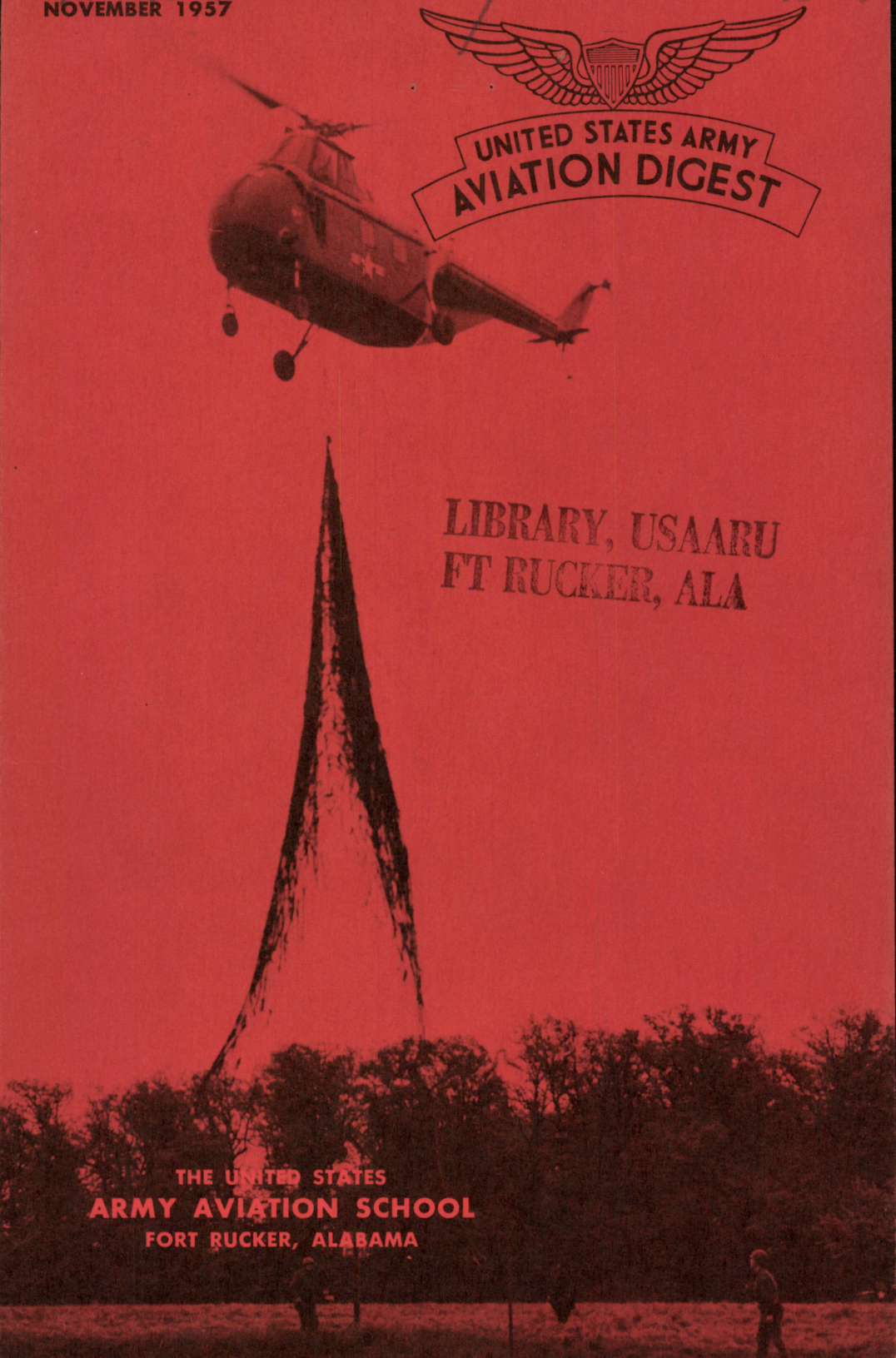
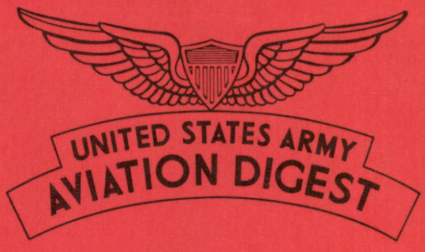
Med Plans & Operations Div

NOVEMBER 1957



UNITED STATES ARMY AVIATION DIGEST

THE UNITED STATES
ARMY AVIATION SCHOOL
FORT RUCKER, ALABAMA



The U. S. ARMY AVIATION DIGEST is an official publication of the Department of the Army published monthly under the supervision of the Commandant, U. S. Army Aviation School.

The mission of the U. S. ARMY AVIATION DIGEST is to provide information of an operational or functional nature concerning safety and aircraft accident prevention, training, maintenance, operations, research and development, aviation medicine, and other related data.

Manuscripts, photographs, and other illustrations pertaining to the above subjects of interest to personnel concerned with Army Aviation are invited. Direct communication is authorized to: Editor-in-Chief, U. S. ARMY AVIATION DIGEST, U. S. Army Aviation School, Fort Rucker, Alabama.

The printing of this publication has been approved by the Director of the Bureau of the Budget, 15 March 1956.

Unless specified all photographs used are U. S. Army.

DISTRIBUTION:

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NG: State AG.
USAR: None.

For explanation of abbreviations used, see AR 320-50.

UNITED STATES
ARMY AVIATION
DIGEST

Volume 3 November, 1957 Number 11

ARTICLES

DEPARTMENTS

COVER

This month's cover is exclusively for the files of the "What Will The Helicopter Do Next" society, and shows the 160th Signal Group's contribution to the varied accomplishments of the Chickasaw. They used this speedy method of camouflaging their position on maneuvers recently in Germany.

Notes

FROM THE PENTAGON

BEST FOOT FORWARD

Major General Hamilton H. Howze, *USA*
Director of Army Aviation, ODCSOPS

DO ARMY AVIATORS always take care to put Army Aviation in a proper and favorable light? Is the reputation for hospitality and efficiency on the Army airfield sufficiently good? There are certain minimum performance requirements which must be met if Army Aviation is to assume its correct position in the Army, and provide an acceptable foundation for its inevitable growth.

THE IMPACT OF TRAINING

Standard basic subjects for aviation personnel must assume almost the same importance in the aviation unit training program as does the purely technical portion required to maintain and operate aircraft.

Soldierly bearing and military courtesy come from good ground training. How many times have you seen a good soldier who was not also a *good looking* soldier? An aviation commander must always insist that his organization participate in a proper share of the less glamorous soldier training.

Other types of ground training such as unit supply, maintenance, and administration are absolutely necessary to organize and conduct efficient unit operations. In a division particularly, aviation must be prepared to operate effectively with no more than normal administrative assistance from other units.

COURTESY AND DRESS

High standards of dress and courtesy are essential, *particularly* to any Army unit that is even remotely associated with aircraft. Senior Army commanders rightfully criticize persons and aviation units who attempt to display, or inadvertently do display the "fly boy" disregard for high standards of conduct, dress and courtesy. Wellington boots, colored socks, nonregulation scarves, baseball hats and flying suits worn off the flight line are indicative of a careless disregard for uniform regulations and a lack of unit pride. Lack of proper standards of appearance in aviation units may jeopardize our position in the Army and could endanger the

future of Army Aviation.

TRANSIENT AIRCRAFT

How many Army airfields have an SOP that provides for handling transient craft? Do airdrome officers meet each transient aircraft upon arrival and offer to assist the pilot and passengers regardless of service or rank? Do operations officers volunteer transportation for arriving personnel? We must build and maintain a reputation for courtesy and hospitality.

VIP FLIGHTS

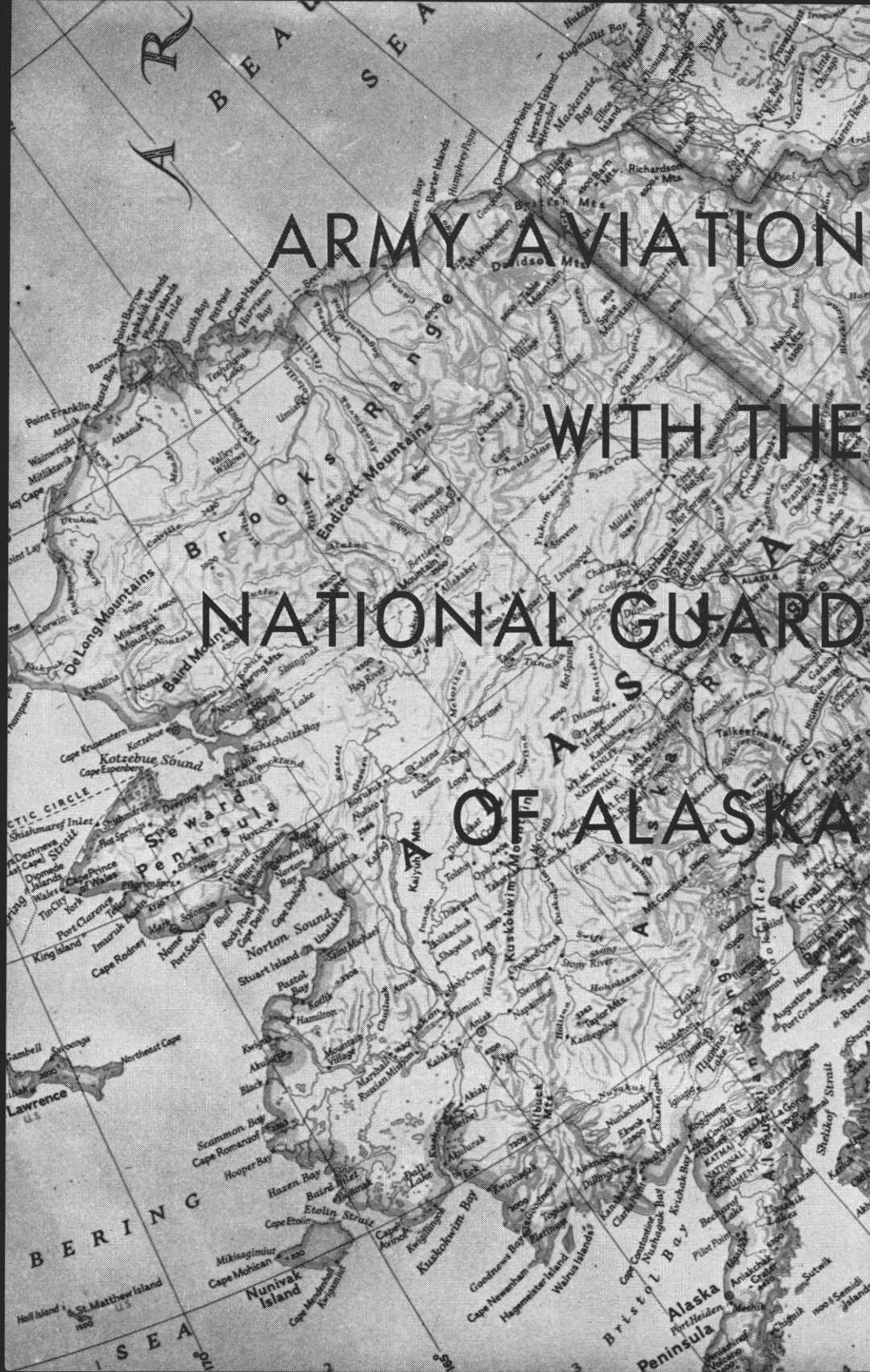
What group of personnel within the division has more contact with high ranking officers and civilian officials than Army Aviators? Are these VIPs favorably impressed? One improperly dressed or discourteous aviator on a VIP flight could understandably cost aviation the respect of an influential passenger.

It is only common sense to plan and conduct these flights carefully. Probably the most critical requirement of a successful VIP flight is that the pilot *and his aircraft* be *on time* and be ready to take off *before* the passenger arrives. This means that the pilot and the copilot should have completed the aircraft preflight inspection, arranged for stowage of parachutes, obtained the latest weather information, collected the proper charts, and completed the flight plan clearance at least ten to fifteen minutes prior to arrival of the VIP. In a word, it is desirable to know where to go and how to get there.

When the VIP arrives it is only common courtesy for the pilot or copilot to meet the passenger as quickly as possible; escort him to base operations and on to the aircraft; arrange for the stowage of the passenger's baggage and overcoats; brief him concerning expected weather conditions and type of flight contemplated; brief him on fitting, wearing and emergency use of the parachute; tell him the estimated time en route and estimated time of arrival; and insure that arrangements for transportation and honors desired by the VIP at his destination are entered in the Remarks paragraph of the DD Form 175.

In flight, conversations between pilot and copilot indicating uncertainty are thoroughly alarming to the passengers—for Pete's sake let's use our heads! Finally, when nearing destination and after establishing communications with the airfield, the pilot should verify the availability of transportation for his passenger and upon arrival determine the approximate departure time for the return trip.

To conclude, Army Aviators are commissioned officers and warrant officers. Senior Army commanders expect Army Aviators to display the same high standards of dress, appearance, and military courtesy displayed by other commissioned and warrant officers. Intelligent leadership, competent officers, and efficient men are the foundation of any military organization. Let's show our contemporaries and our senior commanders that personnel in Army Aviation today are alert and courteous soldiers as well as competent pilots and mechanics.


ARMY AVIATION
WITH THE
NATIONAL GUARD
OF ALASKA

The author and the LC-126 he flew in Alaska

Lt Colonel Raymond E. Johnson, *Arty*

IN ALASKA the airplane is more important than elsewhere in the world. In addition to being the automobile of the north, the airplane does the work of trains, trucks, and busses. The men who fly them must have highly developed special skills to operate successfully in Alaska throughout the year. Because of this vital need for air transportation, Army Aviators are assigned as advisors to the Alaska National Guard, except in areas where sufficient commercial transportation is available.

Flying conditions in Alaska are similar to those encountered in Montana, Maine, and other Canadian border states — but without the facilities afforded aviators in those areas.

When the National Guard Bureau undertook the task of reorganizing the Alaska National Guard after World War II, Colonel Joseph D. Alexander was appointed as Senior Advisor and acting Adjutant General. He and Lt Col Donald E. Cameron, with keen foresight and the realization that travel in the more remote areas was difficult, had Army Aviators assigned as battalion advisors at Juneau, Nome, and Bethel. Each detachment had four enlisted men as assistant advisors and one airplane mechanic.

BUSH PILOTS BROKE TRAIL

These officers and men paved the way for those who were to follow. This trail, however, was one fairly well established by those magnificent fliers of the north, the bush pilots. Many had to teach themselves to fly, then gradually develop their own techniques of navigation and operations—many of which are still applicable today.

Our planes have more horsepower for the same weight and, therefore, have better performance. Our engines are better than those the early bush pilots had, and power failures today are extremely rare. Our ski-wheel combination has solved the problem of flying from cleared runways and deep snow. In many other ways, technology has come to the aid of the Alas-

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The views expressed in this article are the author's and are not necessarily those of the Department of the Army or of the U. S. Army Aviation School.—The Editor

kan flier.

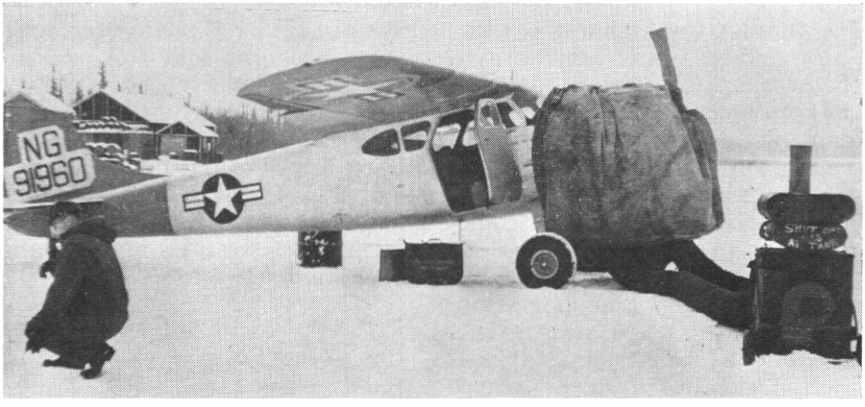
In spite of the difficulties and hardships, an Alaska National Guard assignment for an Army Aviator can be most fascinating and rewarding.

ESKIMO BATTALIONS

The Army National Guard of Alaska consists of four Infantry Battalions. Two are Eskimo Scout Battalions which are organized under a separate and special TO&E. One has headquarters at Nome with units of squad size and larger spread from Stebbins, on the south shore of Norton Sound, to Point Hope. The Second Eskimo Scout Battalion Headquarters is at Bethel and has units from the Aleutian Chain to the mouth of the Yukon. All of these units are located in small villages where they provide a continuous system of visual observation.

The first aircraft assigned to the National Guard in Alaska were three LC-126s purchased by the National Guard Bureau and ferried from the United States to Nome, Bethel, and Juneau by Major George N. Howell, Major Floyd C. Wilson, and Captain Harry D. Germann in 1949. Each aircraft flew hundreds of hours under all possible conditions before being retired to Fort Rucker in the summer of 1954. They were replaced by *Beavers*.

The area in the vicinity of Nome is generally mountainous but landing fields have been built at most of the villages. For this reason Nome-based aircraft are kept on wheels in summer and skis in winter.



Warmup, McGrath, Alaska, prior to starting engine

The Juneau area presents many different and difficult problems to the aviator. Aircraft are on floats the entire year. Excessive corrosion from salt water spray must be prevented. The area is rugged and frequently blanketed by fog. Commercial pilots sometimes land in the channels and taxi for miles to get through otherwise impossible weather. However, the aircraft used by the Army and National Guard are not suitable for such operations.

Bethel requires float operation in summer and ski in winter. There are short periods during freezeup and breakup when wheels are used. However, because few villages have landing fields suitable for wheel landings, operations are limited at these times.

The area around Bethel is relatively flat and covered with shallow tundra lakes. There are many emergency landing areas, both in winter and summer.

Villages like this are hard to find from the air

Docking facilities are not always present at villages, and tides on the coastal flats can leave an unattended airplane stranded. Mud flats frequently are used for landing fields by float-equipped planes when necessary.

INSECT PROBLEM

In summer, one problem that distinguishes arctic operations from those elsewhere are the clouds of ravenous, hitchhiking flies and mosquitoes. The numbers that collect inside an airplane can be a nuisance if not eliminated. An aerosol bomb will quickly dispatch these pests, but their bodies collect in cracks around the instrument panel and may plug the vacuum intake screen. The best way to avoid this trouble is to keep doors and windows closed when the aircraft is parked.

During winter the days are short and cold. Not so cold as many "cheechako" believe, but cold enough. When starting an airplane engine on a cold morning, it doesn't make much difference whether the thermometer reads 40 or only 20 below.

ICE! BEWARE

Another danger always present is the formation of ice crystals in the fuel system. In summer, water formed by condensation will collect in the gascolators and will be drained off during the preflight. Ice crystals, however, do not behave in this manner but collect in bends in the fuel lines or at screens, obstructing the flow of fuel. The best protection is to refill the tanks immediately after a flight and before leaving the aircraft for the night, so there is no air-

Skis frozen solid in snow

space in which condensation can occur. After getting aloft at the beginning of a flight, but after temperature adjustment has occurred, it's a good idea to test the fuel flow from all tanks before getting too far from the field in order to return on the tank used for takeoff if necessary.

Certain precautions are necessary in winter when aircraft are tied down at night. Work done at this time will greatly lessen difficulties in the morning.

If the skis are allowed to freeze to the surface, they are difficult to break loose. One way of preventing this is to run the toes of the skis on a small stick or board. If the airplane is equipped with a ski-wheel combination gear, the solution is simple: just retract the skis when parked. Ski friction is lessened by taxiing over a piece of burlap soaked in kerosene to remove ice from the bottom surface. Sometimes, however, on a warm day after a recent snowfall, skis will stick and nothing can be done to coax the airplane into the air.

OIL AND COLD

Engine oil resembles soft butter at temperatures slightly below 0°F., and becomes as hard as laundry soap at lower temperatures. If the anticipated morning temperature is between 0° and 32°F., starting the engine may be possible without preheating or even draining the oil the night before. This is especially true if the engine is equipped for oil dilution. Care must be exercised when diluting oil. A common error is to start dilution while the oil is so hot it will vaporize the gasoline. If the oil is drained at night and preheated in the morning, the engine will have immediate lubrication, and the load on the battery and starter is lessened.

ENGINE PREHEATING

A "Herman Nelson" gasoline-burning heater is desirable but not always available. The favorite of the north is the standard plumber's firepot, but a primus stove, kerosene heater, or even a flame thrower and a few lengths of stovepipe may be used in an emergency to heat an engine. *Use the flame thrower with caution!* Many a pilot has left his engine heating while he grabbed another cup of coffee and returned to a smoking skeleton that was once his airplane.

When an engine is heated with an open flame, it must be constantly observed, and a fire extinguisher must be available. There is always danger of the engine cover being blown into the open flame. If two fire pots are used, there is the possibility of one going out and spraying raw gasoline onto the engine where it will be ignited by the other fire pot.

The engine cover should be wrapped securely around the engine at night to prevent snow from blowing in and to prevent

formation of frost. This undesirable additional moisture has a nasty habit of shorting ignition harness and freezing on engine control cables and rods.

If temperatures below –20°F. are expected at starting time, the oil must be drained immediately after stopping the engine —oil dilution notwithstanding. This oil can be kept inside a building at night, and is easily heated to a minimum of 150°F. in the morning. When poured into the engine, it will aid in preheating by uniformly distributing heat. Engine preheating is all-important for cold weather starting. Taking a shortcut will result in engine damage and delays, and the need to repeat the process until it is properly started.

BATTERY CARE

It is equally important to remove the battery when the temperature is very low and keep it in a warm place during the night. The engine will normally be easy to start if properly heated, filled with warm oil, and a fully charged battery installed. If it is still difficult to start, ether or diesel starting fluid dashed into the air intake will usually encourage the most obstinate engine — opinions that misplaced cylinders will result notwithstanding.

WEATHER HAZARDS

The weather in Alaska is notoriously unpredictable. The most dangerous conditions occur in winter with the formation of ice fog. The windshield first picks up an ice *glaze*, which rapidly becomes *opaque*. Flight may be possible for some time, however, since the coating is light and takes time to appreciably alter the characteristics of the airfoil. Most ice fog lies in comparatively thin layers close to the ground, and the usual remedy is to climb above it—providing, of course, an area free of the fog is within range so one can get safely down again. If a climb is not possible, then a "one eighty" is indicated, or an immediate landing may be necessary.

Another, and more usual, type of ice fog is composed of minute ice crystals suspended in the air. It presents no particular problem since this type of ice builds slowly. It does, however, seriously obscure visibility. This is the type of ice fog frequently found around northern cities and towns when the air is calm and the temperature well below zero. Cities in the interior of Alaska are frequently swathed in fog 100 to 200 feet thick until the wind moves it or the temperature rises.

Another peculiarity of ice fog should be noted. On radio weather sequences, ice fog may be reported with the comment "sun visible." If the aviator doesn't hear the horizontal visibility, he may conclude that if the sun is visible the fog can't be too much

Servicing at remote Hooper Bay

of a hazard. Later, over the field and low on gas, he may find it dangerous or impossible to land, unless he is thoroughly familiar with the area surrounding the landing field. He may see the field and buildings looking directly downward, but when he attempts to come in on an approach he's apt to see nothing as he gets close to the ground.

When visibility is a quarter-mile and fog blends with the snow, attitude is impossible to maintain visually. This "milk bottle" or "white-out" condition has caused many an old timer to find himself taxiing along the surface when he thought he was still flying. On-top flying is smoother and more relaxing, but with so few navigational aids, instrument or on-top flying is not always the answer. True, some of the bush pilots do it, but they have their own special technique for finding a "hole," usually close to a peak, a ridge, or a hill. These men, however, have been flying the bush country all their lives. They know the terrain, and they know to a remarkable degree how far they and their airplane can go.

Radio networks are provided throughout Alaska by the Civil Aeronautics Administration, the Alaska Native Service, commercial airlines, the Eskimo Scout Battalions, and amateurs. Weather at or near destinations and en route can usually be procured, though the forecasts are not always accurate. When plagued with submarginal local weather, it is not uncommon to take off under zero-zero conditions, as long as the aviator can be reasonably assured of better conditions at his destination.

The cautious may raise an eyebrow at these techniques, and they are right. When possible, operations should be conducted in accordance with all rules and regulations, but the Alaska National Guard Advisor, when his assistants are stranded in a remote village, cannot wait for an assurance of good weather. He must exercise judgment and initiative and make the most of an opportunity when it presents itself.

Army Aviators assigned to the National Guard in Alaska may find the duty arduous, even dangerous at times. With the type of flying being done there, the aviator develops a high degree of skill which makes him able to cope with almost any climatic conditions in the world. This is one of the real benefits that make the assignment so rewarding. Another is the satisfaction of successfully completing a tour of duty on our last frontier—a flier's country.

Memo from Flight Surgeon

A RECENT POSTCARD from the Flight Safety Foundation makes the following "cold facts" observation:

Of 62 survivable accidents, 52 pilots *did not* wear a shoulder harness and suffered severe and dangerous head injuries.

Ten pilots wore a shoulder harness and came up with minor or no head injuries at all.

End of very pointed message.

STATE OF GRACE

Fatigue, it is written, is a progressive decrease of efficiency together with a feeling of loss of control—two very "mortal" sins that could bring everlasting punishment to an aviator.

From the Foundation we lift the word of Dr. Nicholas Padis of Philadelphia who offers this list of ten commandments to those aviators who would continue flying unstained and—unscathed.

"1. It is healthy to be active and to get pleasantly tired.

"2. Remember that nature needs time for good repair work. You may forget about rest or sleep but nature doesn't.

"3. Prevent fatigue by periodic health examinations. You must be healthy to be happy.

"4. Fatigue is the most common symptom of all diseases. If fatigue persists, seek medical care and prevent further wear and tear.

"5. Choose your work according to your physical and mental powers and not according to your dreams.

"6. Be prepared. Cultivate a philosophy of acceptance for any crisis or either success or failure.

"7. Be very careful of the physical and social environment in which you work.

"8. Take time to live. Don't just exist. Eat properly. Rest properly. Faulty diet can cause

both physical and mental fatigue.

"9. Life is short. Don't make it shorter by unnecessary fatigue.

"10. Play and work and meditate with wonder and enthusiasm. And, paraphrasing some thoughts from the Good Book, remember that 'all things work together for good to those who love freedom, truth, man and God.' "

SAFETY COMES LAST

Are you getting older? It's nothing to get alarmed about, at least from the flying viewpoint. You become a safer pilot each year you fly. So reads the latest paper on this "ever-there" problem.

One hitch: the reverse may be true for "higher performance" aircraft. The figures aren't all in but maybe the young reflex is just a little more important than maturity in flying the "hot pipe."

At any rate, the report continues, "regardless of the variables at work, the number of accidents experienced in these age groups (past the middle thirties) is so small that from the standpoint of the older pilot it is negligible."

So why stew when you spot that first grey hair, or suddenly spy the growing nobility of your forehead. Relax. Don't go into shock. You're a veteran aviator —a very safe bet to fly forever.

HUMAN STRESS METER

Your flying machine has an instrument panel that squawks trouble when its inner parts begin to wear hard. A little red light turns on, or a tiny flag pops up, or a steel needle moves into the red "unsafe" area. But, what about you?

Up to now you have no tiny red bulb plugged into your forehead to flash when your gears aren't quite meshing. And no tiny flag pops from your lips when anxiety begins to crawl about your intestine. You keep moving along, chipping away, performing the operation, doing your duty until — bango! — the big crack-up comes. Not the best system you'll admit but maybe we're due for a change. Because out in Texas, Colonel Thaddeus J. Domanski of the Medical Service Corps has an idea that aviators may have a built-in panel just like the airplanes they fly— one that will signal "trouble on-the-way" just as clearly as the instrument panel on our flying machines.

With only a slide, a microscope, and a few drops of blood pricked from the end of your finger, the Colonel is demonstrating that aviators who are wear-

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The views expressed in this department are not necessarily those of the Department of the Army or of the U. S. Army Aviation School.

—The Editor

ing down because of internal pressure will put out a message just as big and definite as that blinking red light on the instrument panel or the needle quivering on the wrong side of the gauge.

Why hasn't anyone checked this human "bulletin board" before? The answer is simple: it was hidden in the bloodstream and though men probed all around, no one looked in exactly the right spot.

If the Colonel's discoveries continue to check out, we may be pulled from the flight line some day when our "inner bearings" begin to run hot, even though we look like a million. In fact, those of us who begin to "run rough" during operations may be screened and eliminated before we reach a permanent flight line—and all because, one day, some years back, the Colonel began to suspect that the behavior of at least one group of our white blood cells (the eosinophils) is directly tied up with the wear we experience under stress.

Using fingertip blood smeared on a slide, he made a count of his aviator's eosinophils against their other white cells. He did this during tactical and strenuous training operations before takeoff and again on return. Day after day, he checked them and made graphs of the count before and after each mission.

Finally, after many months, he assembled all the data, and with some trepidation, called in supervisory pilot personnel. At this stage, his data was merely a large set of graphs and figures with the noncommittal message that certain pilots who fly missions retain approximately the same eosinophil count after a mission as before, while other pilots show a steep drop.

Concealing these figures from the supervisors, the Colonel had each of them evaluate the men under him. The results excited him. Each of the pilots who showed a consistent drop in their eosinophil count after a mission was rated as "weakening" by the supervisory personnel.

To sum it up, the Colonel discovered that when a group of pilots fly identical missions, the man who is grinding his gears or "running hot and rough" inside, though he may seem to be without a care, will show a big drop in his cell count. For some strange reason the tiny eosinophils simply vanish under stress.

Thus far, the correlation between the vanishing cells and the man who operates under too much strain seems exact. As a good scientist, however, the Colonel is wary of experimental results that often seem so right in the beginning and wind up so wrong when other facts are introduced.

At any rate, the Colonel's findings promise a lot, and some day your Flight Surgeon may save you from the excessive wear you do not recognize and cannot admit. Perhaps, he may even save you from a psychological crack-up. He'll do it as easily and as surely as a good pilot saves his ship — simply by postflighting your "eosinophil gauge."

Accident Prevention—

A COMMAND RESPONSIBILITY

Colonel Frank G. Forrest, *Inf*

THE CONSEQUENCES of an aircraft accident can be vividly appreciated if its effects on the operation of the unit are considered. In addition to unfavorable influence on morale, an aircraft accident interferes with the accomplishment of the unit's mission. In aviation units, therefore, accident prevention is a command responsibility of particular importance.

Generally, commanders get things done by publishing orders. But it is doubtful if "Major Roger Wilco," Company Commander, 20th Division Aviation Company, could produce the desired results by signing an order stating, "There will be no accidents in this company." Instead, he should say to *himself*, "There will be no accidents in *my* company," and go to work putting his idea into effect.

Suppose Major Wilco selected the latter course of action. He would wonder what actions could be taken to eliminate aircraft accidents in his outfit. The thought would probably occur that he should have some training in this field. In fact, aircraft accident prevention training should be a prerequisite to his qualification as an aviation unit commander. Considering the influence accidents have on mission accomplishment and the many new and different types of aviation companies to be activated in the next few years, Major Wilco undoubtedly would think the Army should recognize this need and take action to train its future commanders.

Meanwhile, the Aviation Company, 20th Infantry Division, must take steps to prevent the loss of aircraft and personnel. Here are a few tips on how Major Wilco can get the ball rolling.

First, it should be pointed out that everything in an aviation unit influences the accident potential. The accident prevention effort, therefore, must cover *all* areas and must be made effective while the unit is operating at maximum effort. The accident

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Colonel Frank G. Forrest is Aviation Officer, Sixth U. S. Army. *The views expressed in this article are the author's and are not necessarily those of the Department of the Army or of the U. S. Army Aviation School.*

—The Editor

prevention effort must be dynamically and relentlessly inspired by the unit commander. Accident prevention is a consideration all staff members must make in their planning and operations.

If someone were to ask Major Wilco if accident prevention will become the primary aim of the unit at the expense of accomplishment of the mission, his answer would be, "Not likely! It must be kept in mind the object of accident prevention is to enable the unit to accomplish its mission better. Remember, in an aviation unit the equipment is more vulnerable to accidents, and the results of an accident are more disastrous."

PILOT ERROR

The majority of aircraft accidents are caused by pilot error. It seems reasonable, therefore, that the first place for Major Wilco to apply his efforts is the pilots. He should start by doing all he can to know them personally. For one thing this means he should get out and fly with them. The better he knows his pilots, the better he can prevent their mistakes when they are at the controls.

Major Wilco should not, however, confine his interest to their flying ability. An individual's family, his personal life, his personality, and his health may affect his flying ability. With the complete confidence of the pilots, his task will be considerably simplified.

One specific action Major Wilco may take to reduce accidents is to establish a system requiring all pilots to make sufficient preparation for each flight. Let us assume the 20th Aviation Company has the usual setup for flight dispatch. Aviators complete a flight plan or a local aircraft clearance as appropriate. It is possible under this system for a pilot to go on a cross-country flight by filling out DD Form 175, getting into the airplane, and taking off.

As we all know, other things should be done. Nevertheless, under the existing system, it is possible *and legal* for an aviator to take off having done no more than file his flight plan. "Murphy's Law" states that if it is possible to leave on a cross-country flight having done no more than complete DD Form 175, some day an aviator will do it.

All good Army Aviators should, in addition to completing DD Form 175, which includes weather briefing, make a detailed plan of flight, to include a flight log, and provide themselves with the equipment necessary to execute the flight, such as maps, charts, E6B, flashlight, etc.

SELF-PREFLIGHT

Before an aviator jumps into the airplane, he should preflight it. In this connection the preflight generally is applied only to that element of the man-machine combination least responsible for accidents. *Why not preflight both elements?* This appears to be feasible, and some of us remember an instance where an accident could have been avoided had the pilot preflighted *himself*.

"Self-preflight" is examining one's self to insure that he is physically and mentally capable of coping with the stresses of

the impending flight. As Company Commander, Major Wilco should, under certain conditions, preflight his pilots prior to clearing them for flight. This procedure is particularly applicable to new pilots assigned to the company. Pilot preflight should consist of, but not be limited to, a check to determine:

Am I (is he) qualified in the aircraft assigned to the flight mission?

Am I (is he) under the influence of, or suffering from, the effects of drugs or alcohol?

Can I (can he) stay awake for the duration of the flight while I am (he is) at the controls?

Are my (are his) senses normal (especially vision)?

Do I (does he) suffer from any pains or aches that will interfere with my (his) function as pilot?

Is there any portion of this flight about which I am (he is) in doubt?

If the answer to any of these questions indicates an undesirable situation, corrective action should be taken, the nature of which will depend on the seriousness.

CHECK LIST

How can Major Wilco be assured his pilots will accomplish these varied duties? One method is to have a supplemental check list attached to the DD Form 175 or the local flight clearance form. This check list should contain all items necessary for complete flight preparation, plus aviator preflight items. The aviator's signature on the DD Form 175 should be his certification that the applicable portions of the check list have been properly executed.

Aviators who think this check list is unnecessary trouble should consider this—the Army is experiencing an accident rate which in 1955 reached 10.7 Army Aviators killed per thousand, per annum. Our objective is to reduce this accident rate to zero. It can be accomplished only by hard work and by introducing new techniques for controlling the situation. If anyone thinks of a better way to accomplish this objective, please tell your unit commander. He would like to know.

OTHER PREVENTION AREAS

The next important area for Major Wilco to apply accident prevention effort is the aircraft itself. Accidents attributed to malfunction of the aircraft, generally, can be divided into two categories: accidents resulting from *wrong* design, and those resulting from *inadequate maintenance.*

Most material failures in aircraft of the 20th Division Aviation Company will be traced to maintenance or the lack of it. Therefore, Major Wilco must make sure he has a fully qualified maintenance officer. He should also have an aggressive program to improve the qualifications of all maintenance personnel. Good maintenance will foster accident prevention.

The *man-machine* combination should be the primary target of the accident prevention effort; however, there are other areas where discrepancies may exist. These are all areas and activities on the airfield which concern the operation of aircraft,

such as runways, tower, and refueling facilities. A periodic survey should be conducted to check the condition and functioning of these facilities and agencies. Discrepancies should be corrected as they are discovered.[1]

INCIDENT REPORT

Many errors which cause aircraft accidents are not obvious. One way to find these hidden discrepancies is to employ the "Near Accident Incident Reporting System."[2] This system should be established and administered at a local level. The value of the "Near Accident Incident Reporting System" is most obvious at airfields where many aircraft are stationed.

The system provides for reporting an incident which just missed being an accident. An example is an incident in which an aircraft, crossing a runway after clearance by the tower, almost collides with another plane taking off from the same runway.

The near collision incident is not the only event included in this system. All hazards, on the ground or in the air, that can be corrected by the commander should be reported.

Reports of incidents should be on a form similar to the Civil Aeronautics Board "Near Collision" report. A place to deposit these reports should be provided.

To obtain maximum benefit from the system, all personnel must understand the purpose is to reduce potential loss of equipment and personnel. The person rendering the report should not be required to identify himself, and the contents should not be used to penalize him. Reports received must be analyzed and corrective action taken as indicated.

Despite strong determination by Major Wilco and all aviation unit commanders, reduction of accidents to the minimum will take time. Considerable assistance in attaining this goal can be obtained by unit commanders insuring that accident investigation is adequately conducted. Department of the Army Technical Bulletin, "Aircraft Accident Investigation," (TB AVN 8), 31 Aug 56, should be used as a guide.

RELATIVE FACTS

Without going into the fine details of aircraft accident investigation and reporting, the following points warrant mention. Exhaustive effort must be made to find and record all facts relative to the accident. These facts are obtained from:

A. A study of the scene of the accident and detailed examination of the wreckage.

B. Witness statements.

C. Medical examination of crew members, alive or deceased, to determine if the accident can be traced to physiological fac-

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[1] *An Accident Prevention Survey, which covers such things as ground or flight operations, pilot training, mechanical repairs, SOPs, and obstruction lighting, is currently available upon request to the U. S. ARMY BOARD FOR AVIATION ACCIDENT RESEARCH, Fort Rucker, Alabama.—The Editor*

[2] *A Near Accident Report form to be entitled "Grasshopper Gus Reports" is being developed by the U. S. ARMY BOARD FOR AVIATION ACCIDENT RESEARCH and the U. S. ARMY AVIATION DIGEST, and should be available soon for general use.—The Editor*

tors.

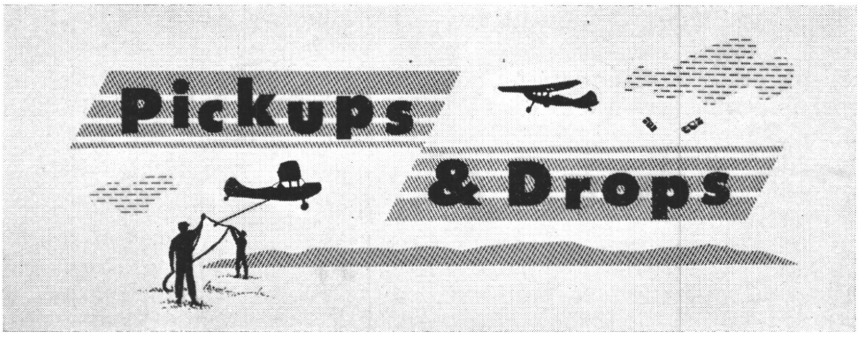
D. Examination of all records relative to personnel and equipment involved in the accident.

As facts are gathered, they should be analyzed individually and collectively, then conclusions can be derived. In preparing the accident report, care must be exercised that all conclusions are adequately substantiated. If the investigation is properly conducted, the right causes should be apparent.

When the causes can be corrected locally, the commander may take the appropriate action. Accidents caused by factors beyond the control of the local commander (such as poor design) require action by higher authority. The commander makes known this information by means of formal accident reports (DA Form 285) and the Unsatisfactory Equipment Report (UER).

Serious deficiencies, beyond the control of the local commander, should be reported by telephone or message to the next higher headquarters. If a dangerous fault beyond the commander's control exists in an aircraft, he should ground the aircraft concerned. Action to ground aircraft, more than anything else, will stir the higher command levels. Therefore, care must be exercised in issuing the grounding order, but the order should be given if necessary.

As he puts his accident prevention plan—which might also be labeled mission accomplishment plan—into effect, Major Wilco will discover other methods which will contribute to the reduction of accidents. The main idea is to get a program started, and keep it working. Its effectiveness will be difficult to measure, because Major Wilco will be unable to determine every day just how many accidents were prevented. However, he can tell if he feels he has done everything within his power to protect the lives of his men and prevent the loss of his aircraft.



An aircraft manufacturer recently received a R & D contract from Signal to manufacture high-speed surveillance drones. Work began in April on the 12-million dollar order. No performance details were announced. (News Release)

A multimillion dollar contract, recently awarded to Bell Aircraft Corporation by the Army, stimulated hopes for delivery of the new Iroquois in 1959.

The six-place turbine-engine helicopter can climb at 2,000 fpm at sea level and has an estimated top speed of 150 mph. All-metal rotor blades, a new rotor hub design, and an 825-shaft-horsepower Lycoming gas turbine engine saves weight, engine life, and maintenance time.

A "free-power" principle does away with the clutch, and the turbine engine eliminates fans, spark plugs, and other reciprocating parts. (News Release)

A twin-jet readiness trainer developed privately by a prominent manufacturer can also be used for navigation training, target towing, and cargo and passenger transport.

GE J85 engines give speed of over 500 mph. Normal configuration is designed to carry four passengers. A stripped version can carry as many as nine persons or relatively large cargo volume. (News Item)

A coating for aircraft windshields to prevent icing and fogging has been developed, consisting of tin-doped indium oxide film that is electrically conductive. It underlies windshield glass and can be heated to melt ice and dissipate fog. (News Item)

Zama Airfield near Tokyo was recently renamed the THOMAS S. RANKIN ARMY AIRFIELD at ceremonies honoring the late Commanding officer of the U. S. Army Aviation Detachment, Hq, AFFE and Eighth Army. He died as a result of an aircraft accident near Camp Zama on 6 November 1956. (PIO Release)

After ten years of inactivity, the West German aircraft industry is in business again. First of the Dornier Do-27s will be ready for export soon. This is a slotted-wing aircraft with ex-

Mention of any specific item in this department does not constitute indorsement or approval by the Department of the Army or of the U. S. Army Aviation School.—The Editor

cellent STOL characteristics. Speeds range from 36 to 158 mph. It is powered by a 270-horsepower Lycoming engine and carries four passengers. (News Item)

During mid-summer thirteen helicopters of the 521st Engineer (Topographic Aviation) Company were used on "Operation Cherry Drying," an attempt to aid the cherry growers of San Joaquin County, California. Using downwash from the rotor blades to dry excessive moisture, about 2,500 acres of cherry trees were saved. (30th Topo Group Monthly Report)

THERE IS REALLY a "180° turn rating." A special flight training program has been set up by New York's Bureau of Aviation to teach emergency reversal of flight to clear hazardous weather.

The maneuver can save a pilot's life, Bureau officials believe, when a contact pilot loses outside visibility. (News Release)

YOU RECEIVE a teletype Sequence Report that reads as follows:

TLH B5 8 11/4 LF 999/30/29↖ 4/987

A newly winged Army Aviator has interpreted the following answers from the report. Can you tell him which statements are true?

- ☐ Wind is from the SSE at four mph.
- ☐ Ceiling is 500 feet above MSL.
- ☐ Visibility is 11 miles.
- ☐ Present weather is sleet, drizzle and fog.
- ☐ Altimeter setting is 29.87 millibars.
- ☐ Temperature is 30° C.
- ☐ Dew point is 30° F.
- ☐ A temperature inversion exists at this station.
- ☐ The air below 2,000 feet is conditionally unstable.
- ☐ A warm front lies approximately 50 miles north of Tallahassee.
- ☐ A cold front is approaching Tallahassee.

Reference: TM 11-2557, Vol. 1.

The correct solution to the PUZZLER may be found on page 32.

MUSCLE FOR

the Army's "Long Right Arm"

Colonel Melvin D. Losey, *TC*

SUPPORTING ARMY aircraft in the Far East is like juggling ping pong balls in a hurricane—you have to move fast to do the job.

The supported aircraft are operated in erratic weather, with unreliable navigational aids, over widely separated land masses, in areas spreading over a 3,000-mile arc from Japan to the tropics of Thailand. Aircraft must be maintained all along the "Frontier of the Free World," because Army Aviation is essential for everyday Army operations as well as for combat readiness. General I. D. White emphasized this when he declared, "Army aircraft have been my *long right arm.*"

Under "normal" conditions logistic support is complicated—a real challenge. However, two recent changes in responsibilities have further complicated the picture. First, the Army is accepting from the Air Force all responsibility for depot supply support of Army aircraft throughout the entire western Pacific area. Second, the Army has assumed the former responsibility of the Air Force for depot maintenance of Army aircraft in this region.

TRANSFER SUPPORT

The first of these programs—the transfer of depot support responsibility — is being accomplished with a minimum of disruption. By local agreement between the Army and Air Force, air items are being transferred to the U. S. Army Transportation Depot, Far East. A phased schedule by Air Force property class has been implemented, permitting the receipt, storage, and issuance of materiel to be conducted in an orderly manner.

Another major advantage of such a time-phased program is found in the gradual development of maintenance facilities. Although the maintenance capability is limited, the Transportation Depot is now capable of providing in-storage maintenance, technical order compliances, and minor repairs to parts damaged in shipment. The success or failure of this approach must be judged on the basis of the AOCP (aircraft out of commission for

parts) rate, which has been remarkably low during this transition period.

Favorable labor costs and the first-class "know-how" of the Japanese aircraft industry have made possible the development of a depot maintenance program without the necessity of constructing new and expensive depot maintenance facilities.

Under cross-service agreements with the Navy and Air Force, contracts have been established for overhaul, repair of crash damage, and depot level modifications of all aircraft and associated equipment assigned to the theater.

A portion of the work is performed with the contractor furnishing parts, and Japanese firms are being assisted and encouraged to increase their productivity. By FY 59, the Army expects to develop a capacity to perform a major percentage of depot maintenance in this manner.

SOUTHEAST ASIA

The second new responsibility — support of Army aircraft throughout Southeast Asia—has achieved considerable success as a result of careful planning and complete adherence to Department of Defense policies on interservice support and commercial contract maintenance. Contracts for support of Army aircraft extend over the whole western Pacific area, including such isolated countries as Vietnam, Laos, Thailand, Cambodia, and Taiwan. Support of Army aircraft in these countries is performed, primarily, by commercial airline maintenance facilities and has, in general, been entirely satisfactory.

Army-owned repair parts re-

Colonel Melvin D. Losey, Acting Transportation Officer of U. S. Army Japan, has been closely associated with Army Aviation in the Far East.

He was Deputy Transportation Officer at GHQ in Tokyo in 1952 when the Transportation Corps assumed its aviation responsibilities in that theater. When Army Transportation Corps cargo helicopters were first introduced into combat, he was serving as Transportation Officer of Eighth Army. During the same period he took active part in establishing provisional aviation detachments in divisions.

He next attended the Army War College, where his thesis was on the future of Army Aviation.

During SAGEBRUSH, as Fourth Army Transportation Officer, he was responsible for the support of the largest number of Army aircraft ever employed in a peacetime maneuver.

Since his return to the Far East in early 1956, he has continued to take active part in the development of Army Aviation capabilities. Views expressed in this article are the author's and are not necessarily those of the Department of the Army or of the U. S. Army Aviation School.

—The Editor

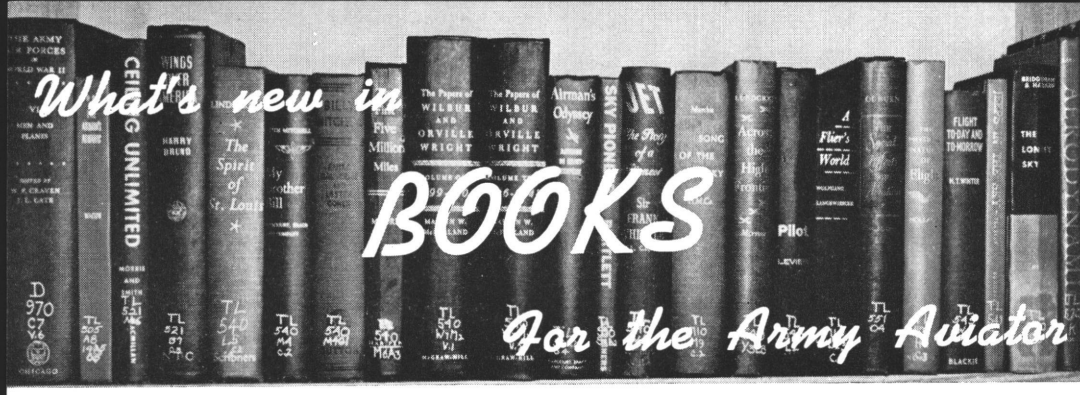
Army Aircraft Maintenance Center, Chofu, Japan

quired by maintenance contractors in the Southeast Asia area are stocked and issued by the Southern Air Materiel Area Pacific (SAMAP) at Clark Air Force Base in the Philippine Islands. This support is provided in accordance with the cross-service agreement between SAMAP and U. S. Army, Japan, and is under the surveillance of an Army Liaison Officer located at Clark Air Force Base.

DIRECT SUPPORT

Direct support to the users of Army aircraft in Japan and Okinawa is provided by the U. S. Army Aircraft Maintenance Center, Japan. In addition, the center provides fourth echelon support for all aircraft in Japan and Okinawa and backs up fourth echelon maintenance support to units assigned Army aircraft in Korea. This facility is being developed to perform full fourth echelon maintenance on crash damage repair, component repair, and overhaul. The objective is to reduce item quantities in the CONUS pipeline and insure maximum utilization of high dollar value components prior to compulsory overhaul in CONUS depot facilities.

The pattern of aircraft support will possibly change in months ahead, and channels for providing this support must remain flexible. The aircraft population will shift; old equipment will be phased out with the introduction of more modern aircraft; and manpower and budget resources will change. As a result, aviation logisticians in the Far East are looking at the "here and now"—the current AOCPs, TOCs, etc.—but they are equally alert to needs of the future.



MILITARY CUSTOMS AND TRADITIONS—Major Mark M. Boatner, III (David McKay Co., Inc., 55 Fifth Ave., New York, N. Y. $2.75)

Reviewed by
Captain Theodore Ferry, *Arty*
U. S. Army Board for Aviation Accident Research

Many are the words, written and spoken, that have been devoted to military customs and traditions. Major Boatner has done it again and the results are most pleasing. No great testimonial to tradition here, in AR language, but an interesting and practical book.

If you have wondered who had serial number 01 (General Pershing), or why a Lieutenant General ranks a Major General (it used to be Sergeant Major General), this is your meat.

The book contains an excellent chapter on soldier slang that covers everything from Army brat to W.P.P.A.

"Army brat — Army child — originally reserved for officer offspring, now applied to all Army children. The expression is not considered offensive, but it is best for an 'outsider' to smile when using it."

"W.P.P.A.—'West Point Protective Association'—a mythological organization which has never existed, either in the flesh or spirit."

For those who occasionally deal with the Air Force and Navy, enough space is devoted to their customs to make you feel better when climbing into a C-54 or boarding a Naval vessel.

How many times have you heard that a Medal of Honor winner rates a salute from all ranks? What about that old saying that comes when a guard is forced to shoot a prisoner—"Fine him a dollar and give him a carton of cigarettes"? All of this and much more is covered in this well-written and interesting book.

If there seems to be an unusual amount of reference to West Point, Major Boatner has his reasons. Born and raised in the Army, he is the fifth Boatner in his family to graduate from the Point. At this writing he is back at the Point again—this time as an instructor.

Everything considered, an Army man will have to go a long way to find a better buy for his military library.

ATOMIC WEAPONS AND EAST-WEST RELATIONS—P. M. S. Blackett (Cambridge University Press, 32 East 57th St., New York 22, N. Y. $2.00)

As Professor Blackett sees it, there have been three periods since the first atomic weapons were used: the time of our atomic monopoly while the West disarmed; the time of our atomic superiority, while Russia made immense efforts to catch up; and now,

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Book reviews appearing in this department do not necessarily reflect the opinions of the Department of the Army or of the U. S. Army Aviation School.—The Editor

the time of atomic parity. Each of us has the weapons and the means of delivering them; each is so afraid of the other's retaliatory power that there is an atomic stalemate. What now?

In this newest period, Mr. Blackett feels the Western policy of "massive retaliation" may be out of date. But if the stalemate has made all-out war exceedingly unlikely, limited wars remain possible—even likely. If the West uses atomic weapons tactically in such limited wars, to offset our smaller armies, is it possible to prevent total atomic war being touched off?

The atomic stalemate has led to a relaxation of tension in Europe, and also to the increased importance of bidding for allies among the uncommitted Eastern countries. They need expensive aid to remedy their extreme poverty; the West's only source which would not reduce living standards would be savings on armament. How much should we spend on preparation for an atomic war which is unlikely to occur?

Professor Blackett gives an unconventional estimate of the situation. He thinks that much of the extreme anxiety in the West has been due to faulty thinking. The Western countries have made serious errors of judgment, he thinks—particularly in the conduct of the atomic arms race. These had serious effects; there has been divided counsel, muddle, inflexible thinking, and even self-deception.

This book contradicts a number of things we have been told for several years, and this may be something of a shock. Nevertheless, it should be a relief, for if Professor Blackett is right much of the West's fears are of its own imagining.

FROM THE GROUND UP—Sandy A. F. McDonald (Aviation Service Corporation, Ltd., Ontario, Canada. $5.00)

This tenth edition of *From the Ground Up* follows the general approach to the various aeronautical subjects covered in much the same straightforward manner as the previous nine editions. The whole work is kept on an informal conversational level. It is written in such simple nontechnical language that students find it extremely easy to understand. In truth it is a ready-made pack of notes to aid the student pilot in preparing for his examinations. It is brief, concise and directly to the point in treatment.

Here are the subjects: Airmanship, Theory of Flight, Meteorology, Air Navigation, Radio Communications and Navigation, Aero Engine, and Airframes. A total of 193 examination questions are published, answered, and analyzed.

This new edition contains the latest data available on those subjects which are a "must" for every pilot to know. Recent additions to the text, for example, include Controlled VFR, Decca, Radar Advisory Service, the astrocompass, the newest in VHF radio equipment, omni and ADF, hazards of wingtip vortex, the bypass gas turbine engine, new ADIZ rules and regulations, "busy" signal at radio beacon stations and many other recent innovations.

From the Ground Up does not deal with instrument flying requirements for public transport pilot's license, but it does cover just about all the material required for private and commercial pilot examinations—and it covers this field in excellent fashion.

Senior Aviator of The Month

LT COLONEL RAYMOND E. JOHNSON, the Senior Army Aviator above, is presently assigned as Director, Department of Rotary Wing Training, the U. S. Army Aviation School, Fort Rucker, Ala. He attended Liaison Pilots' School at Pittsburg, Kan., in 1943 and advanced training in 1944 at Fort Sill, Okla. In the same year he received instrument training at Goodfellow Army Airfield at San Angelo, Texas. However, he did not receive his certificate until he completed the instrument course at the Air Training Department, The Artillery School, Fort Sill in 1952.

He joined the 416th Field Artillery Group, a part of 20th Corps, in 1944 and saw service in France as Air Officer. He was 4th Armored Division Air Officer from 1945 to 1948. His assignments include tours as a reserve instructor at Fort Snelling, Battery Commander in the 2d Armored Division, and National Guard Advisor in Alaska. He was also Aviation Officer for 4th Army.

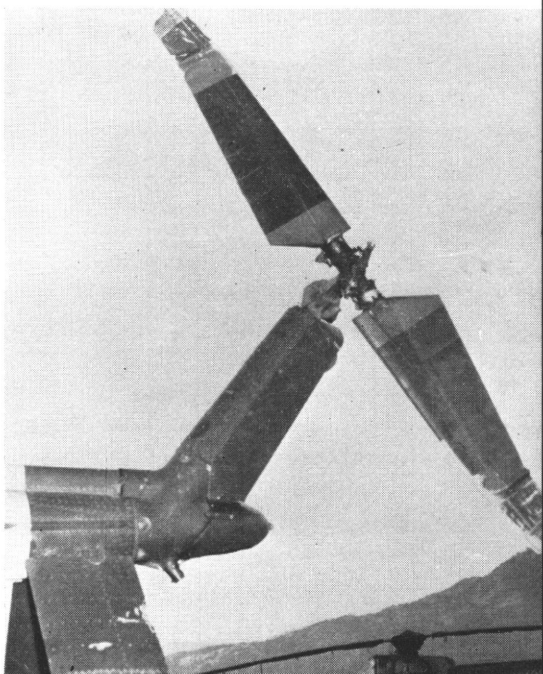
A graduate of Command and General Staff College, Colonel Johnson is both fixed- and rotary-wing qualified and has logged over 4,000 hours in Army aircraft.

The Gray Hair Department

AT THE TIME of the accident the Instructor Pilot was checking out a new aviator on landings, takeoffs, and autorotations in a *Chickasaw*. The initial landings and takeoffs being satisfactory, the IP went on to autorotations. After several demonstrations, the student made three or four touchdown autorotations. Each time, the IP would explain what the student was doing wrong and run through the necessary corrections.

On the eighth and final landing, the student aviator entered a 180° side autorotation. A slight flare was executed at 75 to 100 feet and everything was smooth and normal until just prior to touchdown. The instructor's attention was momentarily distracted at this time by a runway light in close proximity to the touchdown point. As he returned his attention to the maneuver, he noticed the helicopter was in an extremely nose-high attitude. He grabbed the controls to make a correction, but was not in time to prevent the tail boom from striking the ground, causing damage to the

IP's attention was distracted



The Gray Hair Department is prepared by the U. S. ARMY AVIATION DIGEST staff with information obtained from the files of the U. S. Army Board for Aviation Accident Research. The views expressed in this department are not necessarily those of the Department of the Army or of the U. S. Army Aviation School.

tail rotor and skid.

Instructor pilots must in most instances allow the student to go a little further than the normal safe recovery point before taking the controls themselves. This has and will continue to contribute to many accidents, both at the School and in unit transition training. However, the instructor in the foregoing accident became more interested in where the landing was to take place than HOW his student was operating the helicopter. When instructing an aviator in any aircraft, regardless of his proficiency, the IP should always be ready to take the controls. Units should choose their IPs for alertness as well as skill.

UNUSUAL POSITION

As the *Shawnee* neared the practice area, the instructor pilot advised his student to set and lock the brakes. The area they were entering was used to practice slope landings and had been in use for over two years. A normal slope landing was made with the nose pointed upslope. After touchdown the aircraft slowly rolled downslope for about 18 feet before stopping.

After familiarizing the student with the attitude of the helicopter in this situation, the IP demonstrated a normal takeoff, perpendicular to the slope. Soon after the *Shawnee* was airborne, the nose pitched down and full aft cyclic was applied with no immediate effect. It then struck the ground in a nose-low attitude and sheared the nose gear. The second ground contact was made by the bottom of the pilot's compartment, driving the nose gear "V" braces into the ground and crushing the forward control assemblies. The IP then applied full left pedal causing the aircraft to roll to the right into the slope. The fuselage did not roll nor slide down the slope and the two aviators turned off all switches before evacuating the helicopter.

The IP committed his first er-

Full aft cyclic was applied with no effect

No weather information was requested

ror in allowing the helicopter to assume an extreme nose-low attitude. His second error, which resulted in almost complete destruction of the aircraft, was to use only half of the procedures necessary for proper recovery. If pitch and throttle had been added to the already applied "full aft cyclic," the helicopter might possibly have continued to gain altitude, allowing more time for the control action to become effective. The *Shawnee* will not react immediately to control movements and this should be anticipated.

CIRCULAR COFFIN

The Army Aviator took off on a VFR cross-country in a *Bird Dog* at 1553. He estimated the flight to an Air Force Base would take about three hours. At the time of his departure the weather reports indicated the flight could be accomplished.

At 1720 the aviator was over his first reporting point, estimating the next at 1840.

At 1845 he called over the second point, estimating his destination at 1925.

At 1925 the Air Force tower operator received a call from him requesting landing instructions. He was informed that the ceiling had lowered and the field was IFR.

At approximately 1927, the aviator requested a controlled VFR clearance to continue the flight and land at the Air Base.

The tower answered but received no acknowledgment. After continued efforts to contact him proved fruitless, emergency search units were alerted. Bad weather, however, held up the search and it took two days to locate the aircraft about six miles from the airfield. There were no survivors.

When the Army Aviator took off, the weather reports indicated that VFR conditions would prevail. However, as the flight progressed, reports from the Air Force Base indicated a rapid decrease of ceiling and visibility. At 1830 his destination issued a below-VFR report over teletype.

At 1845 the aviator made a position report to a CAA facility, but requested no weather information. The 1830 weather reports were available at this time. Had he known that his destination was below VFR, he could have landed at an airfield near this last reporting point, which was reporting a high thin ceiling with 30 miles visibility.

The actual cause of the crash is unknown, but it is inconceivable that he would have flown into this situation if he had monitored CAA radio frequencies (required by para. 21, AR 95-8). His radios were working perfectly for all position reports and also when he called for landing instructions. Had he monitored scheduled weather broadcasts or asked for a weather report, he would probably be alive today.

Violent reaction in the cyclic was experienced

HOT BOX

Maintenance error accidents comprise only a small percentage of the yearly statistics involving aircraft. When one does crop up, however, it usually takes the form of a major accident like the following example.

The Army Aviator was flying a *Raven* on a cross-country flight when he experienced an antitorque failure. This occurred over high tension wires with an airspeed of about 60 knots, at an altitude of 200 feet.

The helicopter went into a flat clockwise rotation (described by witnesses as similar to running 360° turns). The aviator could not enter an autorotation at this time because of the wires below. He decided to attempt a running autorotation on a highway adjacent to his flight path, and felt that it could be accomplished if airspeed were maintained. As he lowered the collective pitch, the aviator experienced a violent reaction in the cyclic and completely lost control of the aircraft. The *Raven* went into a near vertical descent, contacting the highway after turning 180° from the original flight path.

Although the aircraft was a complete loss, the aviator miraculously left the wreckage uninjured.

It was the opinion of the investigating board that the torque tube separated from the tail rotor drive shaft and struck the control rotor system at the time the aviator lost control.

The antitorque failure was caused from a low oil level in the tail rotor gear box. The daily postflight performed by the crew chief includes or should include a check of the oil level and for leaks around the seals. In this instance, neither check was made by the assigned crew chief.

Many mechanics watch their assigned aircraft fly every day and soon begin to believe it to be indestructible. A mechanic who overlooks an item on his checklist today because he checked it yesterday has lost interest in his mission and is jeopardizing the lives of the aviators in his organization.

NO APPRECIATION

On a warm afternoon an Army Aviator was instructed to pick up a passenger in a *Beaver* from a local field strip and return. En route several power approaches and strip landings were executed.

The wind on this day was light and variable from the southwest, and the aviator took this into consideration as he made his high reconnaissance of the strip. He also noted a new pipe line located about 30 yards short of the north end of the landing area.

The strip was short and the aviator elected to make a power approach. About 200 yards short of the touchdown point, the wind died and the *Beaver* settled. He added a burst of power and the aircraft resumed its normal descent. As he neared the end of the strip, he reduced power to accomplish the landing. Again the wind died and the aircraft settled. Too low to recover, it struck the ground with the main gear. The tailwheel was sheared as it caught the six-inch pipe line.

The alert aviator noticed the abnormally hard landing and executed a go-around. Flying near the strip on downwind for another approach, he noticed a workman on the ground waving the tailwheel. He then called the tower at his home airfield, declared an emergency, and made a wheels landing on the sod with only minor further damage.

Power should be utilized for all approaches to short fields and should not be "chopped" or reduced until the aviator is over the edge of the strip.

Field strips too short for command or utility airplanes should be restricted to smaller aircraft. Each aviator practicing landings at field strips should note new obstacles and transmit this information to unit or base operations as soon as possible for dissemination to others less observant.

FORGOTTEN AIRCRAFT

Countless accidents are caused by Army Aviators forgetting to look for wires and poles on a low drag. The following accident emphasizes that one should not neglect the aircraft while "looking around."

The aviator planned a low drag of a road strip used in his observer's field problem. The strip ran east-west, closely bordered by trees at either end. There was a crosswind from the

The Aircraft Nosed Down Slightly

south as he started down the road using carburetor heat, 30° flaps, 2,200 rpm and 75-80 mph.

As he cleared the trees on the approach, he checked for wires that might cross the road. While his attention was diverted, the *Bird Dog* nosed down slightly. When he became aware of the aircraft's attitude it was ten feet from the surface. He rapidly pushed the throttle forward and started back on the stick, but the aircraft had gathered too much momentum to arrest the downward movement.

The aircraft hit the ground in a nearly level attitude. The main gear took the initial shock with part of the left wheel and brake assembly flying off. The nose then dropped until the propeller struck the ground. The pilot, upon seeing his propeller stop momentarily, abandoned the idea of becoming airborne again and attempted to keep the *Bird Dog* on the road. The aircraft veered to the left, into the wind, and ran off the road. After rolling through high grass, it turned sharply to the right, tearing the left gear from the plane, and came to rest on the left wing and fuselage.

Though wires and other obstacles are hazardous, there is nothing so dangerous as to forget you are strapped to an airplane. If this is a *Bird Dog* and the passenger is not an aviator, there is only one person left to fly it—YOU!!

Solution to PUZZLER

On the basis of the factual information contained in the PUZZLER on page 20, the recommended solution is as follows:

Wind is from the SSE at four *knots*.

Ceiling is 500 feet *above the station*.

Visibility is *one and one quarter miles*.

√ Present weather *is* moderate freezing drizzle and fog.

√ Altimeter setting is 29.87 *HG*.

√ Temperature is *30° F*.

√ Dew point is *29° F*.

√ A temperature inversion *does* exist at this station (because of the freezing precipitation at the surface).

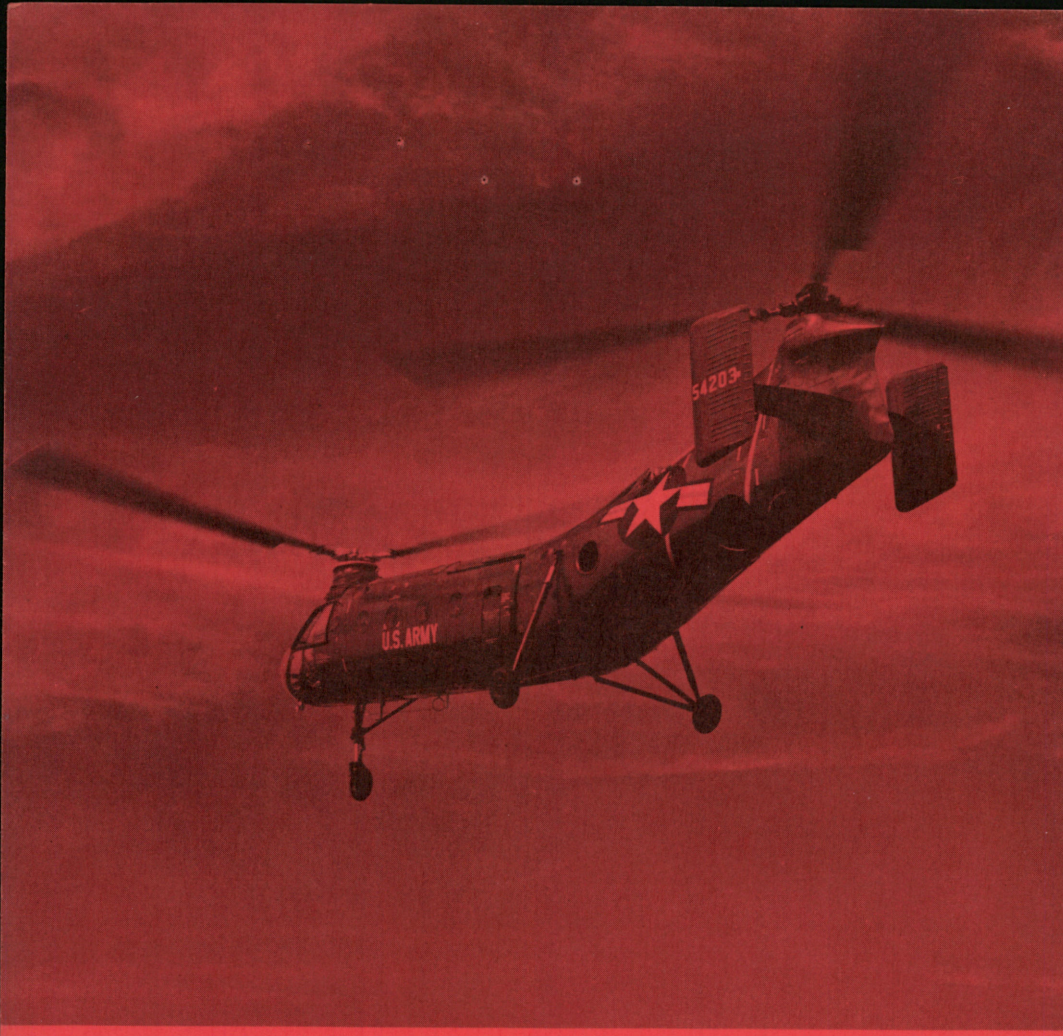
√ The air below 2,000 feet *is not* conditionally unstable (the present weather at the station requires a stable lapse rate).

√ Indications are that a warm front is *SW* of Tallahassee. (If the front were to the north, the freezing drizzle at the station could not be explained since the frontal surface would not slope over the city.)

Brigadier General Ernest F. Easterbrook, former Chief of Staff, G-3, Allied Land Forces Europe, has reached the halfway mark in his flight training at the U. S. Army Aviation School. Upon completion of his tour as a "trainee" at Fort Rucker, he will be assigned as Director of Army Aviation, ODCSOPS, replacing Maj Gen Hamilton H. Howze, who will assume command of the 82d Airborne Division at Fort Bragg, N. C.

In addition to General Easterbrook's fixed-wing training, he is currently scheduled to receive a short orientation course in rotary-wing aircraft to familiarize him with some of the aspects of helicopter flight techniques and problems.

With General Easterbrook in the picture above is Gerald T. Thorpe, his civilian flight instructor.



Flight testing the "D" model Shawnee, powered with two T-58 turboshaft engines, began recently according to a Vertol release.

The 1024-horsepower turbine engines are expected to increase the payload of the Shawnee by 40%, the speed by 50%, and the hovering ceiling by several thousand feet. The flights are being conducted at Philadelphia International Airport. A second turbine-powered "D" model is being used for further ground tests.

Development of the turbine-powered helicopter has been accomplished by Vertol under a $1,800,000 contract awarded a year ago by the Navy Bureau of Aeronautics for the U. S. Army. The aircraft used in the program are modified standard U. S. Army cargo helicopters.