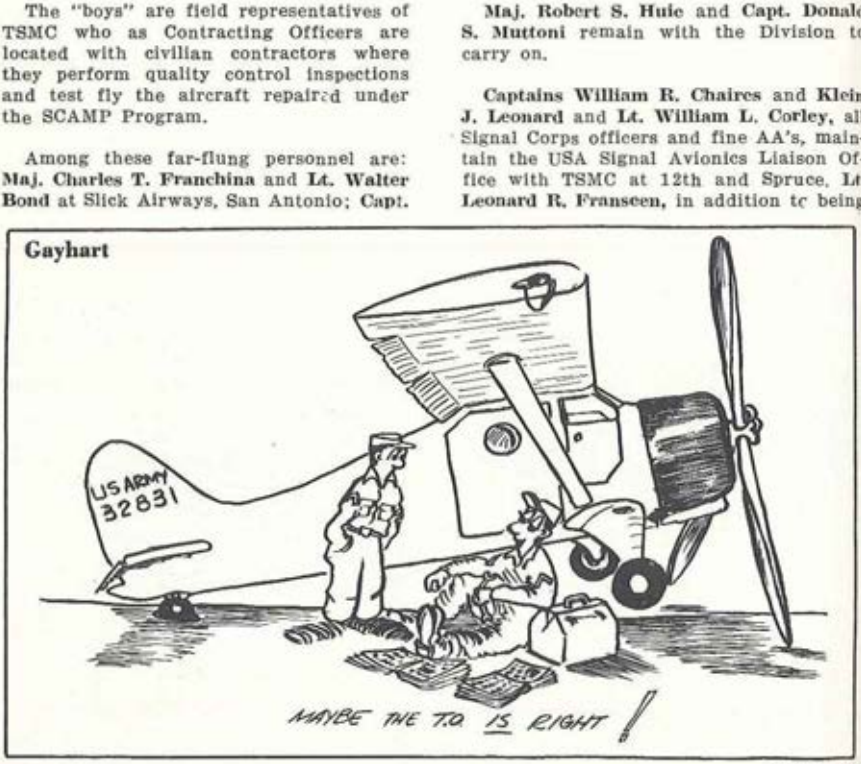
Among these far-flung personnel are: **Maj. Charles T. Franchina** and **Lt. Walter Bond** at Slick Airways, San Antonio; **Capt. Thomas M. Dunn, Jr.,** at Aero Corporation, Atlanta; **Capt. John T. Law,** Carter Aviation, Richmond; **CWO W-2 Conrad Davis** at Hayes Aircraft, Birmingham; and **CWO Gray** at Helicopter International, St. Petersburg. More sites and positions are in the offing.

Maj. Thomas E. Hall, who recently returned after a year with Hiller Helicopters in Palo Alto as an Industrial Trainee, is now assigned here as Chief of the Air Division, Directorate of Field Services. **Maj. Robert H. Reynolds,** formerly of the Aircraft Maintenance Engineering Division, has just been reassigned as C.O. of the USA TSMC Aircraft Service Center No. 1 at Ft. Eustis, Va.

Maj. Robert S. Huie and **Capt. Donald S. Muttoni** remain with the Division to carry on.

Captains William R. Chaires and **Klein J. Leonard** and **Lt. William L. Corley,** all Signal Corps officers and fine AA's, maintain the USA Signal Avionics Liaison Office with TSMC at 12th and Spruce. **Lt. Leonard R. Franseen,** in addition to being

Gayhart



With The Units

a 1951, is Aide-de-Camp to **General Bunker.**

Your correspondent is Chief of the Flight Branch and is assisted by **Lt. George A. Brown,** presently attending chopper school at Camp Wolters. The aircraft currently assigned to this Command include an L-23D, and H-23D, an LC-126, and three L-20's, all of which are greatly utilized.

Hq, U.S. Army TSMC and "Army Aviation Magazine" enjoy the same purpose for existing—namely, to foster the spirit and advance of Army aviation throughout the world. All of us on this end hope for a long and lasting association. YC will keep the readers posted on current projects, as well as personal assignments as they occur. YC, **1st Lt. Thomas Towle**

(Ed. Information on current TSMC projects will be most welcome. We have another purpose for existing—to chronicle current AA news as it happens. In doing so, we feel that the medium can provide an accurate and adequate historical record of Army aviation progress.)

Hq, Fourth Army
Ft. Sam Houston, Texas

FT. SAM HOUSTON, TEX.—To bring the readers up to date on the Fourth U.S. Army Aviation Section, **Col. Arthur J. Anderson** is the Army Aviation Officer, assisted by **Maj. Harold Roy** who took over as Deputy AAO upon the retirement of **Maj. Russell T. Blair.**

Maj. Blair (Ret.) is now manager of the Fourth U.S. Army Instrument Contract School located at Ft. Sill.

The Military Detachment at this School (operated by Ross Aero Corp. of Tulsa) is commanded by **Capt. Fred N. Till** with **Capt. Raymond G. McLaughlin** (Great White Father) assisting him.

The Fourth U.S. Army Flight Group located at Brooks AFB with **Capt. Arthur J. White** as OIC is kept busy with all of the flight activity in this area. The Flight Group has 4 Seminoles, 3 Beavers, and a Raven assigned.

Recent inbounds: **Majors Paynee O. Lysne, Floyd C. Wilson, Jr.,** and **William R. Moren;** and **Capt. Harry W. Wiltse, Jr.,** and yours truly.

Rounding out the Army Aviation Section at Ft. Sam are **Captains Paul E. Griffin, Donald A. Stokan,** and **Woodford S. Seiber;** and **Lts. Leonard L. McLaughlin** and **William L. Potts.**

YC, **Capt. Gordon F. Otto**

1st AA Company
Ft. Benning, Georgia

FT. BENNING, GA.—A **tornado** alert recently gave the 1st Army Avn Co the opportunity to test its emergency evacuation plan. Eleven **Otters** from the Company were evacuated to Jacksonville NAS when severe weather conditions were forecast for the Lawson Army Air Field area. Twenty-two pilots and 11 crewchiefs made the trip . . . **Brig. Gen. John F. Ruggles,** Deputy CG of the Inf Cen, recently awarded the 1st the Third Army Safety Certificate for our year of accident-free flying . . . **Maj. Jerome B. Feldt** returned from the Safety Course at USC and has subsequently been assigned as Safety Officer, LAAFC . . . Orders have transferred pilots of the 1st quite repeatedly during the last few months. Along with **Maj. Feldt, Capt. John Campbell** has been transferred to the 3rd Inf Div here at Benning to Gyroscope this spring. **Lt. Ray Moran,** the first officer to asign in this unit (then the 14th AA Co) is attending Assoc Adv

With The Units

Inf training at Benning and expects to serve a subsequent ground duty tour in Germany . . . **Lt. Willie Davis,** now at Benning's Instrument School, will graduate this month, just in time for the dip-stick ceilings that blanket this part of Georgia during the winter months . . . **Lt. Harry Zellmer** and **Jimmy Moore** performed a maximum takeoff and landing on the 600 foot Felker AAF at Ft. Eustis before an Army-Civilian Scientist, Meeting, giving the **Otter** VTOL characteristics so widely sought by the Army for its future aircraft. The **Otter** employed only 200 feet of the heliport . . . One small change, your correspondent traded his Infantry Rifles for the TC wheel in recently accepting an RA commission.

YC, **1st Lt. Jimmy N. Moore**

937th EAC
Canal Zone

ALONGSIDE THE "BIG DITCH"—Recent arrivals to the 937th EAC here in Panama include **Lt. Michael Costino** (to San Jose, Costa Rica), **Lts. Bobby Bogard** and **Jim "Red" Allen** (to Guat. City, Guatemala, and Tegucigalpa, Honduras, respectively); **Lt. Arthur Van Horne** and **Capt. Donald R. Hauck** (also to Guat.); **Lts Don Coggins** and **Brooks Homan** (presently in Mexico); and **Lts. Richard Eakley, Johny G. Roberts,** and **Capt. Mike D. Lord** (to Managua—lovely spot—Nicaragua.)

At home we now have **Capt. Claude Hargett** as asst Opns Officer and new to our Maintenance headaches is **Lt. Edward J. Davis,** a refugee from Eustis. Knocking around the Zone and assisting **"Pete Basham** with the Instrument Program (we have clouds here, too) is **Capt. Tom Booras** late of THE School—Rucker, that is.

Due to leave soon are **Capts. Lee Baker, Jack Thompson, Earl W. Nielsen,** and **Jack C. Coffman.** Also, **Lts Jack (Jungle Jim) Joiner, Thomas Coley, John Finley, Jack (John L) Chapman, J. R. Gayhart,** and **Paul (RA) Curry.** The preceding should just about lock up the "Locator."

Your correspondent, **Joe Gayhart**

CAMP WOLTERS, TEX.—**Mrs. Mealy Mouth,** donkey mascot of the U.S. Army Primary Helicopter School, looks on approvingly as **Capt. James R. Thames,** Stud Co Comdr, presents a check to **SFC Gaston C. Calcote** for submitting the winning name in a post-wide contest to name her offspring. Suitably restrained, **Mrs. Mealy Mouth** kicks up no fuss, although most Mothers would probably do so if their daughter were named **Miss Mushy Mouth.**

HANAU, GERMANY—The 36th Transportation Company (Lt Hcptr), commanded by **Maj. George T. Singley, Jr.,** is now stationed at Fliegerhorst Kaserne in Hanau.

Activated in April of '56 at Ft. Sill, the 36th is a comparatively new unit with little unit history. Transition training in H-34 **Choctaws** and the completion of the unit's ATP took place just prior to the unit's reassignment to Germany.

Our mission, that of providing air transportation to expedite combat operations and logistical support in the **forward** areas of combat zones, is fulfilled by H-34 light helicopters.

Excluding the advance datachment, our unit mascot, an English bulldog named **Chopper** was the only member of the unit to fly to the next post.

Quite pleased with our new locale, we are looking forward to a pleasant tour.

YC, **Lt. Arlie M. Grigg**

The Auxiliary

Knowledge

FT. HUACHUCA, ARIZ.—Wives of Army pilots stationed at the **U.S. Army Electronic Proving Ground** recently learned how their husbands would survive if forced down in the desert. The wives attended a **three-hour course** in desert survival, part of a longer one which pilots here take to familiarize thmselves with poisonous snakes and insects, first aid, finding shelter, food and water—all of which they would need to know if stranded in the southwest.

The pilots thought it would be informative if their wives learned the **rudiments** of the course and kept abreast of their husband's activities. As one wife said afterward, 'Now that I know what a person can do to keep alive, I won't be as worried if my husband has to make a forced landing in the desert."

Her husband as well as the other pilots are members of the 416th Signal Aviation Company at **Libby Army Airfield** here. The course is conducted by Troop Command Specialist School. The classroom features a **realistic** display showing a typical survivors' camp site. In addition to stuffed and preserved specimens of wild life on the desert, students may see **live** specimens of rattlesnakes, Gila monsters, tarantulas, black widow spiders and scorpions.

FALL BALL—The 1st Infantry Division Assistant Division Commander along with the Div Arty Commander were guests of the AAUTC at Ft. Riley, Kan., at a **Fall Ball** held in the **Cockpit Club** at Marshall Field recently. At the head table were, left to right, **Mrs. Henry E. Pizzatti; Brig. Gen. Frederick W. Ellery,** Div Arty Commander; **Mrs. Albert Newton; Brig. Gen. Van H. Bond,** Asst Div. Commander; **Mrs. Frederick W. Ellery; Lt. Col. Albert Newton,** C.O., AAUTC; **Mrs. Van H. Bond;** and **Col. Lincoln Wood,** CO, Marshall Field.

PARDON MY GLOVE!—**Lt. Paul J. Buchanan,** instructor at the Troop Command Specialist School at USAPG, Ft. Huachuca, holds a live **Gila monster,** one of the specimens which are a part of a course in desert survival given to Army pilots here. **Mrs. Paul Carpenter** and **Mrs. James Meares,** wives of two AA's, recently attended a short course describing how their husbands could fare if forced down in the desert.

IT'S EDIBLE!—**Lt. Buchanan** describes the root of a night-blooming **cirrus,** one of the specimens of edible desert plants shown in the survival course. A part of the group of 23 wives of AA's are shown listening attentively to the **cooking** directions. Although fairly abundant and free for the taking, the cirrus probably did **not** figure in the wives' subsequent dinner fare.

Observing a mechanic working on an Army L-23D at Lycoming's Williamsport, Pa., service center are, left to right, **H. H. Bowie**, Manager, Military Sales, Williamsport plant; **Joseph Diblin**, Center Director; and **James Heim**, Service Center Foreman.

WILLIAMSPORT, PA.—A U.S. Army contract for aircraft engine **exchange**, the **first** ever concluded between an engine manufacturer and the military services, was recently announced by the **Lycoming** Division of the AVCO Manufacturing Corp.

Under the new **call-type** contract, Lycoming wil maintain an inventory of remanufactured military engines enabling the firm to deliver **zero-time** engines to Army using agencies upon receipt of a call and the used engine.

Use of this **direct** exchange service is expected to result in substantial savings to Army aviation activities by reducing both military engine inventories and aircraft down time for engine change.

Initiated by TSMC, the exchange program will be administered by the St. Louis facility. Using agencies desiring exchange engines will contact TSMC for appropriate delivery orders and shipping instructions.

Four models are specified in the contract including Lycoming engines for the H-13H, Hiller H-23D, and Beech L-23 series aircraft. The contract also permits exchange of all other military Lycoming engines, subject to availability.

The new type exchange program will also permit **fly-in** engine change service by advance arrangement at Lycoming's service center at Williamsport Airport. By use of the **fly-in service** it will be possible to have re-manufactured, zero-time engines incorporating the **latest** applicable engineering improvements installed in aircraft such as the L-23 with a total down time as low as **48 hours.**

FT. LEWIS, WASH.—Gray Field Army pilots appreciate these peppermint-striped **cars** when the weather closes in. Installed recently at the Ft. Lewis installation, the Ground Control Approach System will pick up planes **50 miles away** on its radar and will enable its operator to "talk down" pilots to within 500 feet of the runway. **M/Sgt. Wallace E. Vaught** of the Gray Field Tower crew is shown adjusting the GCA radar antenna.

Twin Fans

FT. SAM HOUSTON, TEX.—Qualifying as a multi-engine pilot, **Lt. John P. Noeding** was the first Army pilot to complete the **Fourth U.S. Army L-23 Transition Flight Training School.** Conducted at nearby Brooks AFB, the 3-week course consists of 41 hours of instruction (26 hours of actual flight and 15 hours of ground school instruction.

Replacing the course which terminated at Ft. Rucker last June, the transition course will be given to one selected Fourth U.S. Army area pilot each month.

NATIONAL GUARD ATP UNDER PREPARATION BY USCONARC

By
MAJ. HARRISON A. MORLEY

News or ARNG aviation is somewhat sparse this month; what with Christmas shopping, office parties (Christmas slopping), leaves, and a long spell of really miserable weather, it is surprising that anything has been written.

Your correspondent attended a most impressive farewell party for Maj. Gen. H. H. Howze, departing Director of Army Aviation, attended by what Col. Marinelli called "the Pentagon Army Flying Club." It was most pleasant to renew acquaintances with many of the old-timers in the business, but with a distinct sorrow we said our goodbyes to General and Mrs. Howze. It was nice to see our tux-bedecked editor, Art Kesten, in attendance, too.

Saved us the postage in getting this copy to print.

ATP UNDER PREPARATION

In response to a query from NGB, USCONARC has informed NGB that an Army Training Program (ATP) for aviation units is being prepared for all component usage. ATP 1-200 will be distributed to the ARNG, and will include appropriate guidance for reserve status training in addition to active Army requiremens. The ATP will be adaptable for use by sections and detachments as well, utilizing the appropriate portions of the ATP. Publication and distribution of ATP 1-200 is anticipated in March or April 1958.

A change to AR 95-8 clarifying the procedures and authority in establishing ARNG local flying rules, including local areas, has been proposed by NGB. Progress will be reported in future columns.

TL-19D ISSUE TO DOUBLE

Issuance of additional TL-19D instrument trainers is scheduled for the next calendar year. Firm commitments have not been made, but if production goes as planned, the issue will more than double the current ARNG strength in TL-19D aircraft. Priorities for issue have not been established, and it is anticipated that adminisrative distribuion will be effected as the aircraft become available. No new helicopters are in sight for the ARNG—present procurement is insufficient for the needs of the active Army, and at this writing, the only issue planned for ARNG is of used helicopters (H-23B type) from certain active Army installations. More on this when information becomes available.

Queries have come in on the practice of issuing temporary flight status orders to Army Aviators who have not flown within a six month period, even though they had previously qualified and been issued permanent orders.

Policy has been established by NGB to issue temporary orders, the primary reason being safety. Past experience has proven that pilots, due to prolonged absence from flying, require refresher training to become sufficiently proficient with the aircraft, procedures, and flight maneuvers.

Permanent flight status orders will be issued in accordance with the provisions of par 2 of the temporary orders, and par 6a of NGR 95.

The Director of Army Aviation will continue to publish a monthly letter, which is disseminated to all ARNG aviation advisors. We strongly urge that this letter be reproduced locally and distributed to all ARNG aviation units. It's the best way we know to keep current on Army Aviation matters from the head shed. (*Ed. National Guard and USAR AA's are reminded that a pertinent copy of the ODCSOPS letter has appeared monthly in "Army Aviation."*)

Best wishes for a happy and prosperous New Year. Remember, the safer you make it, the happier and more prosperous it will be.

Our profile this month features Major William R. Brown, Army Aviation Maintenance Supervisor, Massachusetts National Guard. In an effort to get a personal interest into what seems to be a dead page of type, we will feature a photo and a short profile of one of our outstanding ARNG aviators each month. We hope you approve—your comments are invited.

William R. Brown
Major
Mass. National Guard

Former USAF pilot; joined the Massachusetts National Guard, April 1949; *assigned to Headquarters Company, 26th Infantry Division Operations and Maintenance for the Massachusetts NG at Fort Devens Army Airfield, Mass. In March* 1953 *was re-assigned as Aviation Officer for the 181st Infantry Regiment. During the year attended and graduated as the first helicopter rated pilot for the Massachusetts NG Army Aviation. In* 1954 *was re-assigned to Headquarters and Headquarters Detachment, the Adjutant General Office. In* 1957 *was designated Senior Army Aviator and attended the Advanced Officers Associated Course at Fort Benning, Georgia. At present, located at the Massachusetts NG Aviation Pool, Fort Devens Army Airfield, Mass.*

POTPOURRI

The first **approach control tower** in Germany was recently opened for operation at Karlsruhe, Germany, **Brig. Gen. William D. Hamlin**, USAREUR Signal Officer, conducting the dedication and ribbon-cutting ceremony. **Col. Warren R. Williams, Jr.**, USAREUR G3 Aviation Officer, pointed out that the tower will serve aircraft of the 555th Engr Gp, the 17th Sig Bn, and the 532d FA (Obsn) Bn as well as transient aircraft from USAREUR units.

Army aviation will be featured in the March 10th issue of **American Aviation**, a widely-read trade publication.

"U.S. Army Aviation: The Build-up Continues" was the title of a centerspread article on AA appearing in the December 10th feature section of the European Edition of **Stars and Stripes**. Illustrated with many photos, the article states that Seventh U.S. Army aircraft flew 89,000 hours in '56 and will fly anticipated 140,000 hours in '57 and an expected **205,000** hours in 1958.

The Civil Aeronautics Administration has awarded its certificate of approval to the Hiller UH12-D helicopter, the commercial counterpart of the H-23D **Raven**. Certification was accomplished on December 23rd.

Enlisted **Flight Engineers** will be authorized flight pay as crew members of H-37 **Shawnee** aircraft. Authorization stands at one per aircraft.

CLANK STORIES

By DARIO POLITELLA

Conjecture on the origin of the term "Grasshopper," which was applied to the early Army aviators of WW II, leads to a search through aviation history books.

The original **Grasshopper**, apparently, dates to 1909 when the fabulous **Alberto Santos-Dumont** (1870-1932) turned from the construction of airships to airplanes. He built the **Demoiselle**, the world's first ultra-light airplane, which was called the **"Infuriated Grasshopper"** because only very small pilots could fly it. And when average-size men in England tried to fly it, the **Demoiselle** took off all right, but it came down again almost immediately in apparent protest.

Constructed mostly of bamboo, this 80-pound wonder was powered with a 28 hp flat twin **Darracq** engine. Its wing span was a surprising 18 feet.

Flown by such great airmen as **Roland Garros**, the French military aviator who subsequently became the first to fire machine-gun bullets through the revolving blades of a propeller and the first to do night bombing in WW I; and **Edmond Audemars**, the Swiss flyer who contributed much to French aviation in the pre-WW I era; the **Grasshopper** at one time held the world's altitude record. This was established in Mexico in 1910 by **Audemars**, who took the tiny hand-made plane to 5,000 feet.

Its builder was a 110-pound wealthy Brazilian coffee planter, the "First Great Aeronaut in Airships" to build, control and direct their course in long and sustained flights. He made his first ascent in Paris at the age of 24, and four years later (1898) had made the dirigible balloon a practical transportation vehicle.

Among the "firsts" established by **Santos-Dumont** included being the first to fly an airship around the Eiffel Tower (Oct. 19, 1901) and the first to fly a powered airplane in Europe (Oct. 23, 1906), when he flew his **"Aeromobile,"** a box-kite design powered with an 8-cyl., 50 hp Antoinette, for 200 feet at 25 mph.

It is interesting to note that **Santos-Dumont** made available his engineering designs to all who could make use of them. And when he had built a fleet of airships prior to WW I, he put it at the disposal of the French government in case of war against any other Power "except Brazil and the United States," he said.

The man and his airplane were certainly fitting sires of the latter day **"Grasshoppers."**

COVER STORY—This month's cover depicts the Grumman AO-1 **Mohawk**, a twin-engine, 2-place high speed observation plane that won a recent joint Army-Navy competition. Powered by two **Lycoming T53-L-3** gas turbines, the **Mohawk** is the first **turbo-prop** application for the turbine already flying in the Army's **Iroquois.** The 1,005 hp front-drive engine was chosen with an eye toward simplicity of installation. Weighing approximately 10,400 pounds, the AO-1 has **three** external racks under each wing, the inboard capable of carrying 1,000 pounds, the two outboards 500 pounds each. A view of the turbine installation appears above.

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12 tons for distances of 25 to 50 miles. Besides being used for movement of critical supplies, it can serve such purposes as lifting small armored vehicles over barriers, puttting bridging into place and moving other heavy materiel about the battlefield.

Aircraft of this type are being studied by the helicopter industry at the present time. This machine rounds out the family now under development to replace or supplement existing aircraft.

In the longer range program, more unconventional approaches are being followed. Recent advances in the state of the art have made it apparent that the Army may, in the future, be able to perform with fixed-wing aircraft many of the tasks for which heretofore it has had to use helicopters. Because the helicopter cannot, for technical reasons, attain the same speed and range as fixed-wing aircraft, it is very much in the Army's interest to replace as many helicopters with airplanes as possible with the additional hope that the cost and complexity of the unconventional fixed-wing aircraft will at least not exceed those of the helicopter.

Very likely, within the next several years, it will be possible to achieve vertical take-off and landing with airplanes that will also be capable of relatively high speed forward flight. Such aircaft, however, will not completely replace the helicopter. The helicopter has an agility in operations close to the ground and in confined areas which will be very difficult to supplant for many years to come.

Because it is largely an unexplored field and because development of prototype aircraft is expensive, the Army is employing a *"flying test bed"* approach.

A test bed is a small research aircraft which can be built cheaply, almost on the baling wire principle, to investigate possibilities which might be applied to larger aircraft. Following are the principal areas currently under study by this method:

Boundary Layer Control. This a means of controlling the air flow next to an air foil to obtain greatly increased lift. This, in turn, has the effect of lowering the stalling speed of the aircraft and thereby lowering its take-off or landing speed.

Deflected or Vectored Slipstream. The deflected or vectored slipstream principle makes use of a very heavily flapped wing which has the effect of deflecting the air flow downward to give very short or even vertical take-off and landing possibilities.

Rotatable Ducted Fans. Ducting a fan or propeller gives it about 25 to 30 percent more efficiency than that obtained from an unducted propeller. In this test bed the ducts are rotated to a vertical configuration for take-off and landing and to a horizontal position for fast forward flight.

Tilt Wing. In this design the whole wing with the propellers mounted thereon is rotated vertically for take-off and landing and into a horizontal plane for forward flight.

Multi-wing. This is an old concept being reinvestigated because it is a means of "bathing" far more wing surface in the propeller slipstream, thus increasing lift and making possible a short wing span in Army aircraft.

Rotating Rotors. In this configuration rotors are placed in a horizontal plane for take-off and landing and in vertical plane for forward flight.

Unloaded Rotor. In this, the conventional rotor is used to give the aircraft vertical flight. For fast forward flights the rotor is unloaded; that is to say, it is flattened out and allowed to windmill or idle. Lif is taken over by conventional wing surfaces, and thrust by forward driving propellers.

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Deflected Jet. Under this principle, currently being investigated by the Air Force, the jet blast of a jet engine is deflected downwards for take-off and landing, then turned into the horizontal plane for high speed forward flights. This latter principle is not of overriding interest to the Army because jet engines at the present time are not efficient at low altitude. It will, nonetheless, bear watching.

The majority of these test beds should fly within the next 5 months. By working with them under many conditions, the Army hopes to determine which approach or approaches are best suited to the Army's operating conditions, and thus offer us the greatest chances of success in the future. The principles thus developed will eventually be applied to the replacements for the fixed-wing aircraft being developed under the short term program.

The third and newest field of endeavor in Army aviation is that of *"direct lift devices."*

The Army's initial approach in this area has been made with the deLackner *Aerocycle* and the Hiller *Flying Platform.* The *Flying Platform* in particular, in recent months, has shown much promise, and the Army is moving quickly to exploit it. However, it cannot carry all the equipment which the soldier needs on today's battlefield, much less that of the future.

Accordingly, the next step in this area is, probably, the aerial jeep. Ultimately the goal is to provide a vehicle which can stay in the air for several hours, move at speeds of up to 50 miles an hour and would be a jeep that could move over the ground instead of on it. It would be able to take advantage of the ground for protection yet be freed from the ground's limitations.

This machine would be able to sneak up to a ridge line to permit a look over the top, or to fire a burst into a barn or haystack to see if anything was there. It should be able to scoot down ravines and fly over woods if necessary, but should spend most of its life within a few feet of the ground. The possibilities of this vehicle—for reconnaissance, messenger work, patrolling—are limited only by the imagination of the user.

If this machine proves successful, the next step will be to enlarge the family—to build larger machines with increased firepower. Another possible adaption may be an aerial truck.

This, then, is the Army's program in aviation research and development—encompassing the conventional, the unconventional, and the radical—as a major contribution towards keeping the U.S. Army the most mobile in the world. As the future brings more radical concepts into view, Army aviation research will, we hope, stay with or ahead of them.

HEIDELBERG, GERMANY—The first two planes to be ferried from the U.S. to a **Far East destination** via Europe cleared through this command in mid-December on the second leg of their flight to Bangkok, Thailand, more than **12,000** miles from their Fort Belvoir, Va., starting point..

Piloting the aircraft were **Col. John D. Edmunds** and **Lt. Col. Charles M. Neufeld.** Co-pilot-navigators were **Maj. Jack E. Andrews** and **1st Lt. John L. Yunker.**

Additional stops were scheduled for Naples, Athens, Ankara, Baghdad, Basra, Karachi and Calcutta prior to reaching Bangkok.

(Ed. The flight was completed successfully. We hope to bring you a more detailed report in a future issue.)

How to Stay In the Black

Annual Premiums for the Army Aviation Flight Pay Protection Plan

The Annual premium payment will assure disability payments for up to 24 months of disability

Pay Grade	Title	Years of Service										
		Under 2	Over 2	Over 3	Over 4	Over 6	Over 8	Over 10	Over 12	Over 14	Over 16	Over 18
O-8	General, lieutenant general, major general	$18.60	$18.60	$19.80	$19.80	$19.80	$19.80	$19.80	$19.80	$19.80	$19.80	$19.80
O-7	Brigadier general	18.00	18.00	19.20	19.20	19.20	19.20	19.20	19.20	19.20	19.20	19.20
O-6	Colonel	24.00	24.00	25.80	25.80	25.80	25.80	25.80	25.80	25.80	26.40	29.40
O-5	Lieutenant colonel	22.80	22.80	24.60	24.60	24.60	24.60	24.60	25.20	27.00	27.60	29.40
O-4	Major	20.40	20.40	22.20	22.20	22.20	23.40	25.20	25.80	26.40	27.60	28.80
O-3	Captain	17.40	17.40	18.60	19.80	21.60	22.40	22.80	24.00	24.60	24.60	24.60
O-2	First lieutenant	13.80	15.00	18.00	18.00	19.20	19.80	20.40	21.60	22.20	22.20	22.20
O-1	Second lieutenant	12.00	12.60	16.20	16.20	16.80	17.40	18.60	19.20	20.40	20.40	20.40
W-4	Chief warrant officer	13.80	13.80	13.80	13.80	14.40	15.00	16.20	17.40	18.60	19.20	19.80
W-3	Chief warrant officer	13.20	13.80	13.80	13.80	14.40	14.40	15.00	16.20	16.80	16.80	16.80
W-2	Chief warrant officer	12.60	13.20	13.20	13.20	13.80	14.40	15.00	15.60	16.20	16.20	16.20
W-1	Warrant officer	12.00	12.60	12.60	12.60	13.20	14.40	15.00	15.60	15.60	15.60	15.60
E-7	Master sergeant	9.60	10.20	10.20	10.20	10.80	11.40	12.00	12.60	12.60	12.60	12.60
E-6	Sergeant first class	8.40	9.00	9.00	9.60	10.20	10.80	11.40	11.40	12.00	12.00	12.00
E-5	Sergeant	7.20	8.40	8.40	9.60	9.60	10.20	10.80	11.40	11.40	11.40	11.40
E-4	Corporal	6.60	7.80	7.80	8.40	9.00	9.60	9.60	9.60	9.60	9.60	9.60
E-3	Private first class	6.60	7.20	7.20	7.20	7.20	7.20	7.20	7.20	7.20	7.20	7.20
E-2	Private	6.00	7.20	7.20	7.20	7.20	7.20	7.20	7.20	7.20	7.20	7.20
E-1	Private (over 4 months)	6.00	7.20	7.20	7.20	7.20	7.20	7.20	6.60	6.60	6.60	6.60

Above amount reflects 1% of the annual flight pay received by active Army personnel

THE ARMY AVIATION ASS'N FLIGHT PAY PROTECTION PLAN

(Please Print) Rank Name ASN Yrs. Service for Pay Purposes

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(Post Box Number, Residence, or Quarter Address is Desired

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AMOUNT OF ANNUAL FLIGHT PAY.....

I certify I am currently on flying status and entitled to receive incentive pay, and that to the best of my knowledge I am in good health, and that no action is pending to remove me from flying status for failure to meet required physical standards.

Signature of Applicant..... Date.....

APPLICATION MUST BE ACCOMPANIED BY CHECK OR MONEY ORDER FOR ANNUAL PREMIUM MADE PAYABLE TO "AAAA." THE ANNUAL PREMIUM CHARGE IS 1% OF ANNUAL FLIGHT PAY.

SUBMIT APPLICATION AND PREMIUM CHECK TO "AAAA," WESTPORT, CONN.

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