

NAVAL AVIATION

NEWS

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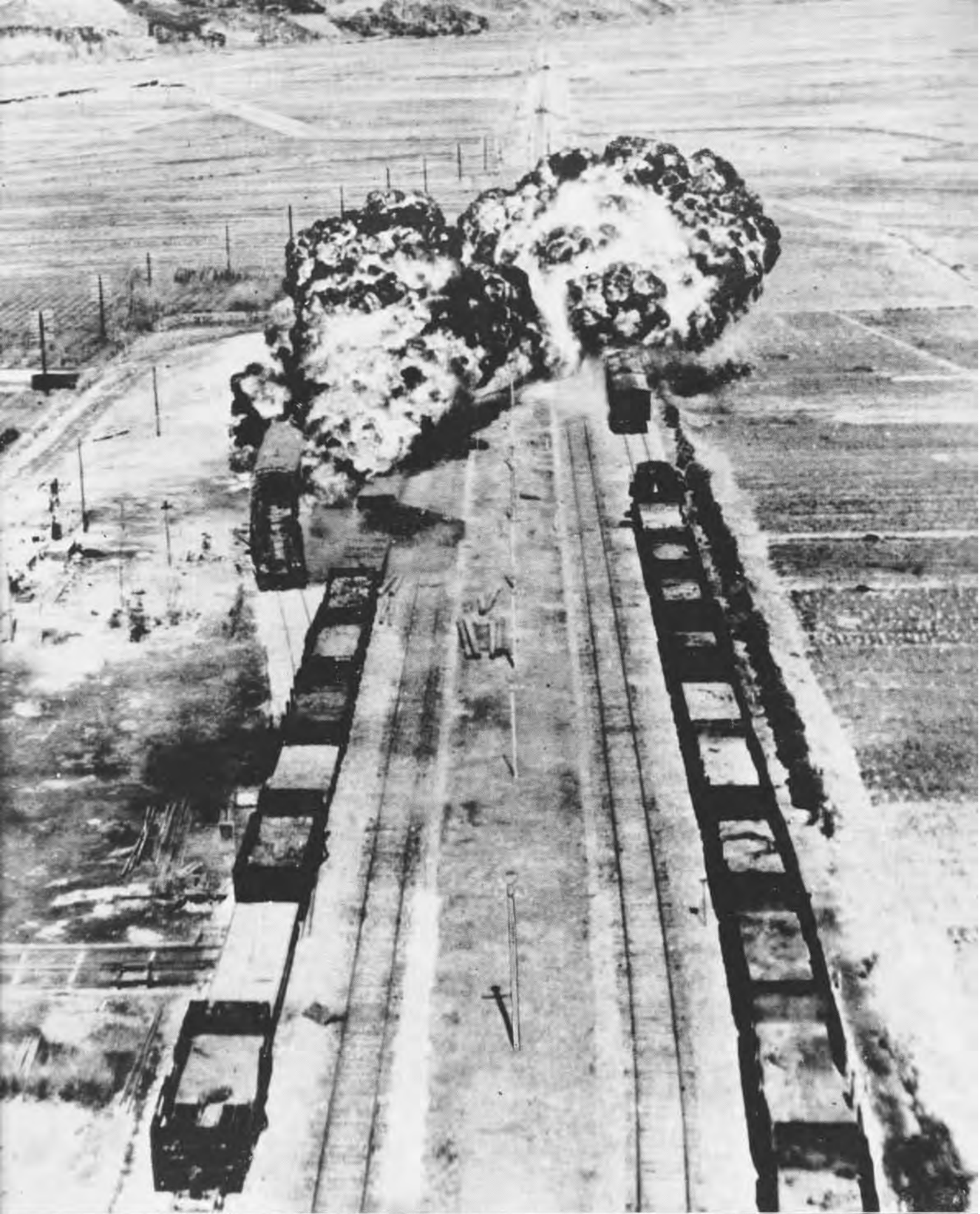


Helicopters Today
Flight Nurses
NavAer 00-75-R3

AUGUST 1951

RESTRICTED





KOREA NAPALM BATH

Twin masses of fiery napalm mark direct hit on rail junction at Munchon, deep in North Korea, after low-level attack by B-26 Invaders



da vinci vindicated

How Subsonic Can You Get? Postwar Research Has Perfected Mach 0; Helicopters, Hovering At Nil Airspeed, Have Proved Military Worth

WHILE A VEIL of secrecy shrouds developments in the supersonic realm, news about the fascinating rotary-wing business at the other end of the speed scale is almost unrestricted.

Pioneers in helicopters—enthusiasts all—were convinced they had a good military vehicle, but it took the Korean conflict to prove their point. When the first helicopters reached the combat zone, a small trickle of news seeped out about fabulous rescues and evacuation of wounded. Now that more substantial numbers of the craft are in the zone, the myriads of accounts of their feats add up to an important chapter.

For a facet of aviation to be so young yet so lusty

arouses the imagination. With many new developments coming up and various designers going in divergent directions, a review becomes necessary.

Here we have gathered pictures and descriptions of existing and new types, and, within security restrictions, will mention what can be expected in the next few years. Pilot training at Pensacola and mechanic training at the Naval Air Technical Training Center at Memphis will be covered in detail in a later issue. Here also will be a review of the background of military helicopters in this country, manufacturers, and a description of what makes a helicopter fly. The eagle may well retire to his lair high up in the mountains.



IN 1923, DeBothezat, with the Air Corps at McCook Field, built this craft which stayed in air two minutes and was controllable



A QUARTER of a century later an amazing resemblance is shown by this Piasecki HRP-1 stripped down for ASW work at NAS Key West

THE SPARROW in the treetop has excited the imagination of men longer than recorded history. His attempts to imitate the flight of birds had to wait, however, until light materials and small power packages were available.

Leonardo da Vinci built working models incorporating basic ideas of helicopters, while the "Chinese Top" predated him. Sir George Cayley based his ideas on the top and had one rise 90 feet in the air in 1796, and later sketched a full-sized steam-driven machine. Enrico Forlanini built a steam driven model that rose to forty feet. There were many others who experimented like this.

No account of the helicopter can ignore Igor Sikorsky. At the age of 19 in Russia, he built a helicopter, year 1908. A year later he produced a second, but only proved that more powerful engines were needed. About the same time, Paul Cornu in France built a machine which just got off the ground but thereafter was uncontrollable.

To say who had the first successful helicopter is difficult. Authorities differ. Brennan in England in 1916 is credited by one source. Emile Berliner and Newton Williams tried from 1909 to 1923

to perfect a machine. DeBothezat, with the Air Corps, in 1923 built a machine, pictured here, which had an endurance of two minutes and was controllable.

It remained for a German company, Focke-Angelis, to build the first fully successful machine. In 1937 it flew from Bremen to Berlin at 68 mph and reached 11,700 feet.

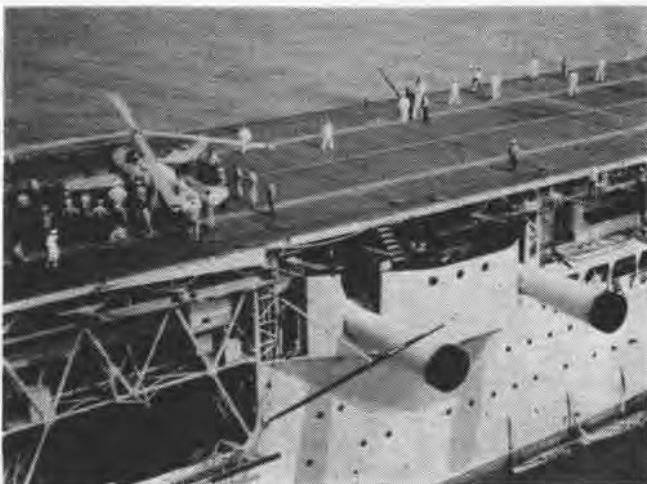
In 1923 Juan de la Cierva produced the first autogyro. This type of rotorplane has free-hinged rotors which seek their own pitch angles and rotate automatically, as a helicopter does without power. In America Harold Pitcairn formed the Pitcairn-Cierva Autogyro Company. He built three machines in 1929. The same year Kellett began experimental work and the Buhl company designed a pusher.

It is at about this time that the Navy enters the picture. As shown here, the first landing of a rotary-wing aircraft aboard a ship was made on the *USS Langley* by Lt. A. M. Pride, now a Rear Admiral, and, until recently, Chief of the Bureau of Aeronautics. Plane was the XOP-1. Autogyros were also obtained from Kellett. A gyroplane of Wilford was investigated. None of these aircraft was suitable for Navy shipboard use.

In 1939, Mr. Sikorsky produced the VS-300 helicopter. It was able to rise vertically with no forward run, hover, and fly any direction. After 30 years he had found strong lightweight materials and powerful enough engines.

Navy interest in helicopters is tied closely with the pioneering done by the Coast Guard. "Daddy" of USCG interest was the late Capt. W. J. Kossler. Carrying on under him and the military pioneer living is Cdr. F. A. Erickson. In 1943 a group of Coast Guard personnel went to Sikorsky in East Hartford for training. The group included Cdr. Erickson, Lt. S. R. Graham, Lt. A. N. Fisher, Leo Bizycki, ACMM, O. F. Berry, ACMM, G. A. Boone, AMM1/C, W. J. Woodcock, AMM1/C, and E. H. Frauenberger, AS. With the group was one Navy officer, LCdr. (now Capt.) Charles "Tom" Booth.

BY FALL the first Sikorsky HNS was accepted, and training of both Coast Guard and Navy personnel was begun at the Coast Guard Air Station, Floyd Bennett Field. Pilots and mechanics were trained at this station. Also included were British RAF, Canadian, Australian and New Zealand personnel.



FIRST rotary wing landing aboard a Navy ship was made by Lt. (now Rear Admiral) A. M. Pride, on *USS Langley*, on 23 September 1931



THE XOP-1 autogyro, although it resembles a helicopter, has no power applied to rotor, which rotates automatically and freely



IGOR SIKORSKY, pioneer in helicopters, built two machines in 1909 and 1910 but was limited by material weight and low engine power



AMERICAN MILITARY pioneer in helicopters, Coast Guard Cdr. Erickson shown here standing beside an early HOS-1 with flotation gear

No operational use of helicopters was seen during the war, except when a destroyer blew up in New York harbor.

The famed hydraulic hoist which has aided in saving many lives was developed at CGAS FLOYD BENNETT.

Inasmuch as the Coast Guard was a part of the Navy during WW II, procurement of helicopters was consolidated in the Bureau of Aeronautics. The Navy, taking its cue, became interested in the McDonnell XHSD-1, a laterally disposed twin-engine, twin-rotor helicopter. The PV Engineering Co. (Piasecki) proposed twin rotors, the XHRP-1.

A class desk was established in BUAEER to exploit the helicopters. Capt. C. C. Marcy, Cdr. R. Doll and Cdr. J. W. Klopp formed the nucleus. Also associated with development were other early helicopter pilots, Cdr. C. E. Houston (whose material on how a helicopter flies appears later), LCdr. W. G. Knapp and Cdr. P. Brown.

Original mass procurement by the Navy was the HO3S-1. Previous pro-

curement had been the Coast Guard HOS and HO2S.

FIRST PLANNED operational use of helicopters was in Operation *Crossroads* in 1946. For these Bikini atom bomb tests, a unit of two officers and ten enlisted men with four aircraft was based aboard the USS *Saidor*. Services, though not essential to the A-bomb tests, did contribute to the success of the operation. Operations over a sustained period here provided a wealth of experience in the operation and maintenance of this type of aircraft.

Until this time there had been a lack of enthusiasm for helicopters in the Navy. In July 1946, however, a development squadron was formed at Floyd Bennett, VX-3, under Cdr. Houston. Mission was to qualify pilots, develop uses for the aircraft and train maintenance personnel. In 1947 the Marines formed a similar squadron, HMX-1 commanded by Col. E. C. Dyer.

Helicopters also took part in Opera-

tion *Highjump*, the Navy expedition to the Antarctic. They also served on ice breakers in the Arctic.

First real test was made in 1947 aboard the USS *Franklin D. Roosevelt*. Pilot was Sikorsky chief pilot D. D. (Jimmy) Viner. During the cruise he rescued six pilots.

By 1948 two operational squadrons were formed, HU-1 at NAAS MIRAMAR and HU-2 at NAS LAKEHURST. These squadrons furnished helicopters and men to maintain and operate them to ships of the Pacific and Atlantic Fleets; cruisers, battleships and aircraft carriers survey ships and ice breakers.

First HRP's (*Flying Bananas*) went to the Coast Guard and Marines. The Coast Guard developed emergency flotation gear for the craft, while the Marines put them to use as assault aircraft, carrying combat troops and their gear.

By June of 1950 the Navy and Marine Corps had 248 helicopter pilots, between 300 and 400 qualified mechanics and 120 helicopters spread among HO3S's and HO4S's, HTL's and HRP's. That



PRIME MISSION of the Marine Corps Piasecki HRP-1's is movement of assault troops to beachheads, taking the place of the usual sur-

face assault craft. Here eight HRP's are shown aboard the escort aircraft carrier USS Polau, ready to land troops and equipment

figure was just a nucleus, however.

Pilot training, formerly at Lakehurst, now is done by the Naval Air Training Command at Ellyson field, Pensacola. Mechanics are being trained at NATTC MEMPHIS.



GRADUALLY replacing the HO3S aboard ships will be the Piasecki HUP, here on Albany

THIS WHOLE magazine could be filled with the uses to which helicopters have been put in the operational zone in Korea. An insufficient number of large transport craft has precluded their use there, but the light Bell HTL's and Sikorsky HO3S's have done yeoman service. They have performed observation, liaison, wire laying, reconnaissance, photographic and mine spotting missions. Just having helicopters around provides troops with a terrific morale boost.

They have been operated from land and ships. By far their greatest service has been evacuation of wounded, many times from behind enemy lines. From the deck of an LST, they have helped clear Wonsan of mines, and from combat ships off the coast, they have gone far inland behind enemy lines to pick up downed pilots whose mates were circling and keeping unfriendly troops away. In aircraft carrier operations, the helicopter has almost completely replaced the plane guard destroyer in plucking pilots out of the water after they have crashed. Thanks to the "flying breeches buoy" with its hydraulic hoist developed by the Coast Guard, many lives have thus been saved.

Doing service in Korea ashore is Marine squadron VMO-6. With 16 HO3S and HTL helicopters, the squadron made over 1,070 evacuations by the end of March, and rescued 36 downed pilots.

When one leaves the name of Igor Sikorsky and looks at the other names in the business the accent shifts to youth. In their late twenties or early thirties are Frank Piasecki, Charlie Kaman and Stanley Hiller, Jr.

As for the future, insofar as the Navy and Marine Corps are concerned, the picture is bright with promise of bigger and better helicopters. The Marines are aiming at large assault-type craft to replace the surface landing craft.



McDONNELL XHJD-1, first twin rotored Navy helicopter, shows use of hydraulic hoist

The Navy's fondest hopes are centered about antisubmarine warfare. The unique ability to hover motionless makes the helicopter a perfect platform for carrying detection gear. There is no self-generated noise as with surface ships.

Present helicopters have neither the load-carrying ability nor the endurance for this mission. Because of this the Navy conducted a competition for such a rotary wing aircraft. Winner was the Bell Aircraft Corporation with its tandem twin rotor XHSL-1, pictured here. Until this becomes available the Piasecki twin rotor HUP-1 will fill the bill.

Here is the way present Navy-Marine procurement looks:

For training there will be the Bell HTL, the Hiller HTE and the Kaman HTK. The latter is the true "eggbeater" with twin intermeshing rotors.

For observation and utility there will be the Kaman HOK, the HTL, the Sikorsky HO3S (now in production in ASW and utility models), Sikorsky HO5S, the HTL, and the Piasecki HUP. This latter tandem rotor aircraft is now in production. As pictured here, it has vertical stabilizers, but with an automatic pilot installed, these will be eliminated. The autopilot has been a priority item because of the fatigue factor in the piloting of helicopters. They require constant attention.

FOR THE Marines McDonnell is developing the HRH assault model.

The Navy has purchased two McCulloch MC-4's for evaluation. It is a miniature version of the tandem configurations of Piasecki. Also purchased for evaluation are the S-2 and S-4 Seibel.

Other models pictured with this story are for the Army and the Air Force.

Currently, there are several studies underway on vertical rising aircraft generally resembling helicopters. One type shifts the rotors from lift to forward propulsion after leaving the ground, using a conventional wing for lift. Another stops and unloads the rotor, using a conventional propeller for thrust and wing for lift. The third retracts the rotor altogether. All these configurations try to overcome the speed limitations placed on regular helicopters when the retreating blade begins to stall and loses its lift.



ALTHOUGH many missions of HO3S's such as this one are spectacular and heroic, drudgery is sometimes the lot. Here one takes off from an LST off Korea for mine spotting



NOT MUCH more metal than an old fashioned bedstead makes up the diminutive McDonnell "Little Henry" which is powered by ram jet engines on the tips of each of the rotors

Most pilots and laymen, accustomed to seeing sleek conventional aircraft, are apt to think that the principles of helicopter flight are dark, deep and mysterious.

Not so. The principles are approximately the same. A conventional plane receives its lift from an airfoil moving in a straight line through the air. Its control comes from moveable surfaces in the air.

The helicopter airfoil (rotor blade) moves in a circular pattern, creating lift by an airfoil, no matter what speed the fuselage is traveling. Lift is varied by varying the angle of attack of all rotor blades simultaneously.

Directional control is obtained by changing the angle of attack of an individual blade, so that it is increased in passing through one quadrant and decreased in the opposite quadrant.

"Rudder" pedals control fuselage heading (not direction of flight).

IN ALL, four flight controls are required; a. *cyclic pitch*, occupying the same position as the stick in a conventional airplane, b. the *rudder*, located the same as in conventional airplanes, c. *collective pitch*, located at the pilot's left side and operating in a vertical arc, and d. the *throttle*, a motorcycle grip mounted on the collective pitch control.

Through cyclic pitch, the blade angle can be increased in one quadrant and decreased in another, thus tilting the plane or disk in which the rotors move. Tilting this "disk" in a desired direction will tend to move the helicopter that direction. When hovering, or at slow

speeds, the pilot moves the cyclic stick in whatever direction he wants to move. In forward flight, due to weathercocking of the fuselage, this action appears to diminish and the reaction is very much like that of a fixed wing plane.

In forward flight, the advancing rotor blade is operating at a higher relative wind over its airfoil than the retreating blade. Consequently, it must be at a smaller angle of attack to maintain the rotor lift equal on both sides. This is accomplished partly by the cyclic pitch control of the blade angle and partly by allowing the blade to *flap*—rise on the advancing side, descend on the retreating side. In some designs the blades also *feather* to overcome this unbalanced lift problem. *Feathering* consists of automatically reducing the angle of attack as the blade starts to rise, or increasing it as the blade starts to descend.

The *rudder* controls the heading of the fuselage, but not necessarily the direction of flight.

Requiring very close coordination are



THE ROAR these pulse jets make on American Helicopter Co.'s XA-6 belie its tiny size

the *collective pitch* and *throttle*. Helicopters operate with almost constant rpm. Power applied, and the lift, is controlled by varying the average angle of attack of the rotors. If you raise the lever, you increase the rotor blade angle of attack, thus increasing the lift, but to keep rpm from falling off more throttle must be applied. Collective pitch and throttle are linked together in approximate relationship. This lack of exact relationship requires very close coordination to adjust rate of climb or descent, and forward flight speed.

As stalling is to the conventional plane pilot, so rpm is to the pinwheel pilot. If it is too high he may throw a rotor blade, or if it is too low his blades may cone like a wrong-side-out umbrella or mush through the air with ineffective life. While hovering, the lift is all vertical. When the rotor is inclined, part of rotor lift goes into forward flight.

Controls are applied in different ways depending on the type of helicopter. In the single main rotor type, it is as above. The rudder controls the angle of attack, or pitch, of a tail rotor. This rotor exerts just enough pressure to counteract



CUTE LITTLE trick is the McCulloch MC-4, two of which have been procured by Navy

the main rotor torque. In turning it either fails to counteract for one direction of turn or overpowers it for the other direction.

In the tandem rotor type, the cyclic control operates on both rotors, but for forward flight this may be augmented by varied collective pitch between the two. Rudder control is attained by having one rotor tilt one direction and the other direction—opposite cyclic control. The rotors rotate in opposite directions so there is little torque to overcome.

A fourth type is the syncropter, or intermeshing helicopter. Here is the true *Eggbeater*. The two hubs are mounted close together and the blades intermesh. Here torque is also balanced out, and rudder control is obtained by increasing the pitch of one rotor.

Another is the co-axial. Two rotors, mounted one above the other, rotate in opposite directions. Rudder and other controls are the same as the single rotor type of helicopter now in use.



ALTHOUGH it says Army, this is the same as the Navy Sikorsky HO5S-1, light utility craft



TRUE "eggbeater" is this HTK-1 Kaman built trainer, produced at Windsor Locks, Conn.



THIS HILLER helicopter features built-in litter carriers, ideal for Korean war zone



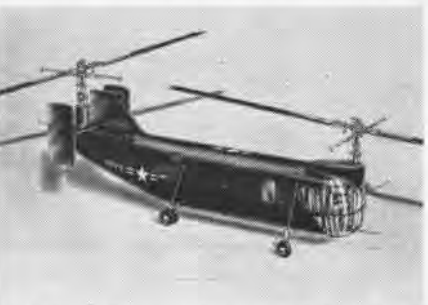
BIG AND HUSKY is the HO4S-1, now in production, designed for ASW and transport



BELL XH-15 is one of many configurations of one aircraft; here it has skids and wheels



OF INTERMESHING rotor design is the Kellett XH-10; company pioneered in autogiro field



NAVY antisubmarine hopes are being pinned on forthcoming Bell XHSL-1 shown here

A SIXTH TYPE has its blades powered by jets, rockets or pulsejets. There is no torque reaction, other than bearing friction, on the fuselage. The controls are the same as the single rotor type except the rudder control is through a simple airfoil placed in the downwash from the rotor, similar to a rudder.

There are a few peculiarities and operational limitations which must be explained. For example, from sitting on the ground to an altitude of about one half rotor diameter, you ride on the ground cushion. This is an area where your rotor downwash apparently piles up and you get improved performance. When the helicopter moves horizontally at any appreciable speed, this cushion disappears and power must be added to remain airborne.

As you pick up headway to 15 or 20 knots, you notice that you have to reduce power to keep from climbing. This is known as translational lift. In brief, it requires high power to hover, then a little bit more as you start to move, and then considerably less as you approach a speed of around 30 to 40 knots, then, more power again as you start to approach VMAX.

All of this time, you are keeping your rotor rpm within very narrow limits. You change power by increasing, or decreasing the main rotor pitch and adjusting throttle to match.

To make a landing, you reduce power (by reducing pitch) and set up an approach glide to bring you over your intended landing spot at zero ground speed and about 10 to 15 feet of altitude. You find that, as you reduce your forward speed approaching a hover, that you have to add power until you finally come to a stop on your ground cushion.

From there on it is a matter of holding her steady while you gradually reduce power and gently reach the ground.

This CUSHION, mentioned twice in this one simulated flight is one of the most important features (or peculiarities) of helicopter operations. Improper understanding, or use, of it has probably caused more helicopter pilots trouble

than any other one thing, unless, possibly, loss of rotor rpm—which is usually directly associated.

An example will establish this. A pilot lifts his heavily-loaded helicopter off the deck of a cruiser and starts to get underway. He crosses the deck-edge (before he has attained enough forward speed to be in translational lift) and immediately has lost his CUSHION, so, unless he has sufficient reserve power to add he will start settling toward the water.

LET'S SUPPOSE that he had the power necessary and got underway all right. He's headed into the beach to deliver supplies or equipment. He arrives over his destination and finds that his unloading area is in a heavily wooded, hilly location. He checks the wind to make sure that he is not going to be caught in a down draft on the lee side of a ridge or hill, and looks for a clear spot to land.

The trees in the area prevent him from getting close enough to the ground cushion; and owing to his heavy load, he is not able to hover without it. The first clearing he finds is on a steep slope. He can't use that, because his CUSHION would slide out from under him.

Next he finds a spot that is flat enough, but is too rough to land in, so he comes to a hover a few inches off the ground, unloads his cargo, and heads back to the ship, without having landed at all.

Right here you must be made rpm-conscious. Practically all helicopters flying today are marginal in power for the loads that they carry. Improved design, with particular attention to this feature, should eliminate it from future helicopters. However, owing to their utility, there will always be times when they are loaded to the hilt—just this once!

Let's assume that the pilot taking off from the cruiser found himself settling as he crossed the deck-edge. He has two choices of action; he can attempt to attain translational speed before he loses his altitude and stubs his nose in the



SEIBEL YH-24 is conventional single rotor affair; Navy has bought S-2 and S-4 models



BELL H-12 is larger than most single rotor helicopters; is being built for Air Force



THIS HILLER HTE-1 is being produced for the Navy which will use it as a training vehicle

water or, he can re-establish his CUSHION by coming to a hover over the water. Suppose he elects to hover. Instinctively, as he starts to settle he adds some collective pitch and just enough throttle to maintain his rpm, but he misjudges a fraction on his throttle, and his rotor rpm drops off a few turns. Immediately he "cranks on" the rest of the throttle; but by this time the drag of the rotor has increased, due to the increased pitch, and he doesn't have enough throttle in reserve to resume speed.

Now he's in a spot for sure, his engine won't develop full power unless he reduces the load on it by reducing pitch of the rotor. If he does that he will settle much faster—and he is almost in the water already.

If he holds what he has the remaining few feet to the water, the situation is cumulative. The high drag of the rotor will continue to slow down his engine, and as his engine slows down it will develop even less horsepower, so that the rotor will slow it at an increasing rate.

A development of this situation is that, as the rpm falls off, in single rotor types, the rudder becomes less and

less effective, until finally the pilot loses rudder control. If the situation is detected early enough, it can be remedied by "milking." This is a procedure in which the pilot reduces pitch several degrees, for a fraction of a second, with full throttle on. By skillful application of this procedure he can recover a few rpm each time and sacrifice little if any altitude. By repeating this he can regain his normal operating rpm—but the situation must be recognized almost the instant it starts.

One more question should cover the main characteristics, or quirks, of the helicopter. What happens if the engine stops? Most of you know by now generally what happens. The blades don't fly off, it doesn't drop like a rock, and it doesn't spin in. If the engine stops in a fixed wing plane, you get the nose over. In a helicopter, you reduce the collective pitch to a minimum and go into autorotation. The rotor will continue to turn at approximately normal rpm, but the helicopter immediately starts a steep glide. The rate of descent will approximate that of a parachute. It will be at a minimum with a forward speed of approximately 50 knots, and will increase

with either a slower, or a faster forward speed.

The control is still good and the pilot heads for a clear landing spot. When about 30 to 40 feet from the ground the pilot flares his glide to reduce the forward speed for the landing. Just about the time the flare begins to take effect, he starts to increase his collective pitch and utilizes the energy stored in the rotor (rpm) to reduce the rate of descent to zero, or near zero at the time of contact with the ground. The rotors will slow rapidly in this maneuver, because it is only the momentum stored in them that you have to work with, once you have started to increase the pitch.

The fine point is in judging when to start increasing rpm and how fast to do it. If you start too late, or increase the pitch too slowly, you fail to check the descent completely before you strike the ground, and it can be a rough bump.

If you start the recovery too high, or increase pitch too quickly, you may run out of effective rpm, and consequently lift, several feet in the air. In that case there is nothing left to do but sit quietly and wait for her to DROP in!



LINED UP for delivery at the Bell Aircraft Corporation plant at Niagara Falls are Bell H-13D helicopters which will go into serv-

ice with the Army Field Forces for liaison and rescue work. This model resembles Navy's HTL which has wheels instead of skids



GRAMPAW PETTIBONE

You Were Indeed!

An F6F-5 pilot who had just made a forced landing ended his statement relative to the accident as follows:

"I believe that my decision to land was justified in that no personal injury was involved and there was only minor damage to personal property and to the aircraft."

Earlier in the day when he picked up the F6F for a ferry flight, the mechanic on the line mentioned that the fuel pump sounded funny. However, it functioned all right on the test hop, and so the odd noise was not corrected.

After departure from NAS ALAMEDA, the fuel pressure was normal for the first half hour or so. Then the pilot noticed a flicker and the needle began to vary between 9 and 16 lbs. With the emergency pump on, it steadied at 18 lbs., but as the engine ran smoothly at the lower pressures, he turned the emergency pump off.

South of Bakersfield the engine began to cut out, but smoothed out as soon as he turned on the emergency fuel pump. He decided to continue on to his destination which was about an hour away and beyond a range of mountains.

Just before reaching the mountains, the engine stopped suddenly. The emergency pump was on, and the pilot turned the gasoline selector to a tank with plenty of fuel. He then checked all circuit breakers on the right hand panel and checked the battery voltage which was indicating 28 volts. The engine had stopped at an altitude of 10,000 feet and by this time he was down 7,000.

Some open alfalfa fields lay below so the pilot decided to make a wheels-up, flaps-down emergency landing. He got an acknowledgment for his "MAYDAY" message from Burbank radio. The landing was fairly smooth and the F6F came to rest approximately 546 feet from the point of touch-down.



Grampaw Pettibone Says:

Yes, indeed. I agree 100%. When your engine finally quit and you couldn't get it started again and you had that nice alfalfa field right below, I think you were really justified in landing. Of course, if you'd had a sky hook handy, you might have done something else.

What I'm wondering is why you ever took off in the first place without getting that fuel pump checked. Then you had



K. Wilson

another good chance to land at Coalinga when the pressure first started to fluctuate, and still another opportunity to land as you flew past the airport at Fresno. When you didn't land at Bakersfield after the engine-driven pump gave out altogether, you put your neck right out on the chopping block.

Suppose your engine had quit just a few minutes later when you were over the mountains. Then you would have had just time enough to holler "MAYDAY" and go over the side. The plane would have been a total loss, and we might still be looking for you.

Literally hundreds of pilots have been killed because they took off without correcting a discrepancy or because they failed to land at the first sign of engine trouble.

You were plenty lucky! Next time land at the first indication of trouble. If you wait until your engine conks out entirely, you're likely to become a statistic.

Rivet Popper

On his second high side gunnery run, an aviation cadet found himself in a position where he had to make an extremely steep run in order to stay on the target.

He blacked-out during his initial recovery and when he regained consciousness, his AD-1 was in a nearly vertical dive at 400 knots. He started to ease back on the stick and says: "I thought the plane was going into the water so I pulled as hard as I could. She shuddered, but pulled out. My accelerometer read 10.2 G's after the pull-out. I believe that it was the last hard pull that damaged the wing. I estimate that my

altitude on recovery was around 500 feet."

Inspection of the AD-1 after the flight showed that two rows of rivets were pulled out or loosened along the top of the main spar of the starboard wing.



Grampaw Pettibone Says:

I got to wondering why this fellow didn't black out a second time since he apparently pulled more G's on that last pull when he thought he was going to hit the water than he did on the initial recovery. The flight surgeon tells me that this is easy to explain. He says a blackout takes both G's and time. In other words while a pilot may be able to stand a snap load of 10 G's, he's likely to get blacker than the ace of spades if he holds half that many G's for several seconds.

P.S. By the way, son, I think you ought to write a thank-you letter to the folks that built this plane. You might even suggest that they run off a few copies and put them up on the factory bulletin boards. If that AD-1 hadn't been a good deal stronger than the "Operating Flight Strength Diagram" indicates, you just wouldn't be around these parts!

A Close Call

On a recent high altitude flight, a pilot neglected to turn on the oxygen regulator shut-off valve provided at the inlet to the model 2867-A1 automatic pressure-breathing oxygen regulator. Earlier model oxygen regulators did not have a shut-off valve, but the models now in production have such a valve to prevent leakage when the aircraft is not in use.

Had this pilot carried out the pre-flight procedure specified in Technical Order 16-50, which requires that the regulator operation be checked by breathing several times with the regulator in both "normal oxygen" and "100% oxygen" positions, he would have discovered his mistake before leaving the ground.

Fortunately, he noticed that the flow indicator did not blink and that the pressure gage read zero in time to descend to a lower altitude where he could safely check his equipment to see what he had forgotten to do.

Don't neglect the ground check of your oxygen equipment. Learn everything you can about the regulator installed in your plane. The few seconds you spend checking this equipment before you take off may save you from a high altitude knock-out from anoxia.

Hey, Wait For Me

The pilot of an F9F made a normal start on the line, completed his ground check, and proceeded to the end of the duty runway. He advanced the throttle and placed the fuel system selector switch in the take-off position. He then dumped the main fuel system pressure by actuating the Fuel System Emergency Check Switch—a normal part of the pre-take-off check.

Apparently the emergency system did not cut in promptly, as there was an immediate loss of RPM and tail pipe temperature indicating to the pilot that a flame-out had occurred.

Just at this instant, the pilot's wingman informed him that the aircraft was on fire and he should get out. The pilot did just that, but states that he feels certain that he put the throttle in the idle cut off position. He did not pull the emergency air brake handle or turn off the master fuel switch.

After running a few feet beyond the port wing tip, he looked back at the plane and stopped running as the flame seemed to have died out. Just then he heard the F9F wind up, and it started to weathercock into the wind and head down the runway.

The pilot ran back to the aircraft and attempted to board it, but the access ladder was stowed and he was unable to get into the cockpit. After he had made two attempts, the plane was moving too fast. He let go and rolled under the port wing.

The pilotless F9F accelerated to a speed of approximately 150 knots. The F9F-3 will not become airborne in a three-point attitude, but after a ground run of about 6,000 feet the nose wheel struck a slight rise in the runway and the plane began a very rapid climb. At an estimated altitude of 700 feet, the F9F stalled out of a very nose high attitude and crashed into the bay off the end of the runway.



Gram paw Pettibone Says:

The last runaway plane that I remember was a good deal less expensive than this \$543,000.00 fighter. If my memory serves me correctly, it was an OY and the pilot hung on for awhile and broke an ankle when he let go.

In this case, the accident board concluded that the primary cause was a failure of the take-off pressure sensing switch. When the rpm reached about 40%, the emergency fuel system cut in and injected too large a quantity of fuel in the combustion chambers for the rpm of the moment. This situation had occurred on two previous occasions during lines checks by squadron maintenance personnel. The ominous fire is the result of pouring too large a quantity of raw fuel into the combustion chamber and the flames shoot out



as far as fifty feet astern of the aircraft.

The wingman's transmission that the plane was on fire and the pilot should get out was somewhat misleading. Had he said that there was a large flame coming from the tail pipe, the pilot probably would not have considered the situation so critical and would have taken time to set the brakes and turn off the fuel master switch.

An RUDM has been submitted relative to the defective part, and the squadron is reaffirming the doctrine that the first action to take on indication of a flame-out on the ground is to move immediately the throttle to the idle cut off position and turn off the master fuel switch.

Button—Button Whose Got the Button?

Near the end of a routine test flight in an SNJ-5 which had just gone through overhaul, the pilot shifted the gas selector to Reserve position. For some reason, the selector didn't feel just right. He picked up his mike and asked the passenger in the rear seat to look and see if his selector was on Reserve.

The passenger replied that it wasn't centered and asked if he should place it on Reserve. The pilot answered, "Yes", but the rear seat man didn't hear this transmission as he was holding down the button on his own microphone. He decided that he had better not touch anything until instructed to by the pilot. He continued to hang on to the mike.

At this point the engine quit and a forced landing was made on level stretch of beach. Inspection showed that the fuel selector in the front cockpit had failed because of faulty installation during overhaul.



Gram paw Pettibone Says:

Too gosh darn many pilots assume that prospective passengers know all the answers. If this passenger had been properly briefed in the use of the interphone, he could have prevented the accident.

Whenever you give someone permission to go along for the ride, it's up to you to make sure that he knows how the inter-

phone system works. You should also spend a minute or two checking to see that he is correctly positioned with shoulder harness and safety belt tight. Tell him to wear his earphones. Then cheer-up the passenger by asking if he knows how to bail-out. Show him where the rip cord is, and explain what items he must disconnect before going over the side.

If he hasn't changed his mind about going for a ride, get yourself all squared away in the front seat and check the operation of the interphone system of your airplane.

Remember there is no law that says you must stay with an uncontrollable plane just because the fellow in the rear seat stays put when you give the order to "bail-out". There's also no cure for the feeling that a pilot has when he jumps and learns later that the fellow in the rear seat didn't get out.

Play it safe. Make sure that the fellow in the rear seat has the word before you ever leave the line.

TAKE CARE OF THOSE PEEPER

In the United States there are 11 companies that manufacture glass eyes. They turn out bushels of them—grey ones, brown ones, blue ones, but you can't see a thing through any of them.

With all the money in the world, you can't buy one good eye!

Right now your eyes are just about perfect or you wouldn't be flying Navy planes. Try shutting your eyes real tight for 15 seconds. How would you like to see black, to grope around in eternal darkness for life?

Protect your eyes by wearing goggles and by having your shoulder straps snug, so that you won't slam into the forward part of the cockpit in the event of an accident.

Take care of those peepers—you can't buy replacements!



FLIGHT DECK OFFICE GIVES GREEN LIGHT TO ONE OF THE HEAVILY LOADED CORSAIRS CARRYING DESTRUCTION TO COMMUNISTS IN KOREA

KOREAN AIR WAR

Making Like Jetsters

"I'm going to get a set of goggles like jet pilots wear—with trains painted on the lenses" . . . this goodnatured jibe by a *Corsair* pilot on the *Boxer* set the tenor for ready room humor in earlier days of the Korean war. Pilots flying *Skyraiders* and *Corsairs* belittled jet pilots' reports of sighting and destroying numerous trains for at that time prop pilots had seen none.

Jet Ordnanceman Bob Falder of Chicago, a handy man with a brush, secretly painted miniature trains on the lenses of a certain pilot's goggles.

"When he came back from his next hop we thought we'd have fun and tell him why he was always seeing trains," said another ordnanceman in on the deal.

As it often does, things didn't work

that way. The fixed goggles got mixed in the ready room. When jet pilot Lt. Joe McGraw of DeWitt, N. Y. was about to be catapulted in his *Panther*, he pulled the goggles over his eyes and . . .

"What the . . .!" he yelled as trains rushed down the flight deck.

But he followed through and reported bagging two rail cars that morning.

Not All Brass

Not all those flying the roaring jets in the Orient sport the bars of an ensign or higher ranks.

The "stovepipes" are being piloted by four sergeants of the First Marine Aircraft Wing in Korea. M/Sgt Avery C. Snow of Santa Ana, Calif., senior member of the flying foursome in the *Panther* jet squadron, is a veteran of 47 combat missions against the communists.

T/Sgt Dwight R. Francisco of Edenton, N. C., also a former *Corsair* pilot, has been flying jets since June, 1949. T/Sgt. Lyle A. Watts of Del Paso Heights, Calif., was a mechanic during World War II. The fourth and latest member of the foursome is T/Sgt. Rosslyn D. Manning of Anaheim, Calif., who switched from the props about a year ago.

A number of Marine enlisted men fly *Corsairs*, *Tigercats* or transports for the First Marine Aircraft Wing, but these are the only four flying jets. A number of other Leatherneck flying sergeants are qualified jet pilots but fly other types.

All in a Day's Work

Sturdy Douglas R4D transport planes, now passing their 1000th hour in Korean service, are living up to the well earned name of Marine "work horses."



INGENUITY of Sgts. Harry G. Dunlap (right) and Jack Pfeiffer (left) resulted in rig which quadrupled napalm production of 1st Marine Wing during Red April push

TSgt. David A. Schwitzer, crew chief, remarked with pride as he refueled his old "436," the first R-10 of the First Marine Aircraft Wing to join the *1000 Hour Club*. "You know, that's a lot of hours and many a ton of cargo this old crate has hauled since last September."

He went on, "This morning at 0930 we took off from a Marine field in southern Honshu for the Haneda airport near Tokyo carrying men on the first leg of their journey back to the States. At Haneda we picked up a cargo of 'belly tanks' for Marine fighter-bombers based in south Korea.

"We took off at 1530 and stopped again for a few moments at the field in southern Honshu to drop off passengers.

"Then we took about 35 minutes for chow and fuel. By 1830 we were airborne again and on our way to the first of two Marine air fields in southern Korea.

"Several hours later we arrived at our first stop and dropped off three men returning from leave in Japan. We were soon on our way to this field for our last flight and arrived here just a little while ago." It was nearly midnight.

Sgt. Schwitzer said he expected the next day's operations to start at about 0600.

This nonchalant acceptance of a "normal" day's operation makes it easy to believe that this particular type of Marine freight-passenger transport is well on its way to shading even its enviable WW II record.

Sweat, Bombs and Boredom

Fighting a war involves long hours of backbreaking physical labor as well as those brief intermittent periods of intense excitement of combat. Among those teams turning in more than their



JUST ONE use of napalm bombs is severing Red lines of communications and bridges

share of the hard but absolutely necessary work is the ordnance personnel on board aircraft carriers.

Days' work running for 15 to 17 hours per man are the usual thing. Items handled range all the way from .50 cal. machine gun ammo to 2,000 pound bombs and napalm.

Sometimes the monotonous routine of loading bombs and bullets is broken by a special request. Like the time the Army (of all people!) asked for torpedoes from the *Princeton*. It's a familiar story now how the Navy bombers shattered the floodgates of the Hwachon dam with their lethal "fish."

This immediate response in providing perfectly operating and seldom-used weapon brought the torpedomen of the "Sweet P's" ordnance section a "well done" from CTF 77, RAdm. Ralph A. Ofstie. Arming of planes starts early and often finished during deck warmup.

WORK JUST begins for ordnancemen on board *Philippine Sea* after taking on ammunition while continuing operations far at sea



IT TAKES a lot of ammo to keep carrier-launched attacks biting the Reds. *Philippine Sea* ordnancemen ready bombs for storage





CREWMAN James Nesbit of Detroit laughs as he rubs back where bullet bounced off belt

Take a Good Look

You have to take a good look at these "trucks".

A couple of Devilcat pilots took a second look at what appeared to be a string of trucks. A closer look proved the vehicles to be Russian-made tanks rigged with a wooden platform on top to make them look like trucks.

You just can't trust those Reds.

Lucky Boys

It wasn't exactly a laughing matter but they could afford to grin as they told what happened.

Take the case of Aviation Electronicsman James Nesbit of Detroit and the *Boxer*: a Red slug ripped up through the bottom of his *Skyraider*, tore through his parachute setting it afire, and headed for Nesbit. Doing collateral duty as armor, Nesbit's cartridge belt deflected the bullet which continued out the side of the plane. Nesbit lost his pants, but he's not griping.

Then there's 1st Lt. Donald B. Houge of Aberdeen, S. D. This Leatherneck flier didn't make it back to the *Bataan*, but he did make it to friendly territory despite a four-foot hole in his wing. The remainder of the trip was made via para-

FAST F9F jet photo plane starts on 36th mission. Lt. (jg) G. Elmies of New York City will follow attack planes in the background



1ST LT. D. Houge (left) believes in charmed lives after third time he is shot down

chute, a tide flat, and a helicopter piloted by Lt. (jg) William J. Cox, also of the *Bataan*.

This made three times for Houge. He was shot down once before in Korea and once in Okinawa during World War II.

"A guy can be only so lucky," the Marine philosophized as he read his orders to return to the States.

Always Available

Because of its past and present performances, UN forces in Korea have come to the conclusion that the helicopter can do just about anything. That's a reasonable conclusion.

Here are a few of the jobs turned in: Marine helicopter pilots had their busiest day May 29 when they evacuated 79 casualties from the battle lines to rear area stations.

A Catholic chaplain was flown to the front lines and conducted religious services while his helicopter waited 40 feet away to whisk the "sky pilot" back to the command post.

In 49 minutes, a request for 40 pints of whole blood from a frontline medical station was filled, again by helicopter.

A helicopter piloted by Maj. David W. McFarland of Glendale, Calif. and

TWO ORDNANCEMEN load *Skyraider* with 1000-pound bomb. For info, man on left is jumping on truck to free it from the bomb



MARINE Capt. T. C. Billings checks one of holes Red ground forces put in his Corsair

Capt. James R. O'Moore of Milwaukee, Wis. had to set down on a 4,000-foot knife-like ridge several times to evacuate 17 wounded Marines. The last trips were made after dark. As helicopter instruments are not lighted, one of the ambulatory patients struck matches to light up the board.

Another helicopter of the First Marine Aircraft Wing made similar night evacuations using a flashlight for instrument illumination.

The crew of a helicopter from the New Jersey pulled a short tour of "shore duty" after heavy winds forced them to set down on a ridge. Two days walking brought them to a friendly Korean village, and by destroyer they returned to their ship the third day.

With the help of the destroyer, a small boat, the Army and the Air Force, the intrepid crew, Lt. (jg) George T. Tuffanelli and Aviation Machinist James B. Williams, started back. After working their way through the surge of UN forces chasing retreating Reds, the Navy men wangled a ride to their beached craft, made a few repairs and put in fuel. Then via Air Force field and cruiser Los Angeles they finally got home to the New Jersey, none the worse for the "shore duty."



NIGHT FIGHTER of VMF-513 starts "working day" at sunset as Navy continues round the clock pressure against the Reds in Korea



WARRANT Officer Robert E. Woodworth of Pittsburgh, Pa., checks sched with nightfighter pilot, Capt. Edward Long, of Costa Mesa, Cal.

Light Up The Sky

It was only a shot in the dark, but it just went to show that it pays to be curious—sometimes.

Marine Captain Manning T. Jannell wondered about a light he saw on the ground far behind enemy lines. Just to see what would happen, he flipped a rocker at it and drove on, but not far. Jannell knew he had started something more than just a small fire when a tremendous explosion lighted up the whole sky.

"My *Tigercat* bucked like a dinghy in a choppy sea, flaming pieces of stuff flew up about 7,000 feet, and I was flying at 2,000 feet," he said. "I wondered if I'd ever see home again."

As the shaky pilot circled admiring his handiwork, he called to a fellow member of the "Flying Nightmares" squadron, 1st Lt. Ernest R. Olsen, to come and take a look.

To help things along, Olsen contributed two rockets to the edge of the conflagration. The two Nightmares got a repeat performance as a second terrific explosion ripped the North Korean night.

"I thought I'd had it," Jannell said the next day discussing the object of his curiosity, obviously a large enemy ammunition dump the Communists wouldn't get to use.

Sharing the News

As the pointer flicked over a huge map of Korea indicating areas of current action, a steady voice informed the audience of the latest combat situation and possible future developments.

Seated in an outdoor theater at a Marine air base in South Korea, an attentive audience of Leatherneck ground crewmen, supply personnel, and other rear echelon troops, were being briefed

TERROR of the Red troops is this Skyraider laden with a belly full of napalm and bombs ready to set off on a big air offensive

Restricted

on the war they were fighting.

Conducting the session was 29-year-old Marine Capt. Willis G. Colbern.

During the course of a regular working day, Capt. Colbern interrogates returning pilots on their missions and evaluates the data he receives so it can be passed on to fliers making later strikes.

But Capt. Colbern believes that ground troops, as well as aviators, can profit by keeping abreast of the latest news. Convinced that they would take a greater interest in their work and accomplish it more efficiently if they were kept informed of how it affected the UN effort, he inaugurated what has become a feature attraction at the airfield.

Once a week the briefing is conducted. Attendance is voluntary, but large crowds gather for each meeting.

Hooks Phone Wires

Nobody ever thought a tailhook was a weapon, but Marine Capt. George E. Mouzakis used the hook on his *Corsair* as one.

Flying over Korean territory from the *Bataan*, Mouzakis spotted some Communist telephone lines. He swept down low, lowered his hook and ripped loose the enemy's communications.

Take a Closer Look

It pays to nose around a little while on raids over enemy territory in Korea, two First Marine Air Wing pilots found.

Weather over the western and central sectors was so bad Maj. Edward Ochoa and 1st Lt. Richard R. Miller turned the F4U's to the east coast.

North of Yangyang they saw three camouflaged trucks parked in a triangle. Ochoa dropped a napalm bomb, hitting one squarely and slopping over the other two, burning all three to the ground.

Nearby, the pilots spotted another truck hidden in the shadow of a house. A 100-pound frag bomb disposed of this. A closer look at a small village revealed two other trucks cleverly camouflaged. When strafed, both burst into flame.

On another low-level sweep, the pilots spotted a pile of supplies in a grove of trees and disposed of them with rockets. They still had ammunition left.

In a ravine close by the original three still-smouldering trucks, an exploratory burst of 20 mm cannon fire started a small fire. Added bursts set fire to a hidden gasoline dump. It exploded violently after the fourth run. Ochoa is a former Reserve flier from Dallas, now with the *Black Sheep* squadron.



Helicopter Rescue

The Marine flyer clawed his way down the outside of his crippled *Corsair* fighter-bomber and then bounced off the tail section into thin air.

Seconds later the sputtering of the dying engine was out of earshot, and 1st Lt. Robert C. Conklin started his silent parachute descent to the rocky hills of enemy territory in central Korea.

Although it was his first parachute



ONLY ENLISTED pilots in Korean war are these six "Flying Chevrons" from Marine squadron on CVL *Bataan*. Standing, Sgts. Gail Lane, John McMasters, Clyde B. Casebeer; seated, Billy R. Green, Donald A. Ives and Norman Payne.

jump, Lt. Conklin maneuvered his chute during the 2,000-foot fall to pick out a brushy slope for a landing. In about 20 minutes a blue helicopter hovered over him, and Lt. Conklin fired a flare over an open spot on the hillside where he wanted the 'copter to land.

Down came the helicopter piloted by Capt. Gene W. Morrison. With his rescued passenger strapped into the copter's seat, Capt. Morrison climbed back to the friendly side of the Korean battlefield.

Lt. Conklin had been launched into his parachute while he and Capt. Clarence Zingheim were on search along the roads and hills north of Hongchon. They had blown up an enemy-occupied building and about 40 barrels in an ammunition dump.

While Capt. Zingheim pulled up for a look around, Lt. Conklin dropped low for a look at a suspicious straw-covered mound. Thinking the mound might be an ammunition dump, he gave the area a short "squirt" from his machine guns.

The dump exploded with a blast that tossed Conklin and his plane about and apparently flying metal chewed into the *Corsair* engine.

As he climbed swiftly, Lt. Conklin noted his plane's oil pressure dropping rapidly. He headed south towards the Marine lines and radioed Capt. Zing-



IT TAKES A box to help Wing H. Fong, seaman apprentice, reach the helm of the aircraft carrier *Boxer*, now operating off Korea. Wing, a quartermaster striker, has been in the Naval Reserve about a year and was called up for active duty in Sept. 1950.

heim that he intended to bail out. Then he threw back the canopy and hoisted himself out of the cockpit.

Capt. Zingheim called for the rescue helicopter and hovered over Conklin until he saw him land safely.

Seek and Ye Shall Find

Marine fighter-bombers ranging the North Korean highways day and night are making life tough for convoys rushing supplies south of the battle lines.



LT. BUD BROWN of VP-772, Los Alamitos' patrol squadron now in the Korean theater, receives a traffic ticket from a Japanese cop for having California license plates on his jeep. Lt. Jim Marovish, also VP-772, watches in anguish. Marovish, a member of the Los Angeles Chamber of Commerce, considers this an insult to Southern California (note the "Los Angeles City Limits" sign behind the cop). Lt. Brown had just received the plates in the mail from the California motor vehicle department and thought them pretty.

Capt. Manning T. Janel, flying a F7F *Tigercat*, and his radar operator, Warrant Officer Ira S. Norris, spotted a convoy at 0200 near Kaesong. Strafing exploded the first truck and by the light of the flames repeated attacks knocked out 15 more and damaged 30.

Eleven fighter-bombers destroyed a virtual mountain of Chinese supplies near Hoeyang during a 15-minute attack. The MAG-12 pilots led by LCol. James Feeley dropped three 500-pound bombs, eight napalm tanks, fired 82 rockets and 4,800 rounds of 20 mm cannon ammunition. Their attack left four large fires burning in the supply area.

Another "lone wolf" F7F pilot, 1st Lt. Paul T. Widenkeller, working with an Air Force pilot who dropped flares at strategic places along the Communists' supply routes, caught a large number of trucks in a bend in a road. After several strafing runs, Widenkeller counted 12 fires in the blackness beneath him. (Trucks do not explode unless they are loaded with fuel or ammunition.)

For good measure, he picked off a single truck, his 13th victim of the night.

Another member of the truck-killing fraternity was 1st Lt. Harold E. Roland, who on two night attacks sought out and destroyed 13 Communist trucks by himself. On the second of these he had a flare plane to help. They found a string of vehicles almost bumper to bumper. Roland strafed the column back and forth, starting small fires which were followed by seven explosions—gasoline!



ENS. ELIZABETH Taylor and Lt. Hay take temperature reading on one of their patients during the 12-hour flight from Japan to the Hawaiian Islands in an evacuation plane flying under the MATS flag; all her months of flight nurse training culminate in this job.

NAVY FLIGHT NURSES CARE FOR WOUNDED

THE NAVY and Air Force are cooperating to turn out a corps of flight nurses trained to handle battle casualties evacuated by air from the Korean conflict.

From the approximately 2,750 Navy nurses now on active duty, a quota is picked to take the specialized six-weeks flight nurse course at Gunter Air Force Base, Ala. The latest "graduation" there saw 35 USAF nurses, 15 Navy and two Royal Canadian Air Force nurses win their wings.

To show the type of training these nurses receive to prepare them to serve

aboard air evacuation planes, NAVAL AVIATION NEWS picked a typical Navy nurse, Ens. Elizabeth Taylor, and followed her through until she flew her first patients back from Korea.

Nurses who go into the flight nurse course come from various Navy hospitals. Patients they will treat in the evacuation planes have special problems which ground patients do not have. High altitudes and plane motion may bring on ills the nurse will have to handle over the wide Pacific where no doctor or hospital is handy.

For this reason, Ens. Taylor received

218 hours of instruction at Gunter on such subjects as aeronautical sciences, air evacuation, biophysics, dentistry, internal medicine, neuropsychiatry, physics of the atmosphere, rescue and survival and surgery.

Nurses have to know effects of high altitudes on themselves and their patients. They must know some drugs administered in the air have to be in bigger dosages and some in less. They have to know about tropical diseases and how to load and unload an air ambulance. Since their plane might ditch in the ocean, they learn how to inflate



AT GUNTER AFB, flight nurse school, Ens. Taylor checks out on use of chest respirator



USING FELLOW nurses for "patients," Nurse Taylor practices adjusting of oxygen mask.



CAPT. WINNIE Gibson, Navy Nurse head, pins flight nurse wings at Gunter 'graduation'.



FOUR NAVY nurses check in at 12ND for flight to Hawaii—Ens. Margaret A. Werme, Lt. (fg) Helen Zulick, Ens. Melva Stankovich, Ens. Taylor report to Mary Ritchie, SK3.



READY FOR takeoff to Hickam field, Nurse Taylor boards Philippine Mars at Alameda

their life rafts and vests and check out in ditching procedure.

Simulated practice is given in administering blood plasma during flight. On many occasions, student nurses witness actual air evacuation of Korean war wounded being unloaded at Maxwell AFB. For training purposes, the C-47, C-54, C-74 and C-97 types of aircraft equipped for air evacuation are used by the school, as well as the liaison planes.

Ens. Taylor and her fellow Navy nurses got several hours of flying time, practicing techniques of air evacuation and getting used to airplanes. Altitude chamber flights in which the students soar to 30,000 feet give them practice in use of oxygen. All types of respirators, including the iron lung, are used during instruction periods.

To give them a little more realistic training, they went through the cold weather hangar at Eglin AFB and observed Maxwell's weather station and flight service section in action. Since much of their flying is over water, the nurses were given 18 hours instruction in swimming, life rafts, vests and ditching, using Huntington College swimming pool and Gunter's own Lagoon Lake.

When Ens. Taylor graduated from the course she had her flight nurse wings pinned on by Capt. Winnie Gibson, head of the Navy Nurse Corps. A few days later she was in San Francisco and Alameda, arranging with 12ND and VR-2 to fly over to Honolulu to begin her flight nurse duties assigned to VR-8.

The big *Philippine Mars* carried Miss

Taylor and several of her fellow nurses to Hawaii and she really began to feel she was getting into the war. On arrival at Hickam AFB, she was given her first job with the 1453d Medical Air Evacuation Squadron of MATS. For a week she was checked out in squadron procedures, took her quota of "shots" and got additional training under supervision of the senior Navy nurse of the squadron, Lt. Sofia Kenyes.

Part of this was "wet" ditching drill at the base swimming pool, which is required of all nurses every six months. Every three months they are given a "dry" ditching drill. The "wet" drill covers everything from learning to undress in the water to inflating one's knotted trousers for water wings. Nurses



COMPLEX PANEL of dials before Chief Yarbrough of VR-2 flight crew aboard Mars confuses Miss Taylor prior to Alameda takeoff.



ENS. HARRY M. Parker, Jr., of VR-2 shows Nurse Taylor cockpit of giant Philippine Mars plane which carried her out to Honolulu.



TRADITIONAL Hawaiian lei from Lt. Sofia Kenyes, senior nurse at Hickam, greets Ens. Taylor as she steps off Mars in Hawaii.



REPORTING IN to her new station, Ens. Taylor meets Navy flight surgeon at Hickam, Lt. (jg) A. B. Giknis, who outlines her job.

learn to turn over a rubber raft and put on the Frankenstein-like anti-exposure suit and the Mae West.

During this period, Ens. Taylor also checked out her white-painted nurse's medical kit, which every flight nurse carries with her on each air evac trip. This contains dressings, syringes, drugs and sedatives, gauze, Kleenex, antidotes for airsickness and dozens of other items, all in neatly labeled compartments.

FINALLY, after her familiarization within the squadron was completed, Ens. Taylor was alerted for her first air evac flight. Along with a group of other flight nurses and medical technicians, she checked in at MATS terminal to fly to Tokyo in a MATS C-54. These trips are called "deadheading" for the nurses do not perform any work until they pick up a load of patients in Japan.

Accompanying Ens. Taylor to check her out on her first flight was Lt. (jg) Jean Hay, who had been flying the Pacific air evac run since August, 1950,

and who flew into Korea to aid in evacuating wounded during the big push of September.

The trans-Pacific hop to Japan took 24 hours, with rest stops of an hour each at Midway, Wake Island and Iwo Jima, all sites of historic battles during World War II. At sunny Midway, Ens. Taylor and Lt. Hay took time out after breakfast to get acquainted with the comic-looking gooney birds which cover the island and often collide with aircraft. At Wake Island there was time only for lunch and no chance to investigate the hundreds of pill boxes built by the Japanese during the war.

The landing at Iwo Jima was close to midnight, so "Liz" Taylor could only strain her eyes at where famed Mt. Suribachi was supposed to be. But she probably would have other chances to see it on future evacuation flights.

The 2 a.m. arrival at Haneda AFB near Tokyo, center of air transport operations in the Far East, made late sleeping the next day a necessity. Late that morning, Ens. Taylor and Lt. Hay reported in to the 1453d's Haneda detach-

ment, headed by Capt. Walter A. Schlick. She was told she had a few days off before being alerted for an air evac flight to Hawaii.

As this was the first trip to Japan for "Liz", she had been looking forward to a short layover in the land of the cherry blossoms. Lt. Hay was an experienced guide.

THEIR first stop was to Tokyo's famous Ginza, lined with its hundreds of tiny ramshackle wooden booths along the outer edge of the sidewalk. Without these booths, which are set up every day at 3 p.m., the Ginza looks almost like the main street of any large American city, with many tall imposing buildings of steel and concrete.

But shopping at the small booths is an entertaining diversion no matter how often one visits Tokyo. Each shop sells something different and intriguing, and the two Navy nurses found that bargaining with the shopkeepers in "occupation Japanese" was fun in itself, even if they did not buy anything.

While on the Ginza, the two stopped



AS IN EVERY good Navy career, some gloom must fall! Here Ens. Taylor gets her shots from HM-1 Clyde L. Campbell for Pacific duty.



ALL PERSONNEL in air evac units get "wet ditching" drill every six months, so Ens. Taylor checks her vest with Sgt. Robert Darnell.



THE PACIFIC is a big ocean, so flight nurses at Hickam get a good checkout on how to use the life rafts and survival gear aboard.



FLIGHT NURSE Hay, an old hand at the Tokyo water stop which she took first a year ago, points out the route to neophyte Taylor.

in at Mikimoto's, world-renowned for cultured pearls. This shop could have been anywhere in the United States, as the only thing Japanese about it was the clerical staff, which showed the two nurses lustrous strings of pearls, opals, silver and other jewelry.

Next stop was the huge six-story Tokyo post exchange, largest in the world, where occupation personnel and visiting "firemen" can buy everything from diapers for the baby to black pearls or fine China. Laid out like a big city department store, it includes a beauty shop and dining room.

After their shopping spree, the nurses toured Tokyo, visiting old Kabuki theater, Doolittle park, the Ernie Pyle theater, the massive Dai Ichi building, former headquarters of Gen. MacArthur, and the Imperial Palace.

After several days rest at Haneda, Ens. Taylor was alerted for a flight and boarded a huge MATS *Stratofreighter* for the return flight to Hawaii. With her and Lt. Hay were four enlisted

medical technicians, the usual medical crew for the C-97's. On smaller and slower C-54's, only one nurse and two medical techs are required. The smaller planes carry 24 to 28 patients while the *Stratofreighters* take up to 72.

This trip was typical of how unification works in MATS; the plane crew was Air Force, the two nurses were Navy and two of the medical techs were Navy corpsmen and two Air Force. The patients, all Korean casualties, were men of the Army and Marine Corps.

From the time the aircraft took off until it landed in Hawaii 12 hours later, Ens. Taylor and Lt. Hay were so busy with their 50 patients that there was little time for anything except to take turns at snatching a little sleep on a vacant litter during the night hours.

For during daylight hours, they were constantly preparing hypos for the corpsmen to administer, changing dressings, giving medicine, serving food and coffee or juice, and tending to the patients' many wants. For the air evac plane is

more than a "flying ambulance", it is actually a "flying hospital", as many patients require constant attention.

Although the regular route for the planes is usually by way of Midway or Wake where a short rest stop is made, quite often the huge transports fly non-stop between Japan and Hawaii when winds are favorable. On Ens. Taylor's first flight this was the case. The trip was made in only 12 hours, which made it easier on both medical personnel aboard and patients.

THUS, only half a day after the MATS aircraft had taken off from Japan, the patients found themselves in Hawaii being loaded into waiting ambulances for the trip to nearby Tripler Army Hospital. Here they would rest for 24 hours, getting baths, hot meals and shaves before continuing the journey to stateside hospitals. And here the medical crew got off, to return to its headquarters for a few days before going out on other assignments, either to California or Japan when the call came.



ABOARD THE MATS transport taking air evac personnel to Tokyo, Ens. Taylor gets the word on flight plan from Capt. H. M. Coffin.



DURING A short stop at Midway island en route to Tokyo, Ens. Taylor and Lt. (ig) Jean Hay meet the famed gooney bird clan.



SOUVENIR-hunting in Tokyo's famed Ginza, Ens. Taylor looks at Jap dolls while Lt. Hay, Warren Peterson, HM2, talk to the owner.



FINE EXAMPLE of Japanese dressmaking catches eye of Lt. Hay as she tries out brocade evening jacket before envious Ens. Taylor.



WAITING for her first evac flight, Ens. Taylor and friend Hay try out Japanese rickshas



A HUNGRY patient aboard the MATS air evacuation plane from Japan to Hawaii gets lunch from Ens. Taylor; with full load of wounded men, she is kept busy most of 12-hour hop



ENS. TAYLOR prepares hypo for one of patients, which HM2 Peterson, one of two Navy corpsmen on the plane, will give to sick.



LT. HAY, who checked out Ens. Taylor on her first air evacuation flight, watches her ward take charge of a Korean casualty of war.



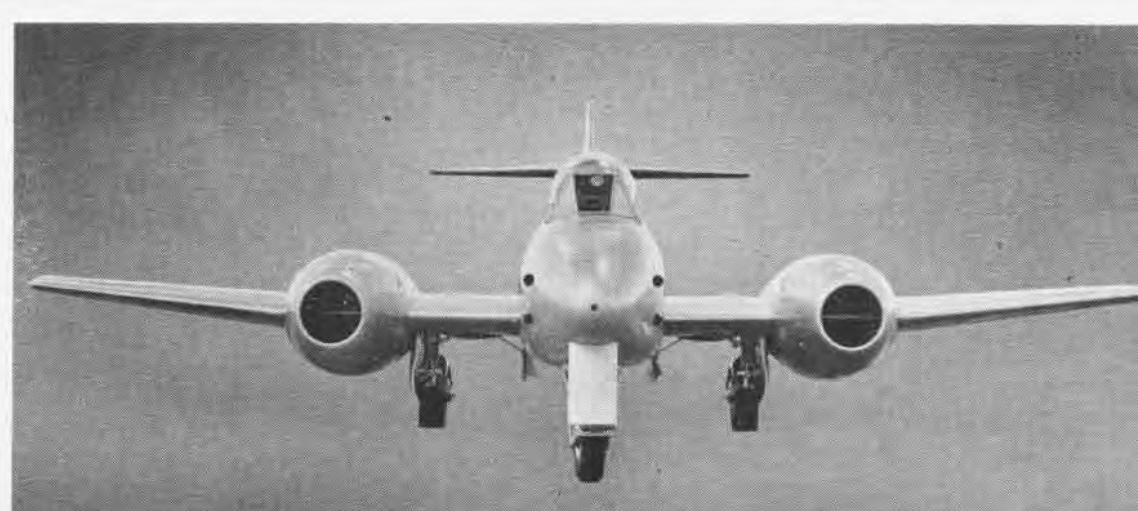
NAVAL AVIATION

NEWS

METEOR MK 8

NEWEST in the line of Gloster single-seat jet fighters in the Royal Air Force is the Mk 8 version, powered by two Rolls-Royce Derwents. Span is 37', length 44'. The Meteor saw service in World War II against buzz bombs and together with Vampire comprises RAF's main fighter strength. Post this spread on your bulletin board.





RECOGNITION

THE PROGRESS in aviation is so swift and varied that occasionally NAVAL AVIATION NEWS presents brief notes on developments in design and production both here and abroad. The rapid development of jet aircraft and the increasing use of helicopters have made them highly important from the standpoint of recognition.

Helicopters

The Royal Navy has been conducting a series of trials to investigate the possibilities of operating helicopters from merchant ships. Trials were conducted aboard the supply ship *Fort Duquesne* with Westland-built Sikorsky S-51 helicopters (*Dragonfly/HO3S*). If tests prove successful, the helicopters could be used as an antisubmarine weapon or for air-sea rescue.

Italian Air Force

The Italian Air Force is operating a number of British-built de Havilland *Vampire* jet fighters. The *Vampire* is appearing in numerous European nations' air forces. The Swiss Air Force is flying *Vampire* Mk 6, the South African Air Force has a number of Mk 5's. Other nations using the twin-boomed *Vampire* include Canada, Australia, India, Sweden, Norway, Egypt, Italy and Venezuela. Of these France, Switzerland, Italy, Egypt, India, and Australia are manufacturing them locally under license with de Havilland.

Pulqui II

Prof. Kurt Tank, former German Focke-Wulf engineer, has supervised the design, construction and test-flying of Argentina's *Nene*-powered I.Ae33 *Pulqui II* (*Arrow*). The swept-wing



THE B-50 resembles the B-29 except that the vertical tail surfaces are taller than on earlier Superfortresses. This distinguishes it from B-29's Soviet copy, TU-4

Pulqui II is said to have a top speed of more than 550 knots.

Canberra P.R. Mk.3

A new photographic reconnaissance version of the English Electric *Canberra* has been designated the P.R. Mk. 3. In this country the *Canberra* will have the Air Force designation B-57A.

Fairey F.D.1

Britain's smallest jet aircraft the F.D.1 (Fairey Delta One) made its first flight on March 12. This singular-looking aircraft is Fairey's first pure turbojet aircraft. It features a wing with more than 48° sweepback and a high fin and rudder surmounted by a tiny stabilizer. Power is provided by a single Rolls-Royce *Derwent* engine.

Martin 4-0-4's for Coast Guard

The U. S. Coast Guard is planning to order two Martin 4-0-4 twin-engined transports. This new model is very

similar in appearance to its predecessor the 2-0-2. Primary differences are a longer fuselage and more powerful, 2,400 h.p. P&W engines. When delivered this will represent the first military use of the aircraft. Glenn L. Martin is producing 4-0-4's for commercial airlines.

Finnish Fighter Trainer

Finland's first post-war military aircraft is the Volmet *Vihuri*, a two-seat low-wing fighter trainer. The aircraft is built by Valtion Metallitehtaat at Tampere and powered by a British Bristol *Mercury* radial engine.

Vampires for New Zealand

The R.N.Z.A.F.'s first de Havilland *Vampire* arrived in New Zealand un-assembled during the early part of March. Additional *Vampires* are to follow. Assembly of these jet fighters is expected to begin in June of this year.

British Carriers

At their wartime peak, the British had 11 fleet and light fleet carriers; today they have 12. This was mentioned during a House of Commons debate on Navy estimates. In addition, it was pointed out that as a result of the re-armament program the total would be increased to 18, plus three in the Commonwealth Navies.

Venom Jet Fighter

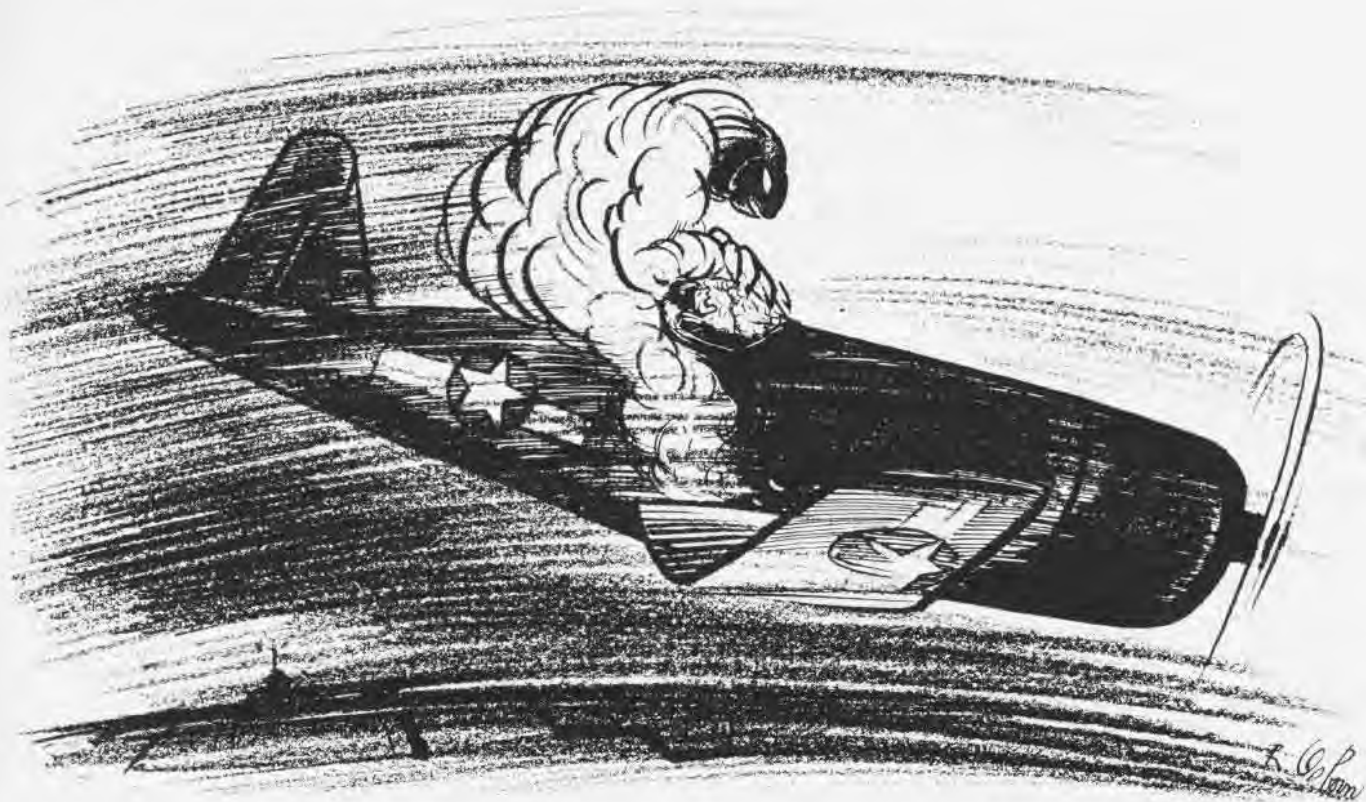
The *Venom* has been mentioned as a possible night fighter for operation from British carriers. This aircraft is a development of the *Vampire* jet fighter.

New Slide Projector

The new remote control recognition slide projector, recently distributed to many aviation activities, has been re-designated Device 5-QQ-6. It was formerly called Device 28-A-6.



BIGGEST of the Air Force's strategic bombers, the B-36 has wings set high about midway between nose and tail. Six piston-driven propellers are supplemented on D version by two pairs of jet engines protruding forward of sweptback leading edge



"I'M SO SLEEPY"

TWO F4U's were cleared in the late afternoon from Patuxent River to MCAS CHERRY POINT via Richmond, Greensboro, and Fort Bragg. The flight was uneventful until the two planes intercepted the NW leg of the Cherry Point range approximately 20 minutes out.

Darkness was approaching and the weather was deteriorating rapidly. When the flight leader looked back shortly after intercepting the Cherry Point range, he could not see his wingman. He flew on towards the station, missing the cone owing to a weather broadcast which started just as he was getting in close. He then flew out over the ocean and made another approach on the SE leg, landing just ahead of a snow storm.

Meanwhile the tower had alerted the GCA unit and had established contact with the wingman who was approximately 20 miles east of the field at 800 feet. Radio reception was not good, and the pilot seemed to have difficulty in following instructions. He was given a steer of 270°, but continued on a southerly heading until he was finally given a steer of 355° to bring him back to the air station.

At this time the diesel-powered generators of the GCA unit failed, and the plane was in the zone of ground return interference for the tower radar. The tower instructed the pilot to hold a northerly heading and climb to 3,000 feet. After a few minutes, he was picked up about 20 miles north of the station heading 045° at 3000 feet.

During the radio transmissions, the pilot repeatedly complained of being sleepy and expressed a desire to "land and hit the sack." Once he said, "Keeping talking to me. I'm having trouble

staying awake. I've never been this sleepy before.

The last instruction given to the pilot was to turn to a heading of 210° to return to the station. The plane disappeared from the screen at 1915. Later that night the wreckage was found about 20 miles north of the station. The F4U apparently hit in a steep attitude and exploded on impact. The pilot was killed.

In the investigation that followed the accident, it was determined that the pilot had had between nine and ten hours of sleep on the night previous to this flight.

As the recording of the conversation with the tower operators was studied, it became increasingly evident that the pilot was not in full possession of his faculties. Obviously a pilot flying a fighter at night in a snow storm, uncertain of his position, and low on fuel, isn't likely to feel like taking a nap unless something has affected his thinking processes.

In all probability the pilot was breathing some type of toxic gas, either from the engine, cockpit heater, or gas vapors. Whatever it was, it was not good.

As soon as reported difficulty in staying awake, he should have been warned to either open his canopy or to go on oxygen at once. If this didn't correct the condition, he should have been advised to bail out.

Should you ever find yourself in similar circumstances, remember that you must act quickly, while you still have enough reasoning power left to take the right course of action. Get some fresh air or get out! Otherwise carbon monoxide may put you to sleep permanently, as it very evidently did here.



Antietam Rejoins the Fleet Arctic Expert Commands Pacific Carrier

NAS SAN DIEGO—One of the newest additions to the Navy's carrier fleet is the USS *Antietam* (CV-36), which was taken out of mothballs at Alameda and recommissioned in May.

Commanding the new *Essex*-class carrier is Capt. George J. Dufek, one of the few Navy officers qualified to command submarine, surface and aerial units. A veteran of four polar expeditions—two of them with Adm. Byrd—he is an expert in cold weather operations. Executive officer of the carrier is Cdr. Easton B. Noble, a former stunt flier and commercial pilot, believed to be the Navy's oldest helicopter pilot. He commanded VU-1 at Miramar before reporting to the ship.

Before decommissioning in 1949, the carrier served as a floating "set" for the movie *Task Force* starring Gary Cooper. Of the nearly 1400 officers and men aboard, 30 percent are recalled reservists. At the wheel when she pulled away from Alameda pier was William O'Toole, QM-1, who 15 days before was selling printing presses in Los Angeles.

First pilot to land aboard the *Antietam* was Lt. John W. Fairbanks of VC-3. Carrier Air Group 11 is aboard the ship.

VR-1 Executes Mercy Errand Critically Ill Missionary Flown Home

Miss Maude E. Carey, critically ill after 50 years as a missionary in Meknes, French Morocco, was flown to the United States in a Douglas R5D *Skymaster* by Fleet Logistic Air Wing Atlantic. Special permission was granted for Miss Carey to be made a litter patient on VR-1's courier flight from Port Lyautey, French Morocco, to Patuxent River,

Maryland, piloted by Lt. M. C. Barrett, Jr., USN.

Attended by Flight Nurse Anne Check, Miss Carey made her first flight without mishap. Upon arrival at NAS PATUXENT, she rested in the infirmary before continuing her trip to a Kansas City, Mo. hospital.

A member of the interdenominational Gospel Missionary Union of Kansas City, Miss Carey has returned to the United States only three times since she first started to work in Meknes in 1901.

Corpus Gets Pioneer Flier Outstanding Woman Pilot Is Instructor

NAS CORPUS CHRISTI—One of the Link trainer instructors at All Weather Flight School here probably has more aviation background than a majority of naval aviators flying today.

She is Mrs. Edith Foltz Stearns, who soloed in a Curtis OX-5 in 1928 and later flew as a co-pilot for the West Coast Air Transport Co., in a tri-motored Bach airplane. Mrs. Stearns still has the first transport pilot's license issued to her, which was the fifth issued to a woman in the United States.

Flying in the *Powder Puff Derby* in 1929, the first transcontinental air race for women, Mrs. Stearns placed second. This was the first of five races in which she competed. For variety, Mrs. Stearns and her husband barnstormed the country.

The 30's found Mrs. Stearns active in founding of Oregon Airways, the first feeder airline in the country. The company was dissolved when World War II started.

The late war kept her busy for four years as a ferry pilot for the RAF, flying everything from fighters to heavy bombers, plus two trips across the Atlantic

ferrying *Liberators*. For her valuable service to England during the war, she received the King's Medal.

Postwar years found her selling real estate in Oregon, and as a flight instructor at Corpus Christi's Cuddihy field, an ex-NAAS.

Mrs. Stearns has logged more than 9,000 hours of flight time during the 22 years she has been flying, which is a lot of flying and a long way from the old OX-5 in which she started.

'Copter Squadron Gets HRS-1 Marines Will Fly Sikorsky Transports

CHERRY POINT—Marine Helicopter Squadron 261, the first of three helicopter squadrons on the East Coast, received its first plane, a Sikorsky HRS-1 helicopter, late in May.

The plane was flown from the Sikorsky plant in Bridgeport, Conn., to the Marine Corps Air Station, Quantico, Virginia, for further transportation to the air station at Cherry Point.

Commissioned last April 5, the squadron has been engaged in the task of establishing operation headquarters and receiving and processing personnel.

Additional HRS-1 helicopters, the only type of plane to be used by the squadron, were delivered later.

The HRS-1 is a single-rotor craft cap-



CHAMBERS (IN COCKPIT) MAPS FLIGHT WITH OBER

able of transporting ten combat-equipped Marines or eight litter patients, plus a pilot and co-pilot. It has an air-speed of over 100 knots.

Lieutenant Colonel O. A. Chambers commands the squadron, while Major M. S. Ober, Jr. serves as executive officer.

AP Makes 670 GCA Landings Dugan Has 44 Actuals On His Record

VR-32, SAN DIEGO—W. D. Dugan ACC(AP) may not hold the Navy record for GCA approaches but he should be close.

Since 1 July 1950, Dugan has logged 670 GCA approaches. Forty-four were made under actual instrument conditions. Chief Dugan formerly was stationed at NAS OLATHE where he was an instructor in the GCA school. He is one of the few enlisted pilots qualified as a GCA final controller in the Navy.



NAVAL OFFICERS attending the 1951 Aero Medical Association convention at Denver line up around NADC JOHNSVILLE 'Human Centrifuge' display, one of the many Navy exhibits

TACRON CONTROLS KOREA PLANES

TACTICAL Air Control Squadron One embarked in the USS *Mount McKinley* (AGC-7), flagship of Vice Admiral Ingolf N. Kiland, Commander Amphibious Force, Pacific Fleet, has many times proved the effectiveness of close air support since the beginning of the Korean War.

Tacron One (short title), with a detachment already in the Far East at the outbreak of the Korean war, has been in action since early July 1950. The communists have felt the effects of close air support under the control of Tacron One at Pohang, Inchon, Wonsan, Hamhung and Hungnam. Enemy troops, artillery, tanks and other military objectives have fallen victims to the precise control of Tacron One and the pinpoint strafing and bombing by aircraft under its control.

At one time during the operation covering the evacuation from Hungnam, a forward air controller with a portable radio on his back got out a bit too far forward of his front lines in order to gain a good vantage point on a higher hill. After controlling some excellent attacks on enemy troops in the valley in front of him, he found a small patrol of enemy between himself and his own front lines.

To meet this unforeseen turn of events, he gave Tacron One a hurry-up call for a strike on the enemy patrol and in a few moments the communists learned it was unprofitable to try to surround a forward air controller.

Owing to mobility and maneuverability, air support has become a new and deadly form of "artillery" that can deliver its fire just where our ground forces want it and when they want it. Tacron officers receive official reports on enemy positions from ground based and airborne intelligence units. From



CDR. EDWARD HECK, BILL D. WADE, ALI, OF TACRON ONE USE JEEP RADIO TO DIRECT PLANES

this information, they plot targets geographically with pinpoint accuracy.

Their next step is to direct a specific number of planes to the target area. Pilots report by voice radio to Tacron as they approach the target area and receive a detailed description of the objective, the surrounding terrain, the proximity of friendly and enemy troops.

As the plane vectors on its target, the pilot usually makes a "dry run" to insure the safety of friendly troops or gun emplacements and to assure himself that he is "on target." A quick checkout with Tacron headquarters results in an equally quick reply: "You are cleared to make your run." After the strike, the pilot reports results to Tacron.

Enlisted radiomen and technicians attached to Tacron One play an important

part in operations. They monitor all radio nets which connect the various ground units, ships (including carriers) and pilots with the Tacron. It is their job to keep complete logs of all transmissions, keep the radio equipment properly tuned and in top operating condition at all times. They also handle a large volume of voice and key transmissions.

Commander Ralph W. Arndt, skipper of Tacron One and his executive officer, Major W. R. Lear, USMC, were formerly combat pilots. They know the importance of giving vital information quickly and accurately to pilots in the combat area. The majority of Tacron officers are flyers who know firsthand the problems of close air support of ground forces.



TACRON ONE RADIO OPERATORS ABOARD AGC OPERATING OFF THE SHORE



ABOARD SHIP, IN CIC ROOM, TACRON OFFICERS COORDINATE STRIKES

PHOTO READERS TRAINED



STUDENTS and instructors confer on a photographic interpretation problem. Shown left to right are D. L. Sbarrow, M. L. Ryan, Lt. Carl Roseburg, Lt. John S. Kistler, J. B. Johnson, and H. E. Steinke. Sbarrow, Ryan and Steinke are students at Oahu for the four-week course

THE KOREAN invasion has again proved the need for capable and accurate air intelligence. This requires skilled photographic readers and interpreters to evaluate naval and military installations and industries as they appear on aerial photographs.

After World War II, the majority of the Navy's photographic interpreters were either discharged or released to inactive duty.

When hostilities began in Korea, the Navy immediately called upon its qualified reserve photo interpreters. But the need was nowhere near being filled.

It was decided by the Commander-in-Chief Pacific and U. S. Pacific Fleet to establish a school for photographic readers in which enlisted men from fleet units could come for a condensed but complete course in photo reading.

The school began operation in September 1950, at NAS BARBER'S POINT, Oahu, T. H., under the direction of Commander Fleet Air Hawaii. It is supported by Utility Squadron Seven, Detachment A.

The aim of the school is to train enlisted photographic readers to assist and work with intelligence officers and graduates of the five-months course at the Photographic Interpretation Center in Washington, D. C.

The "dean" of the school is Lt. John S. Kistler, USNR, who was recalled to active duty in September 1950. "Professors" are Lt. Carl Roseburg, USNR, and J. B. Johnson, QMC, USN.

The four-weeks course consists of 17 phases of training. The course begins with an introduction to photographic

interpretation. It then goes on to cover such subjects as reconnaissance photography, mathematics, camouflage, identification, and industrial studies. Throughout the course, quizzes are given to the trainees. Upon completion of the four-weeks course, the men are returned to their units.

Men selected for this course are those in the ratings of QM, PH, AF, and DM. Selected Marines and Naval officers may also take the course.

Students who show outstanding interest and aptitude for this work are recommended to take the complete course at the Photographic Interpretation Center upon completion of their present tour of duty in the Pacific.



FIRST STUDENT graduate of the new helicopter training unit at Ellyson Field, Pensacola, was Capt. Rex C. Denny, shown here being congratulated by Cdr. Ben Moore Jr., CO of HTU-1. While at Ellyson, he qualified in HTE, HTL, and HO3S-1 helicopters and groundwork in the HTU-1 type of plane.



RADM. J. M. HOSKINS, Commander, Pacific division of MATS, poses in pugilistic fashion with Col. Eddie Egan, New York boxing commissioner. Egan was en route to Korea to show famous fight films to men at the front. With them are Capt. J. C. Clifton, CO of VR-8, a former Annapolis football star, and Mr. Hall, Yale University sports director.

Big Ship With a Big Heart Princeton Men Buy Toys for Little Boy

Even though they are operating in Korean waters, the men aboard the *Princeton* still take a keen interest in home events. When Henry "Red" Nelson, BM3C aboard the *Princeton* read a newspaper account of the fact that badly burned little Gerald Ray of Lawrence, Kansas, wanted post cards to pass the time, he enlisted the aid of other sailors in the Fourth Division.

No picture cards were available in the combat zone, so they cut out figures from comic books, pasted them on cards and mailed them to the little 3½-year-old boy.

When the ship entered a port near



PRINCETON MEN START PACKING GERALD'S TOYS

Tokyo, one sailor suggested they buy the lad some souvenirs of Japan. The idea caught on and snowballed into a fund of more than \$90.00. With this they bought Gerald a fine collection of toys, including a maroon Japanese folding bicycle to give him something to look forward to when he recovers.

"Mission Toys" performed, the 89 men and three officers of the division went back to their wartime job, maintaining the *Princeton's* 40mm anti-aircraft guns.

Shown in the picture are BM's W. E. Issenmann, H. T. Watson and "Red" Nelson of the *Princeton's* Fourth Division.

F4U SHOOTS KOREA PHOTOS AT 100 FEET

NEEDLE-SHARP pictures of low-level bombing by fighter planes in Korea have been taken with K-25 aerial cameras shooting rearward through a prism.

F4U-4 Corsairs from the carrier *Bataan* have taken some excellent photos of napalm bombing from altitudes as low as 100 feet (see below), thanks to an adaptation using a 90° prism mounted on the camera's lens.

The camera is rubber mounted on a surplus baggage compartment hatch of the Corsair. Electrical leads are taken from the master arming switch to an instantaneous spring-loaded toggle switch, thence aft to the camera. The electrical leads follow other electrical cables from the cockpit to the baggage compartment. Aluminum angle braces hold the camera in position.

Installation of the camera is made by removing the baggage compartment hatch and replacing it with the camera-mounted hatch, after making the correct electrical connections.

Because the prism faces aft, it is necessary for the pilot to wait until he is well clear of the target before taking photographs. Another method used is for the pilot to make a steep pull-up after passing over the target, at the same time energizing the camera. Photographs with this article were taken by the for-



K-25 CAMERA AND MOUNT BEING INSTALLED IN CORSAIR BELLY BY L. C. MILLER ON BATAAN

mer method at altitudes of 100 feet. This method has proved to be more satisfactory.

Because the Navy's photo planes in Korea are one-man jobs, action pictures of combat have been difficult to secure. It would involve following close behind a dive-bomber or fighter with forward-shooting cameras or use of gun-cameras in the attacking plane. The photos below show how successful the rearward-shooting camera installation has proved.

Another example of this technique was shown on pg. 9 of the July issue of NAVAL AVIATION NEWS. In this shot, Korean minelayers were shown being napalmed from 100' altitude. Note how sharp these low-level photos are, despite the plane's high speed.

Another project undertaken by the photo material division of the Bureau of Aeronautics is a forward shooting motion picture camera. It is expected to be available to the fleet soon.



BOMBED-OUT RAILROAD BRIDGE AND TIDEFLAT TRACKS SHOT BY CAMERA



LOW-LEVEL PHOTOS SHOWS NAPALM BURNING OUT NORTH KOREA BOATS

Mirror Flash Seen 45 Miles

HOW FAR away can the flash from a life raft signaling mirror be seen?

You'd be surprised. BUAER airborne equipment division wanted accurate information on that question so a research project was set up at NATC PATUXENT RIVER to find out.

Service Test division was given a Mk 3 glass mirror and an experimental Mk 3-3 metal mirror to test out under actual flight conditions. Planes were sent up to fly at 1,000 foot, 2,000 foot and 5,000 foot altitudes. An observer in the tail section of the TBM-3 watched for flashes from the ground crew with the mirror.

At 5,000 feet with good visibility, it was found the glass mirror could be seen flashing in the sunlight from 45 miles distance. The metal mirror did not quite match this feat, being visible from 35 miles. In both cases, the plane was between the sun and the mirror, where visibility was best.

When the sun was at right angles, the flash was found to be visible from 25 to 30 miles, depending on the mirror, and down sun the flash could be seen only 18 to 21 miles.

The plane which was doing the sighting disappeared from view of the ground observers by the time it was only four miles away but the flashing mirror could be seen nearly 10 times as far away. The test was conducted from a ground station and also from a seadrome boat anchored out in the water. Because of the more stable platform on land, the mirrors were visible farther away than when tested from the boat.

Because of this extreme range for mirror flashes, life raft occupants are advised to keep "sweeping" the horizon with the mirror, even though no ships or planes are visible to the eye.

Although there have been fewer ocean ditchings off Korea recently than were common during Pacific phases of World War II, pilots occasionally have resorted to their life rafts. One battle report from a pilot searched for downed personnel said the flashing mirror was seen so effectively that he thought it was anti-aircraft tracer shells coming up at him.

Navy To Buy F7U-3 Cutlass New Model Fighter Built at Dallas, Tex.

The Navy has announced it will buy a "substantial number" of the F7U-3 *Cutlass*, a new model of its radical twin-jet tailless fighter plane built by Chance Vought Aircraft Co., of Dallas, Texas.

The new version of the *Cutlass* retains the unconventional appearance of the original F7U-1, first production model of which flew on 1 March 1950. Two

vertical stabilizers and rudders at the trailing edge of the delta-type wing replace the commonplace fuselage tail assembly. "Ailavators" combine ailerons and elevators to produce longitudinal and lateral control.

Landing flaps are not employed, but to get slow speeds for carrier landings, the *Cutlass* has leading wing edge slats to increase wing lift. Speed brakes reduce speed rapidly when required in maneuvers and approaches.

Two Westinghouse turbojet engines provide the power. The fighter is the first in this country designed from the start to use afterburners for added power in short periods.

Earlier the Navy placed an order with Chance Vought for additional quantities of the F4U-5 *Corsair* which has seen hard service as a tactical support weapon in Korea, operating from carriers or on land.

Confusion Threshold Test Admiral Studies Way to Rattle Self

Recently RAdm. William K. Harrill tried out the Navy's audio-signal-delaying unit, an acoustic tool recently devised at the Naval School of Aviation Medicine. The device was developed under a Navy contract by personnel of Ohio State University and was directed by Professor John W. Black.

RAdm. Harrill was visiting the school in his capacity as Special Assistant to the Deputy Chief of Naval Operations for Air. So impressed was he with the Acoustic Laboratory's audio signal delay unit that he extended his one-day visit to two days.

The device introduces a delay of from three-tenths to three-one-hundredths of a second between the time the speaker pronounces a word and the time he hears his own voice in the earphones.

The effects of this delay, upon the speaker, are profound and startling. Most people stride confidently up to the microphone, only to back away sheepishly after failing to read more than a few words from a printed chart.

Many people who try it are unwilling to give up so easily. They stumble and



ADMIRAL HARRILL TRIES SIGNAL DELAYING UNIT

stutter their way through the entire chart, getting red in the face, perspiring and finally raising their voice to a shout and finishing the last few words in an agonized croak.

This type of person is usually fairly certain he has beaten the machine until he attempts normal conversation with his applauding admirers. In most cases, he will stutter along for half an hour or more trying to tell his friends how easily he "beat thaaat machachine."

Flight Nurse Made Sheriff There's a Lady Sheriff in Oakland Area

During the annual inspection of the Navy Reserve at Oakland, the R60 *Constitution* flew many reserves in from the south for the inspection. Among the official guests was the Sheriff of Los Angeles, Mr. E. W. Biscailuz.

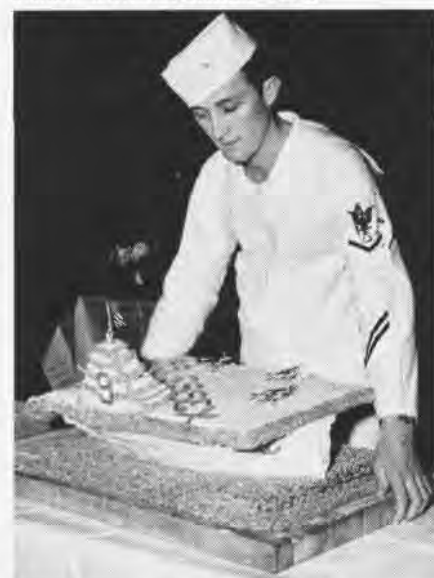
During the flight, Lt. Mary Grzelka was flight nurse aboard the VR-5 giant.

At the part after the inspection, the Sheriff teamed up with Lt. Grzelka and Lt. (jg) Earl Moore, PIO.

Lt. Moore mentioned to the Sheriff that they had something in common since Lt. Moore was a Deputy Sheriff back in Ft. Worth, Tex.

Sheriff Biscailuz promptly deputized both Lt. Grzelka and Lt. (jg) Moore. Recently each received a "redwood billy club" with a card deputizing them.

The word in Oakland: "Beware, podner, thar's a woman sheriff in these parts armed with a redwood stick!"



COMMISSARYMAN Charles Bryant displays cake model of USS *Essex* baked for commissioning of the ship at Bremerton.

• VR-6, WESTOVER AFB—O&R shop at Corpus Christi has installed AN/APS-42 radar in five of the squadron's R3D-3's. Two new features are on this latest airborne radar—an obstruction beam to warn of obstructions ahead higher than the plane, and a weather time delay feature giving greater returns from precipitation areas in which you are flying.

N.A. NEWS VISITS

NAS
BIRMINGHAM

BIRMINGHAM AIR RESERVES DRIVE AHEAD

NAS BIRMINGHAM is a small station, but it packs a big punch. Although it is a comparative newcomer on the Reserve circuit, its four original Organized Reserve squadrons have already chalked up a top record.

In 1950, its VF-681 led all fighting squadrons in the Naval Air Reserve Training Command in syllabus flight time with 3,144 hours. VA-689 topped all attack squadrons with 2,375 hours in the same period. FASRon-681 also stood high in flight time and in addition shared credit with station personnel for making a "no aircraft accident due to faulty maintenance or overhaul" score in 1950.

On the Marine front, VMF-541 won the "Pete" Ross Safety Trophy, which is awarded annually to that Marine Air Reserve squadron with the best safety record. Despite their no-accident tally in 1950, Marine pilots at Birmingham also flew more hours per individual than any other MAR squadron, averaging 114.3 hours.

Birmingham's newest squadron, VP-



'THE EGG AND I'—Capt. Burden fries the first egg at grand opening of the EM Club



'WELL SUH, RIGHT AT THAT TIME'—VF-681's Burch tells the story with full gestures to teammates Joyce (squadron CO), Smith and Grant (standing), and Hembree and White

681, got off to a good beginning by practically building up to complement right after its activation last October.

Starting almost from scratch when the station was commissioned in October 1948, Birmingham Reserves have converted their small plant at the Municipal Air Field into a model of efficiency. By concentrating their administrative, operational, medical, supply, tech training and squadron ready room facilities in one building, they have built a close-knit organization that functions with assembly-line precision.

The station solved its need for both a noon cafeteria and an enlisted men's club by turning over a room on the main deck to the men. Working together, stationkeepers and Organized Reservists decorated it with a streamlined mural, built a food bar and equipped it attractively.

Pride of the station is its hangar. You could fit two football fields into its working area and then have space left over for a string of hot-dog stands. During non-drill periods, all of the station's F8F's, TBM's, SNJ's, JRB's and SNB's are parked in the hangar. Stationkeepers take great pleasure in calling visitors' attention to how clean the planes look as a result of this careful treatment.

One full side of the hangar has been walled off to provide space for shops, maintenance offices and supplies.

Special devices and training equipment used in connection with the on-the-job program for Organized Reservists are set up right in the shops along with regular operational equipment.

Classrooms, containing long work tables and backboards, are also blocked off.

Birmingham has developed a sound program for training its Organized Reservists. All pilots in the VF and VA squadrons, who were members for the full year, flew their required 100 syllabus hours in 1950. Fighter pilots transitioned from F6F's to *Bearcats* in less than two months with no accidents.

Present drive is to qualify all Organized aviators for instrument cards. As early as last March, 50% of the carrier pilots had received their cards.

Once they qualify, pilots are launched in weather. Coming in, they join the local stack, getting mixed in with commercial DC-6's and *Constellations*. This works out well because of the cooperation that exists between the training department and CAA approach control at the airport. Birmingham Reservists are constantly made aware of the responsibilities military pilots operating at a municipal field must always assume.

Since no local facilities are available the squadrons fly to Pensacola each drill weekend for bombing, rocketing and gunnery training. They practice field carrier landings at the abandoned Air Force field at Estaboga.

Much emphasis is placed on in-service training for enlisted personnel. As soon as a Reservist completes a phase of this training, he takes an examination and gets his mark recorded on his progress chart.

Twenty-four enlisted stationkeepers, graduates of Birmingham's intensive instructor-training course, spark the on-



'FLYING LEATHERNECKS' BRIEFING—VMF-541 CO McEniry (c) plans local boy with Birmingham's Holmes, Todd, Thomas and Garrison



FASRON-681 HIGH COMMAND—CO Arnold reviews material with Reserves Fowler and Riley (fr.) and Huey, Hallberg, McDonald, Parker



'HERE'S THE DEAL'—VA-689's Fosbee gives last minute instructions to Boles, Franklin and Scroggins, members of his TBM plane crew



'FIRE AT WILL'—Reserve shutterbugs Chamber, Welborn, Fulgham and Smith get things set up for photographing an airplane part

the-job program for Organized Reserves.

Birmingham has a streamlined aircrewman course that is paying 100% dividends in increased attendance at drills. After six months of this training, Reserves who don't know a kilocycle from a motorcycle at the start can do RACON navigation on APS-4 gear from Birmingham to Maxwell Field to Pensacola and return.

Highlight of the 1950 training picture was the two weeks cruise the carrier squadrons and FASRON took at Whiting Field. Thirty-five pilots requalified aboard the Training Command carrier. FASRON personnel went aboard the ship and served as flight deck crew. Although some had never been aboard a carrier before, they operated so efficiently that pilots thought they were the regular deck crew.

Training for the Marine Organized Reservists stresses close-air-support. Latest in this line was a simulated problem undertaken against an imaginary enemy "entrenched" at nearby Anniston field. Marine pilots got briefed via specifically prepared photo maps of the

area, bombed and strafed targets under fighter direction from the ground and ended up with a critique of the whole exercise.

During its 1950 cruise aboard NAS BIRMINGHAM, VMF-541 acted as an entirely self-sufficient unit.

Cooperation is a watchword at NAS BIRMINGHAM. By utilizing many of its facilities jointly with the Air Force contingent at the field, it built a pattern for teamwork within the services and saved money in doing it.

Birmingham Reserves try to pull their full weight on the community front. When a little patient at the Jefferson-Hillman Hospital needed transfusions to combat a rare bone disease, 47 stationkeepers immediately donated a pint of blood apiece.

Organized squadrons participated in the Air Carnival, sponsored by the local Aero Club for the benefit of the Fund for Spastic Children. Open houses and model plane meets are regular station events.

In return, Birmingham gives the station enthusiastic support and backing.

When the Navy first considered setting up a NAS at the airport, civic authorities cleared the way. Each drill weekend hundreds of local citizens park their cars near the field to watch the Reserves in action.

Reserve interest and morale has always been high at the station. From the time NAS ATLANTA announced it would set up an Associated Volunteer Unit A at Birmingham way back in 1947, Reservists have flocked to the program. In fact it was on the basis of Reserve interest in the area that the Navy first authorized a Naval Air Reserve Auxiliary and then decided to locate one of their four new stations at Birmingham.

On the Organized Reserve rolls are many well-known community figures. Cdr. Jim T. Gibson, the WS commander, who served as CO of several CASUs in the Pacific during the war, is a prominent local attorney. The assistant WS commander, Cdr. Donald J. Melvin, who holds two Navy Crosses, is a well-known criminal lawyer.

Typical of the many squadron mem-

bers with fine combat records are: Lt. William A. Grant, Jr., who holds the Navy Cross, a DFC and two air medals; Lt. Alex V. McPhillips, who holds the Silver Star; Marine 1st Lt. William H. Donovan Jr., awarded the Purple Heart, a DFC and several air medals; and 1st Lt. Chalmers H. Jones, who is credited with downing a Jap plane.

Two Reservists rate mention for doubling as expert recruiters. Cdr. Donald M. Miller, WS personnel officer, who is assistant dean and registrar of Marion Institute (a local military academy) and Chief Roland L. Smith of FASRON-681, a mail carrier, both make full use of their civilian contacts to "bring 'em in."

Enlisted Organized Reservists have done much to make the program a success. Typical of this group are such individuals as Marine leading chief T/Sgt. Willis P. Woodruff Jr., a physicist for Southern Research Institute; S/Sgt. Preston A. Bristow, a civilian pilot with a degree in chemical engineering; Melvin A. Barber, ADECA, the first Organized Reservist at Birmingham to advance to chief; Delmar N. Hopkins, a city fire fighter with two air medals won in the

BIRMINGHAM RESERVE SQUADRONS

Wing Staff-68—Cdr. James T. Gibson, Commander; Cdr. Donald J. Melvin, Asst. Cmdr
VF-681—LCdr. John H. Joyce, CO; Lt. Billy P. Burch, Exec.
VA-689—Lt. Joe "L." Jones, CO; Lt. John T. Foshee, Exec.
VP-689—LCdr. Walter V. Higgins, CO; LCdr. Clarence B. Turner, Exec.
FASRON-681—LCdr. Asbury H. Arnold, CO; Lt. Richard S. Riley, Exec.
VMF-541—Maj. J. Howard McEntry, CO; Maj. R. E. Carter, Exec.

Pacific; Nick A. Costas, AOU1, who like many local Reserves is employed by the big Tennessee Coal, Iron and Railroad Company; Wave Lucy M. Hurley of the Wing Staff who is chief clerk of the Birmingham Selective Service System.

Birmingham also has several "brother combinations." Take, for example, the four Sizemores—AR Benjamin A. and AA Perry E. both of VP-681, AO2 William P., a stationkeeper, and AOU2 Thomas C., formerly with the FASRON and now on active duty aboard the *Valley Forge*. Then there are Joseph D. and Sanford J. Slaughter who travel 120 miles to attend drills with their FASRON.

All-Navy husband and wife combinations include Lt. and Mrs. S. B. Feagin

and Lt. (jg) and Mrs. E. W. Menefee.

Getting a new station underway places a big burden on active duty personnel and Birmingham's stationkeepers have turned in an A-1 performance.

Leading the drive forward was commanding officer, Capt. H. P. Burden, who during the war garnered 10 battle stars for participating in major engagements in the Pacific. His later experience as a member of the Aeronautical Board—an Army Air Force-Navy activity—paved the way for the outstanding job he chalked up at Birmingham in the matter of joint utilization of facilities. Capt. Burden is now at the Naval War College. His successor, Capt. Paul E. Gillespie, has just reported aboard after a tour of duty as Reserve Training Assistant to the Chief of BuAer.

An important member of the team, too, is executive officer Cdr. E. A. Parker, a long-time member of the Reserve, who served aboard the *Wasp*, and later was air officer of the *Manila Bay*.

Many former members of the Organized squadrons at Birmingham have returned to active duty and are showing that Reserve training does pay off.



PLOTTING CROSS-COUNTRY FLIGHT—CO Jones (lc) of VA-689 sets a definite course for squadron pilots Beaty, Doss and Callen



MEN AT WORK—VF-681's airman apprentices Aldridge, Harris, Woods, Andrews and Rockwell do a job in Birmingham's machine shop



'AND VMF-541 WON IT'—Marine Air Reserves crowd around the 'Pete' Ross Safety Trophy the Birmingham squadron was awarded



GIVING THE WORD—Chief Weathersby (r) explains how a piece of electronics gear operates to FASRON-681's Conway, Smith, Franks



HAMILTON, SULLIVAN DEVELOPED FILM DEVICE

Film Viewer Saves on Time

USS VALLEY FORGE—A portable combination film viewer and marker which helps cut time of marking and processing aerial film to one-third has been developed by Chief Photographer's Mate L. G. Hamilton.

By use of the device, photo interpreters are able to receive the film faster and pass on the valuable information to intelligence authorities. Hamilton's apparatus has been adopted for permanent use in the ship's photo lab.

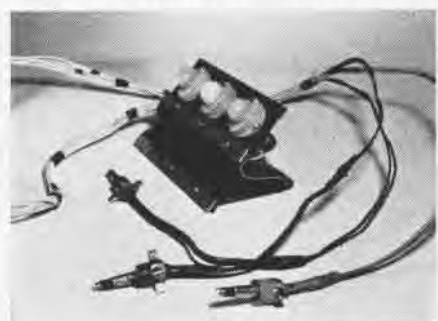
When in operation, the viewer measures 78" and can be folded to 48". The time saver is the maximum length of the arms that hold the film spool to the marking table. This allows the ink to dry on the films after marking and numbering and permits fast reeling of the film roll.

The device is made of wood and pipe, but Hamilton said one could be built of light aluminum if available. Under Hamilton's direction, Aviation Structural Mechanic First Class Schulyer Sullivan constructed the machine from odds and ends. Hamilton holds the DFC and was a full lieutenant until last year.

Makes Rocket Plug Tester

VF-191, PACIFIC—A useful device for testing aircraft rocket electrical circuits has been developed by Charles C. Pasha, aviation ordnanceman second class. Prior to its perfection, two men, one in the cockpit and one to check lights visually, were required to make the test.

The tester fits on the trailing edge of the wing, making the lights visible from the cockpit. It is necessary to have one tester for



SIMPLE LIGHT SYSTEM CHECKS ROCKET CIRCUIT

each wing to check the aircraft circuits for firing by pairs. The one shown was made to check the circuits of the F9F-2B, which only has facilities for three stations on each wing.

However, a unit can be made to test as many stations as desired. To prevent damaging the aircraft and for clinging characteristics, the "V" shaped part of the tester is lined with rubber.

Surplus Tail Wheels Used

A critical shortage of R82-GRZ-854 tail wheels was successfully overcome by Nyal A. Gerber at NAS SAN DIEGO under the Navy Beneficial Suggestion Program. The shortage, if allowed to continue, would have grounded many F3U aircraft.

Gerber found that there were surplus R82-GRZ-896 tail wheels on hand and suggested that they could be modified for tail wheel use. A modification of the R82-GRZ-896 wheels proved feasible and efficient.

It is estimated that \$18,350 will be saved at NAS SAN DIEGO as a result of the rework of 1,000 surplus tail wheels from obsolete SB2C aircraft.

Jet Engine Starter Problems

Jet engine starter troubles appear to be caused mostly either by over-cycling or improper power supply.

In the first instance, several directives have been issued limiting the starting cycle to a maximum of 30 seconds. Two such consecutive 30 second cycles are allowed but after two, starting cycles, it is imperative that a minimum of 30 minutes cooling time be allowed before using the starter again.

In the second case, starting jeeps are known to be underpowered and not properly used in all instances. The starters are specifically designed for use with constant current (a power supply the voltage of which is reduced at time of application of power) and capable of rising to 30 volts (at starter) and 1000 amperes. Inability of the supply to deliver 30 volts to the starter (approximately 35 volts at the jeep) or improper current limiting at beginning of starting cycle will both contribute to starter failure. Failure will be caused by overheating and eventually result in distorted, burned and pitted commutator bars and chipped brushes.

The following steps are recommended to alleviate starter problem until proper power supplies become available either through modification of present units or new procurement:

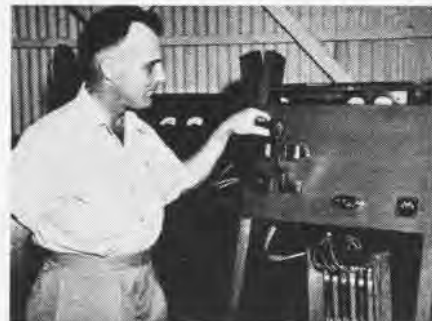
1. Use all jeeps in "Constant Current" condition not "Constant Voltage" as is being done by some activities.

2. Use 800 ampere current setting on all jeeps.

3. Set output voltage of jeep at 35 volts no load or highest voltage obtainable if less than 35 volts. *When set to this high voltage, the jeep cannot be used for aircraft servicing, other than starting, without damaging aircraft electronic equipment.*

Builds Electric Load Tester

An inexpensive device for checking the load capacity of APU generators has been built by Chief Electrician's Mate Harry E. Staley at Navy Air Transport Squadron Eight, Guam detachment, Pacific Division, Military Air Transport Service.



H. E. STALEY CHECKS HIS LOAD CAPACITY TESTER

The device which has increased the dependability of the APU generator when attached to an A/C outlet was constructed in one hour's time at a material cost of only three dollars. It has been used for high rate battery discharge with better control over the discharge rate than the conventional wire resistance unit.

Chief Staley constructed the "electrical load tester" by using copper rods one inch in diameter and 14 inches long. When plugged into the APU power cord, the rods may be immersed in a solution of sulphuric acid, copper sulfate and water.

By controlling the depth of red immersion, a "load" of 25 to 300 amperes may be placed on the APU generator.

Jack Ladder Test Devised

A safe method of testing the rungs of ladders has been devised by C. B. Corbin, Quartermaster Joiner in the O&R shop at NAS JACKSONVILLE. It was submitted under the Navy Beneficial Suggestion Program.

The old method of testing the strength of ladders was to have a checker walk along on the rungs of a ladder that was raised off the deck four inches. If none of the rungs broke under his weight, the ladder was judged safe. This method, however, involved real hazard to the employee checking the ladder.

The new method tests ladder rungs up and down the ladder. The checker inserts a jack between rungs of the ladder and pulls on the handle of the torque wrench which is attached to the jack.

A dial shows the pounds of pressure applied. A new ladder from the factory is tested 1,000 pounds per rung. The O&R safety department considers a 500-pound test sufficient.



THIS JACK METHOD OF TESTING RUNS IS SAFE



USE OF MK 13 SMOKE SIGNAL FLARE AND TWO-COLOR SIGNALLING PANEL



ORANGE CARGO CHUTE ON 215-POUND KIT IS EASY TO SPOT IN SNOW

SURVIVAL KIT FOR ALASKAN HOPS

BECAUSE much of its flight time is over Alaskan mountain ranges, coastal waters and snow-covered tundra, VR-3 carries a complete Arctic survival kit in all squadron transports northbound to Alaska.

The 215-pound kit is dropped by a standard 24-foot cargo-type parachute, colored orange so it can be spotted easily and found in snow. In addition to the Arctic survival kit, cold-weather clothing also is included in a separate kit. Being for emergency use only, this latter Arctic clothing kit is made up in a small canvas bag, 3' x 18", sealed with a serialized box-car type seal. These kits are kept in possession of each person aboard.

The big survival kit contains everything from a waterproof, wind-resistant, airtight tent to such small articles as spoons, soap and salt for the canned rations. VR-3 parachute loft prepared the kit for emergency use by three persons, four kits to a plane.

The 50-odd articles provide sufficient basic equipment which would enable them to survive sub-zero temperatures for about two weeks. Included in the kit are the following items:

1. Two kapok-filled sleeping bags, each divided into two sections. One, a small bag, fits inside the second section, which is slightly larger. This gives the occupant double protection against the bitter Arctic cold.

2. Two cases of rations, each containing eight vacuum-packed cans, containing foods such as frankfurters, beans, ham, lima beans, fruit cocktail, bread, spaghetti and meat balls, hamburgers, assorted fruits. In another unit are cigarets, soap and plastic eating utensils.

3. One ARC-7 radio, walkie-talkie type, complete with mercury battery good for 24 hours sending or 22 hours receiving, with booklet of operation. It can be used up to 30 miles if the plane contacted is at 10,000 feet. Range decreases with lower altitude or

on the ground.

4. Combination .410 shotgun and .22 rifle for hunting small game and protection, together with four boxes of ammunition.

5. Twelve canned heat tablets (wood alcohol) for cooking until fuel can be obtained for use in gasoline stove in kit.

6. Twenty feet of wire and 67 yards of nylon cord to tie equipment or fishing.

7. One tarpaulin, rubberized on one side and fluorescent on the other. This is for signaling flying aircraft. Messages can be relayed to planes by laying the colored panel in various patterns on the ground. Using the accompanying instructions, survivors can send 15 different messages.

8. Two pairs of white felt Arctic boots. Felt is better for warmth, rubber soles and

heels, with the customary grooved heels for use with snowshoes provided in the kit.

Other smaller items in the kit are wool ski sox, trigger-finger type gloves, arctic mittens, hunting knife, signal mirror, chapsticks, brush for cleaning snow off clothes and tent, waterproof matches, sunglasses, whistles, one gallon can, first aid kit, cushion-soled sox, hand ax, undershirts, drawers, scarfs, Mk 13 signal flares, smoke grenades for signaling, collapsible stove for cooking, six candles for heating tent, air mattresses, hand-energized flashlight, and mountain cooking kit.

In the separate Arctic clothing kit are the following items: alpaca-lined hooded parka and winter suit, wool winter trousers, gloves with two linings, alpaca jacket, flight boots, winter shirt, woolen sox and sun glasses.



NORMA LEE FLEMING, SN; LLOYD M. ANDERSON, AL3, WITH VR-3'S KIT FOR SURVIVAL IN ARCTIC

Rocket Tester for Marines

VMF-323, KOREA—S/Sgt F. T. Bratowsky, NCO in charge of the *Death Rattlers'* electrical shop invented an improved model of the rocket circuit tester in his spare time.

It makes a one-man job of an operation that formerly required two. "Brat" merely plugs in all four pigtails under one wing, pulls the box out within view of the cockpit and then runs through the circuit, checking the lights to see if they all are operating.



BRATOWSKY WITH CIRCUIT TESTER HE INVENTED

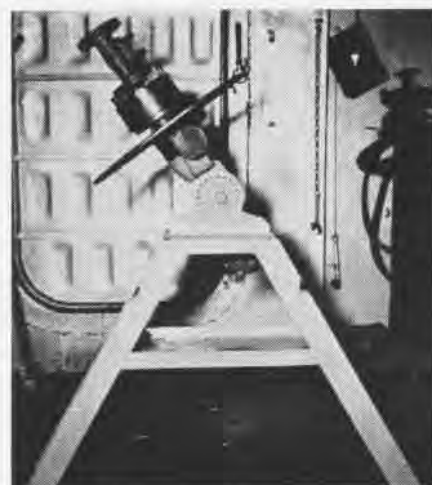
Two Ideas Cut Down Labor

USS VALLEY FORGE—Two labor saving bar arrangement in the base, and by a pin device have been developed aboard this carrier by R. H. Barr, ME1, using parts easily obtainable on AirPac vessels, particularly aircraft carriers.

One is an oxygen acetylene welding outfit carriage which is handy in getting the welding and cutting apparatus around aircraft on the flight and hangar decks. The amount of hose to be used is optional but the *Valley Forge* found 200' sufficient to reach any part of the ship by properly locating the carriage.

The second device is a tilt table, an excellent addition to the shipfitters' shop. With this device parts up to 150 pounds can be handled and positioned with ease by one man. It is useful for holding parts to be welded or brazed in the best position.

It consists of a lathe chuck which is screwed into the table. The tilt table itself can be rotated and secured in any position by a



TILT TABLE USEFUL AROUND SHIPFITTER SHOP



PORTABLE WELDING CARRIER WITH LONG HOSE

set screw. Its attitude can be changed and locked in position by a set screw and lock inserted at the table's pivot point.

Tail Wheel Reconditioning Fix

A method of reconditioning Grizzly solid tail wheels, developed by Earl A. Clark of NAS NORFOLK, has been approved by the Bureau of Aeronautics under the Navy Beneficial Suggestion Program.

The rolling face of the wheel is machined to provide a smooth surface. The thickness of exposed rubber between the periphery of the hub flanges and the rolling surface must not be less than $\frac{3}{8}$ inch.

The edges of reworked wheels are chamfered $\frac{3}{8} \times 45^\circ$. The angle may be varied plus or minus 15° when necessary to remove gouge cavities at the edges of the rubber. In all cases, both chamfers on each wheel must be identical.

The limits specified in Airframes Accessories Bulletin No. 24-44 are applicable except as modified above.

Wheel Drag Trouble Solved

VC-35, SAN DIEGO—This squadron solved a ground loop problem which had been hampering operations of an AD-2Q, tracing the trouble to maladjustment of a brake cylinder.

Pilots complained that it looped to the left and pulled left more severely when full right rudder was applied. Sent to San Diego O&R, it was given a starboard flap adjustment, but tests showed it veered sharply to the left on takeoff although it flew satisfactorily.

The plane was jacked up at the axles and the wheel turned, brake drag becoming apparent. The left wheel was turned and full right rudder applied. This caused the left wheel brake to lock. Investigation showed the left brake cylinder faulty, allowing system pressure on the brake when the left pedal was in either full-throw position. This caused the left wheel to drag, making the plane veer left with full right rudder.

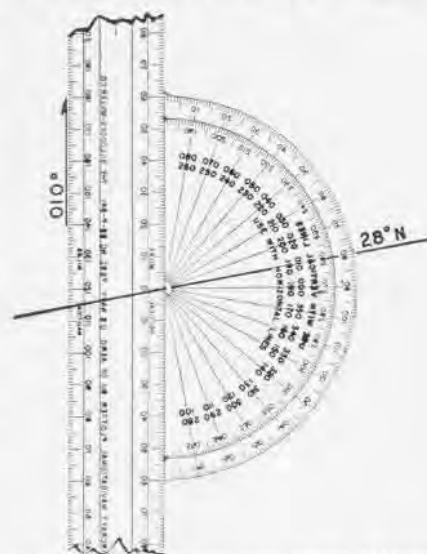
Adjustment of the master brake cylinder and lengthening of the mounting lug corrected this simple but dangerous discrepancy.

Air Nav Plotter Improved

Readings Possible from Latitude Lines

The old familiar air navigational plotter is being subjected to a course of improvement at the U. S. Naval School, Pre-Flight, at NAS PENSACOLA.

An instructor at pre-flight school, Lt. D. G. Jackson, witnessed his French students politely set aside the plotter issued them and break out their own model,



HEAVY SCRIBED NUMBERS GIVE DIRECT READING

si vous plait.

A liberal translation of the explanation, with sweeping gestures by the French students, discloses that our own plotter fails when used with the horizontal lines of latitude.

In laying out a course line using the latitude lines as for east-west orientation, the course reading on the standard plotter reads 90° out of phase, entailing mental computations on the part of the navigator. When the plotter is used with the vertical north-south lines on a chart the readings are correct, but using those lines isn't always convenient, especially when plotting courses near 000° and 180° .

Borrowing from our French allies, Lt. Jackson scribed another scale 90° out of phase to the scale used with vertical lines. The accompanying drawing shows the new plotter being used with the $28^\circ N$ latitude line as a base. Course line to be drawn is 010° . A direct reading of 010° is possible from the newly-scribed scale. The navigator does not have to make mental computations from the 100° mark.

Forty pilot models have been made and are being evaluated by the students and instructors at the school.

• NATC PATUXENT—The GCA unit here made its 20,000th landing on 29 May when a P2V from Armament Test piloted by Cdr. H. F. Lloyd came in on a practice run.

'OPERATION NUDE' REALLY WORKS

"REMOVE the accessories from an engine container? You can't do that."

"Why?"

"Because."

"Ship an engine without a carburetor or spark plug? It will never work."

"Why?"

"Because."

These are typical of the comments heard when the Accessory Removal Program was first proposed in the Bureau of Aeronautics and Aviation Supply Office. All those who were against the idea were loud in their denunciation, but they couldn't quite explain why.

Now that the program has been in action for approximately nine months, possibly a clear cut explanation of the background will convince some of the hold outs who are still against it because, "Gramps didn't do it that way."

ACL 40-50 of 21 June 1950 outlines certain accessories to be removed from radial engines during shipment or while in storage. The removal of accessories applies to all engines—new, overhauled, ready-for-issue or awaiting overhaul. This program has become known as the "Nude Engine Program".

This idea was first thought of in connection with surplus engines at the end of the last war. The adopting of the Nude Program for surplus engines only would have created a very unsatisfactory inventory situation because there would have been both nude and complete engines in the system.

The Red Tag Engine Program for replacing overage accessories was so uneconomical as to prove a powerful argument for the introduction of the Nude Engine Program. It affected fleet operations adversely and resulted in engine maintenance in excess of actual need.

Under the old program, all model engine accessories for new production aircraft were at first in critical stock status or non-existent. As a result, there were large numbers of AOG aircraft

during the first year's operation of new model aircraft. Necessary overhaul bits and pieces were not available in the O&R establishments to overhaul the accessories which further aggravated the situation.

After a complete review and analysis of the old program, it was decided that the removal of certain accessories from aircraft engine containers would be logistically sound. For example, 500 aircraft would be procured and 1,000 engines would be contracted for installation in these aircraft and for life-of-type spares. Before the implementation of "Operation Nude", it was necessary to procure additional support spares accessories at the rate of one extra for every two installed engines. For instance, 250 additional carburetors would have been purchased, this being the recommended quantity allowed under Case I, or a total of 1250 carburetors procured to support 500 engine installations.

The removal of the accessories from new production spare engines immediately made available 100% replacement of those accessories on installed engines. A number of these accessories would eventually go over-age prior to the installation unless removed from the container, and at the same time, the Fleet would have AOG aircraft.

It was believed that the quantity of a given item of engine accessories that could be purchased under Case I was grossly insufficient to fill the ready-for-issue Class 265 and in-overhaul-processing pipeline. The Nude Program amply fills this pipeline and leaves a certain additional quantity for insurance purposes.

It would appear that the Nude Program will ultimately eliminate the need for purchase of the Case I quantities, which would represent a saving of \$375,000.00 just on carburetors alone. It is estimated that the Nude Program, during the year 1951, will eliminate the needless overhaul of approximately 9,000 each of the items removed from the engine container. For example, on carburetors alone, this is a saving of approximately \$943,200.

The Nude Engine Program basically assists operating personnel by providing sufficient ready-for-issue support spares to allow proper maintenance stock levels at activities supporting aircraft operations for that particular type of accessories. Under the old program Red Tag Engines were issued, and when engines were to be installed, operating

activities had to obtain ready-for-issue accessories for this engine. These items were not always in local supply. This caused undue delay and adversely affected fleet operations or training programs, and also caused undue delay in building up of quick engine changes. In those instances, where the Supply Department did not stock accessories to support these engines, there was a considerable delay involved. That was one major fault of the old engine program.

It also allows for the overhaul of these accessories to be accomplished on block-loading or production line techniques. It also reduces the stock level of overhaul bits and pieces that must be maintained in the supply system.

It is estimated that the Nude Engine Program in addition to improving greatly availability of material will save between \$12,000,000 and \$15,000,000 annually as well as improve the efficiency of the Fleet which cannot be evaluated in dollars and cents.

In the beginning the Nude Engine Program was to be confined to reciprocating engines. Since the program had been successful for reciprocating engines and since the total jet engine accessories available in the system are only sufficient to support the installed engines leaving none to be lost temporarily in the engine container, BUAER is considering adopting the Nude Engine Program for jet engines as soon as practicable.

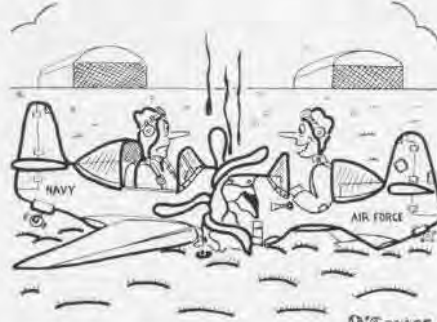
"So you see, you can do it, because it works."

● NAS QUONSET POINT—Fighting Air Group Three, back from five months in Korea, has transferred from this base to the newly-opened NAS SANFORD, Fla. Cdr. W. F. Madden is CAG.

● Navy's All Weather Flight School has submitted motion picture production outlines to CNO for two training films. The movies are titled "Low Stratus" and "Flight Planning."



"NOW MAYBE YOU'LL FIX THOSE BRAKES!"



"WHAT DO YOU KNOW? WRONG RUNWAY!"



CHIEF NESBIT SHOWS HOW PLATE HOLDER WORKS

Board Helps R5D Landings

VR-6, WESTOVER—Pilots of this MATS squadron are used to that "one-armed paper-hanger" feeling during instrument approaches at strange airports, when they must fly the airplane with one hand and one eye while scrutinizing the printed approach procedure with the other set.

Lt. (jg) R. B. Strickland decided to do something about it, and with the help of F. M. Nesbit, ADC, designed a range plate holder for the R5D which is both simple and practical.

The device consists of a board covered with plexiglas, and a flexible, plug-in mounting of the tube used with fluorescent cockpit lights.

The range plate is inserted between the board and plexiglas by the copilot and the board is passed to the pilot. He then plugs the board into the receptacle which is permanently attached to the upper edge of the windshield.

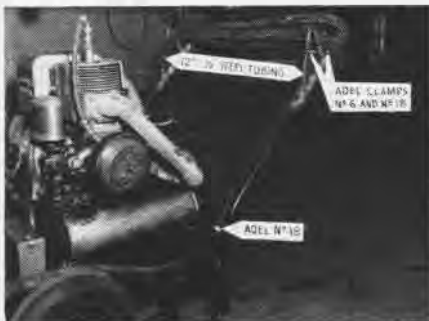
The board is held securely by a spring-loaded plunger, yet it can be tilted or moved freely to the desired position. The standard red-shielded light located to the left and above the pilot's head illuminates it. A light pull will detach the board when no longer needed.

Power Plant Handle Change

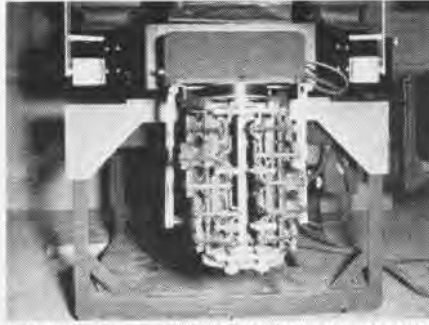
MCAS CHERRY POINT—By incorporating a piece of one-half inch steel tubing welded to each of the auxiliary power plant handles, the possibility of burning the lead cord has been completely eliminated because the cord is kept from touching the hot exhaust pipe. Modification was designed by Marine Service Squadron 11.

An Adel clamp was used to anchor the lead on the lower end of the handle as well as above the newly welded bracket.

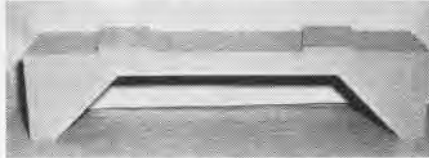
This fix requires approximately one man hour of work, 24 inches of one-half inch steel tubing, two 18C Adel clamps and one 6C Adel clamp.



FIX PROTECTS CORD FROM HOT EXHAUST PIPE



LOCKING JIG IS SHOWN ON THE LINK TRAINER



AIRCRAFT MAN AT CORPUS DESIGNED THIS JIG

Locking Jig for Link Trainer

A locking jig for the Link trainer has been designed by Kenneth M. Hilgart, aircraft mechanic at NAS CORPUS CHRISTI. It has been approved by the Beneficial Suggestion Committee for optional adoption at other facilities.

Made of wood, the jig locks the fuselage on one of four headings—0°, 90°, 180° and 270°. It prevents any movement of the fuselage and assures no error in the heading.

The jig can be installed in a matter of minutes and makes the proper setting of the wind drift, aural null, base teletorque, simulated gyro compass, and the simulated magnesen compass an easier and more accurate job as compared with the two-wedge arrangement which is hard to get into place.

The jig can be used in shipping the trainer from one place to another. Previously a bolt was used, and the trainer was frequently damaged in the move.

New R4D Carburetor Springs

In the process of maintaining C-47 (Navy R4D) aircraft, the Base Maintenance Section of the Air Materiel Command at Wright-Patterson AFB, Dayton, Ohio, discovered that the carburetor mixture control latch springs often needed replacement because they were broken.

It was discovered that the wire from which the springs were manufactured was too large, as shown in the left figure above. The breaks occurred as shown in the middle figure.

New springs were manufactured from .055" diameter AEW 17 music wire with two coils on each side as shown in the right figure. The new type springs have been in service for over six months, and there have been no failures.



SMALLER WIRE SOLVES TROUBLE IN CARBURETOR



R4D JUST CLEARS TREES BANDED FOR CUTTING

Johnsville's Trees Chopped

NAS JOHNSTVILLE—"I would have made a good landing if it hadn't been for those trees at the end of the runway!" This has been the standing explanation for occasional "unorthodox" landings at this Pennsylvania Air Station.

For years it has been plagued by a row of 40-foot trees at the end of runway 27. Landing over this approach hazard presented quite a problem. Under ideal weather conditions and a perfectly executed approach, the first 1,000 feet of the 4600-foot runway are virtually unusable. This is particularly true of the heavier planes like the PO-1W, PB-1W and the PB-1Y-2.

So the public works department, heavily armed with axes, saws and associated equipment, went to work, with the kind permission of the owner of the trees, and removed the "pilot's nightmare". The job was directed by Cdr. M. T. Whittier, the operations officer.

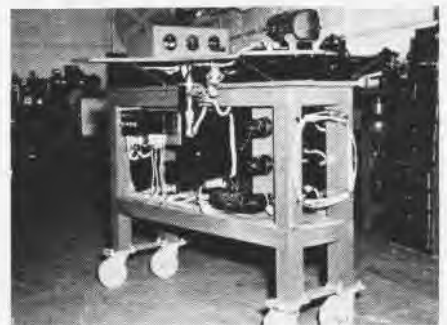
Makes Auto Pilot Test Unit

FASRON-117, PACIFIC—Confronted with the problem of testing P-3 automatic pilots without testing facilities, the electronics shop went to work and made its own test stand to do the job.

The stand is made of plywood cut to the shape of an aircraft, mounted on top of a work bench by using a universal joint. This is held in a horizontal position by three coil springs.

By mounting the platform on a universal joint with spring tension, a rolling pitch-action can be applied to the gyro horizon indicator, the turn-bank indicator, the master direction indicator and the fluxgate transmitter.

The power supply, amplifier, junction boxes and servo units are mounted under the bench in an accessible position for fast substitution. Overall dimensions of the stand are 58"x18"x30". It is mounted on four large casters for mobility.



FASRON-117 MOBILE UNIT TESTS AUTO PILOTS



SUPPLY NEWS

FROM ASO AND SUPPLY DIVISION BUAER



AVIATORS DECIDED TO SHOW HOW THEY PRACTICE CROSS-WIND LANDINGS ON THE FRONT PORCH

Aviators at Philadelphia ASO

Twenty-four aviators are serving a tour of duty at the Aviation Supply Office. They have been thoroughly indoctrinated in the policies and procedures of the supply system and have studied the BUSANDA Manual. The aviators inject into the supply system the practical "know how" of not only what part is required, but just how effectively that part will operate in a plane.

These officers fit into all levels and branches of the extensive ASO organization. Their technical and administrative billets are as varied as their flying careers, qualified in the operation of almost every type of aircraft operating today.

The billets range from officer-in-charge, technical group, supervising 20 officers and 600 civilians, to officer-in-charge, airframes stock control unit, responsible for approving the expenditure of more than 20 million dollars a year in contracts for airframe spare parts.

In spite of the necessity of practicing cross-wind landings on the front porch, these aviators are able to get in necessary flying hours. A Link trainer, which had been on display in the Museum, was oiled up recently and under the supervision of F. R. Stevenson, TDAN, a number of "white cards" are being produced. NAS JOHNSVILLE, 12 miles away, provides SNB/JRB aircraft for proficiency and administrative flying with an occasional AD, F8F or SNJ also made available.

Shown left to right in the photograph are: 1st row—O'Neill, Berg, Russell (USAF), Clark, Wiseman, Gentilini, Fuller, Perabo; 2nd row—Porter, Orr, Gordon, Lewis, Hahn, Jogan, Keck, Motley; 3rd row—MacMillan, Engelkes, Markle, Draggie, Cronin, Darcy, Krzywicki, and Nelson.

Proper Packing of Material

Recently 400 pounds of Class 45 miscellaneous fittings were received at NAMC PHILADELPHIA, bulk-packed in the same shipping container. Fittings were haphazardly stowed in the container. Excelsior, used as a cushioning medium, was permitted to come in direct contact with the metallic parts. This was a violation of good packaging procedures described in many publications distributed by BUAER and ASO.

Preparing aeronautical spare parts for shipment is important whether or not the shipment is on a priority requisition. The material should be properly identified, segregated, and the best possible protection provided. Material prepared in a careless manner invariably results in loss of time and man hours and can result in the loss of equipment.

Fuel Cell Storage Life

ASO has recently been advised by BUAER that no specific extension date beyond the normal storage life of 60 months will be assigned to fuel cells.

Barring accidental or combat damage, the life of fuel cells in regularly operated aircraft is unlimited. However, it is known that fuel cells in storage suffer deterioration. There is not sufficient information available at this time to warrant an extension beyond the normal storage life of 60 months.

When stocks of under-age fuel cells fall below normal stock requirements and over-age fuel cells are available in the supply system, ASO will advise BUAER of the number and location of these cells in order that they may be appropriately inspected and tested.

Until detailed instructions are received from ASO, field activities should not take action to dispose of over-age fuel cells.

Dry Cell Battery Storage

BUSANDA has established cold storage space for dry cell batteries at Naval Supply Centers at Norfolk, Navy 128, and Oakland. A control system is being instituted so that the "first in" batteries will be the "first out," thereby minimizing the number of surveys due to excess shelf life.

Effective July 1950, containers of dry cell batteries are being marked with the expiration date by the contractors. Reserve stock over and above immediate requirements are being sent to storage. Containers are marked "Stocked in Cold Storage" and "Expiration Date"

Monthly reports will list on-hand quantities of batteries by expiration dates in lieu of date of manufacture. These will be indicated by one asterisk. Two asterisks will indicate batteries in cold storage.

Note on Sheet Metal Orders

Owing to the difficulty of procurement of carbon and alloy steel sheet, it has been necessary to accept sheets in widths and lengths other than those requested. Bids by suppliers have covered a range of width and length rather than any specific width or length.

All carbon and alloy steel sheet will be stocked in standard thicknesses in the width range of 18" to 36" and a length range of 72" to 120". Thickness will be the factor governing the stock number and all material of like thicknesses (tolerances being considered) will be consolidated under one stock number. To obtain proper sizes, activities should therefore specify minimum width and length dimensions when they request sheet stock.

• VR-6, WESTOVER AFB—Men of this squadron are polishing up their shooting eyes. Every enlisted man and officer is given a thorough check-out on the .45 pistol and the M-1 and M-2 carbine and must qualify as marksman with these weapons. For a transport squadron, VR-6 is unusual in having 600 M-1 carbines and 300 .45's as well as 10 M-3 sub-machine guns.

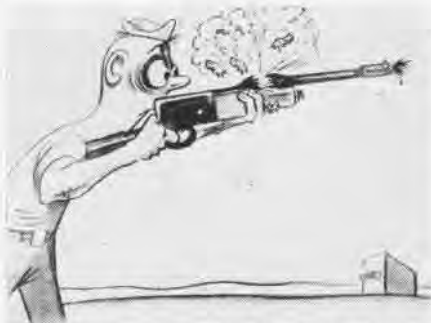
Speaks For Itself



USE ASO CATALOG



AVIATION ORDNANCE



SKEEETER WAS A BIT CARELESS ABOUT GETTING SAND, MUD AND FLOWERS IN HIS GUN MUZZLE

Buys Electric Skeet Timers

The Bureau of Ordnance has procured and distributed a limited number of Electric Variable Timers, Model 40 for test and evaluation purposes. This kit contains the necessary equipment to make a Wonder Trap Skeet outfit fully electric in operation. When wonder traps are changed from manual to electric operation, the timer can be operated with either variable or instantaneous timing for throwing both single and double targets.

Installation Instructions: The instructions for installation, operation and maintenance of the Electric Variable Skeet Timer, Model 40, are contained in an instruction pamphlet entitled "How to Install, Operate and Care for the Remington Wonder Trap," a copy of which can be furnished by BUORD upon request.

The limited number of timers procured by BUORD have been issued on a "first come, first served" basis under Bureau of Ordnance Stock Number J940-K-900. However, additional stock will be obtained if activities will advise this Bureau on the advisability of adopting such equipment for service-wide use. Comments and recommendations are invited.

AM-1 Target Tow Release

At NAS GROSSE ILE, a tow release has been designed by the Ordnance and Metal Shops as an interchangeable unit for towing targets with AM-1 aircraft without making changes to individual aircraft. This unit is quickly connected and disconnected, thus eliminating the necessity for the assignment of individual aircraft as tow planes.



TOW RELEASE UNIT INSTALLED ON AM-1 AIRCRAFT

The unit was constructed of chrome-molybdenum steel, using an FG-1D tow target release housing unit, part number (R82-CV-VS-11552), plunger (R82-CV-VS-58788), cap (R82-CV-VS-387), housing (R82-CV-VS-58786), fitting (R82-CV-VS-19275), and a 20mm electric trigger control, part number (J941-7-3138-300) to operate the release.

On the AM-1, the tow release is attached to the bomb ejector rack. This makes it necessary to place the release unit in position as a bomb would be placed and cranking the tow release tight against the sway blocks. The electrical connections are then disconnected from the bomb ejector system and connected to the tow release electrical trigger control.

In the event of electrical system failure, the entire tow release unit with line and target can be dropped by manual release.

The two release unit has been tested by field tow for stress, strain and release operation in flight. It showed no damage to aircraft and release was positive on each test.

► **BuAer Comment**—The quick attachment feature of the tow line release without change for individual aircraft is most desirable. However, the design is believed to be peculiar to the AM type aircraft which permits cranking of the tow release tight against the sway blocks. BuAer has developed a target line release for the AD aircraft. It is now being evaluated.

Do You Need Any Tools?

The Bureau of Ordnance has available a limited number of the following tools for issue to operating activities:

The Ordnanceman Tool Kit consists of the following:

Apron and Roll, Canvas, for tools and wrenches, J41-A-299.
File, American Std., Flat, Smooth Cut, 6", J41-F-882.

Pliers, Slip Joint, 8", J41-P-1633.
Pliers, Slip Joint, 10", J41-P-1635.
Pliers, Diagonal Cutter, 5 1/2", J41-P-1714.
Screw Driver, Common, 3" Blade, J41-S-1101.
Screw Driver, Common, 4" Blade, J41-S-1102.
Wrench, Adjustable, 6" Crescent, J41-W-485.
Wrench, Adjustable, 8" Crescent, J41-W-486.

Additional quantities of Stock Number J41-A-299, Canvas Apron and Roll for tools and wrenches, and also additional quantities of the component tools are available. These items are not currently cataloged as aviation ordnance material, but were previously procured and issued as such.

Requisitioning: Operating activities should review this list and submit requests for quantities of items desired direct to BUORD. Complete sets for individual component tools may be requisitioned. When stocks are exhausted, items will no longer be issued by this Bureau as aviation ordnance material. This APA material can be furnished without reimbursement. Request for the above equipment should be submitted to Chief, Bureau of Ordnance, Aviation Ordnance Branch, Material Division, Department of the Navy, Washington 25, D. C.

TBM-3N Illuminated Sight

The Optical Illuminated Sight Mk 8 Mod 8 is now being installed in TBM-3N aircraft in place of the Optical Illuminated Sight Mk 20 Mod 1, as indicated in NAVORD Allowance List 20870, Revision "G" of 1 July 1950.

It is requested that all activities servicing TBM-3N aircraft install the Mk 8 Mod 8 Optical Illuminated Sight. The next revision of the NAVORD Allowance List 20870 will reflect this change.

20mm Electric Trigger Fails

Recently several of the aircraft manufacturers reported failure of the 20mm Electric Trigger AN-M4 to release the gun sear for feeding and firing the gun.

The particular triggers involved were manufactured by the Clary Multiplier Corporation and marked "CMC" on the trigger cover. Investigation revealed the triggers were satisfactory electrically. When measurements of several critical parts were taken, it was discovered that the grooved bushing in the cover assembly was improperly located, thus restricting the travel of the trigger plunger. This condition is a manufacturing defect. Appropriate action has been taken to prevent future recurrence.

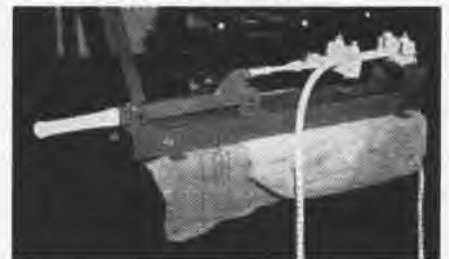
BUORD Recommends: Under normal operation of the trigger travel of the sear is just sufficient to clear the breechblock lock for releasing the breechblock assembly. Therefore, BUORD recommends very close attention be given to triggers of all manufacture during installation on the gun. Check to insure plunger travel is sufficient to disengage the sear from the lock. Supplementing instructions with appropriate illustrations to facilitate inspecting triggers prior to installation on the gun will be issued as an Ordnance Material Letter.

System Whips Bungee Cords

NAS OLATHE—A real time-saver has been devised in the form of a bungee cord stretcher for use in stretching and whipping bungee cords used on SNB-JRB landing gear.

Cords are held together by clamps which are spread apart with a lever which then locks, holding the bungee cords under tension. The cords are then whipped, released and ready for installation.

The propeller shop recently installed a cutaway PV propeller which is of great aid in explaining the details in disassembly and assembly of Hamilton hydromatic propellers. While trainees are doing practical work on live props, the instructor shows internal workings of cams and gears. Practical work in propeller balancing is also a feature recently developed for training.



OLATHE DEVICE STRETCHES BUNGEE FOR TYING

CARRIER NOTES



BUREAU OF AERONAUTICS—SHIPS INSTALLATIONS DIVISION

Barrier Adapter Allowances

The difficulties in maintaining stocks of components necessary for the installation of barrier adapters should be overcome shortly. Large quantities of fabric materials are being made available through the Aviation Supply Office and the Naval Air Material Center is producing components at a rapid rate.

In order that usage rates may be established and the supply system fitted in a methodical manner, allowance quantities of expendable items have been incorporated in a new Section E allowance list.

The new allowance, NAVAER 00-35QE-20, consolidates the information previously found in NAVAER 00-35QE-10, -11 and -12 to cover the arresting gear and barrier allowances for CBV-41, CV-34, CV-9 and CVL-48 classes.

Tractor Barrier Engagement

A recent administrative report describes an accident involving personnel injury on a CVE where a flight deck tractor was driven into upraised barriers during night operations under severely darkened conditions.

A petty officer was directed to take a tractor aft to release the arresting cable which had been pulled out and made fast clear of the aft elevator. While proceeding aft, the tractor ran into the barriers and the driver sustained severe internal injuries by being pinned between a barrier cable and the back of the tractor seat.

The necessity for exercising caution in carrying on flight deck operations under darkened ship conditions is obvious. In particular, tractors should be driven with increased care, barriers should not be left needlessly in the "up" position, and all hands should permit their eyes to become accustomed to the darkness before engaging in activities on deck.

As an aside on this accident, however, it might be well to indicate that some ships avoid the use of a tractor to release an arresting wire which has been pulled out to clear an elevator. This is done by using a simple releasing hook to hold the withdrawn arresting cable at securing tracks or at tie-down cleats.

No standard device has been furnished for this purpose in that it has been common practice for most CVE's to improvise their own release devices as required.

Piping Change on Catapults

A piping change has been completed on the H8 catapults in the USS *Oriskany* and USS *Essex* which has eliminated excessive vibration during the catapult braking stroke. This change has resulted in a slightly increased retracting time.

A new higher capacity retracting pump is presently under procurement which will re-

duce the retracting time considerably, and thereby result in a decreased aircraft launching interval.

Catapult Cut-Off Settings

It has been determined through extensive tests that the present catapult 10-inch cut-off settings, at pressures greater than 3,000 psi. and end speeds greater than 78 knots, cause loads on the fixed sheave housing and retrieving cables that reduce the design factor of safety below desirable limits.

In order to maintain the design factor of safety for operations at pressures and speeds above those indicated, a new cut-off location of twenty inches will be authorized in the near future.

BUAER Catapult Change H4B No. 32 and H4-1 No. 25 will contain detailed instructions for the accomplishment of this change. It is not necessary to alter present operating procedures pending the receipt and installation of the catapult change.

Arresting Gear Indicators

The recent rapid increase in variation of weights and landing speeds among carrier-based aircraft has made it necessary to provide an arresting gear control valve setting indicator at the arresting gear operating position at the deck edge. Previously, only two control valve settings were available to the deck edge operator, and these were provided by pre-set mechanical stops on the valve. These two settings, however, will no longer encompass the wide range of settings required by a composite air group.

The Naval Aircraft Factory has designed, manufactured and tested a remote valve-setting indicating device which will probably be installed in the USS *Leyte* (CV32). This electrically driven, self-synchronous device will permit the arresting gear operator to make any control valve setting within the operating range of the valve, with the same accuracy that can be achieved using local valve control.

If service tests of the first ship installation prove successful, similar equipment will be provided for all carriers fitted with Mark 5 gear.



I TOLD YOU WE DIDN'T NEED NEW SPARK PLUGS!

LETTERS

SIRS:

At present, VP-23 is hard at work on the initial phases of putting out a squadron memoirs book.

It is planned to build this book around the framework of the squadron's history, telling the story with pictures having a personal angle. Items such as pictures, stories and accounts of the old flight crews, liberties and parties are desired, especially for the 1945-49 period.

We send that hope that many men will send in such items to Commanding officer, Patrol Squadron 23, Naval Air Station, Miami, Florida. Attention: Memoirs Committee.

W. R. MEYER

SIRS:

We are making an investigation of anti-blackout equipment for aviation use in preventing temporary blindness and unconsciousness during aerial maneuvers.

In connection with the development of this equipment, Cdr. Thomas Ferwerda (M. C.) tested some early equipment of this kind at NAS ANACOSTIA in 1941. Movies were taken of the equipment in actual use by means of a camera installed in a plane.

We are trying to locate these movies, and any information concerning this development, and we should very much appreciate it if any of your readers having such information would transmit it to me, Claims Division, Department of Justice, Washington 25, D. C.

H. L. GODFREY

SIRS:

On page 32 of the April issue, you describe the forced landing at Caballo Reservoir of an overage PBM.

In Dec. 1944 the Navy Hydrographic Office issued a publication entitled "Trans-U. S. Seaplane Route Manual," H. O. Pub. No. 506, distributed to Navy ferrying commands. It contains instrument approach and landing charts, text material, and photographs of emergency seaplane areas along the routes.

If the pilot of the subject aircraft had obtained a copy of this publication, he would have found an approach and landing chart, descriptive text and photograph of Elephant Butte Reservoir, a designated emergency landing area adjacent to and north of Caballo Reservoir.

To further illustrate, had he made a 180° turn and returned to El Paso (the same distance as to Caballo), he would have found a designated emergency anchorage named "Ascarate Lake," which is described in the publication. This lake is 3,000 feet long and adjacent southeast of El Paso. He would have been less than five miles from Biggs AFB where practically all military services were available.

It is regrettable that the training of naval aviators does not give greater emphasis on familiarization with the wealth of material available from the Hydrographic Office.

Here's hoping that other ferry personnel read this and govern themselves accordingly.

L. E. GROSS, LT.

USN HYDROGRAPHIC OFFICE
WASHINGTON, D. C.

LETTERS

SIRS:

As did Major Leslie C. Reed, USMC (Letters, NAVAL AVIATION NEWS, May 1951) I read with interest the item "Marines Keep Wright Busy" in the March issue of the NEWS. I will confirm Major Reed's statement to the effect that MAG-6 was aboard the *Matanaku* (CVE 101) and did establish what I believe to be an all time record for carrier landings during one day's operation (602 landings, all without accident). The history of the carrier will further substantiate that record as well as other records.

I was Air Officer aboard that busy little "Jeep" throughout the period she functioned as an operating training carrier as well as that period that she was a part of other operating divisions and needless to say I am more than proud of her accomplishments.

Under the command of Captains "Skee" Erdmann and E. B. Johnson, the little ship worked "but hard." Days during which 300 landings were reached were routine and days in the 400 plus were not unusual.

I will further add that the day on which the 602 landings were accomplished (a rate of approximately one per minute when we were taking them aboard) all the planes were based aboard ship, were refueled aboard ship and all pilot changes were made from the ship. Because of the rapidity of cycles, it was necessary to secure operations from time to time to permit the arresting gear components to cool.

On other less successful days of training operations, the ship established a routine time of two minutes for changing a wheel on F6F aircraft that would blow a tire coming aboard and eight minutes for removing a plane that was partially in the catwalk and sending the plane to the hangar deck.

ROLAND A. BOSEE, CDR, MSC,
SERVICE TEST DIVISION
NATC, PATUXENT RIVER, MD.



SIRS:

In your June issue an article on the famous *Red Rippers* squadron lists the "alumni" of the outfit who are now admirals in the Navy. The listing, however, omits the names of two men who I believe were members of the squadron when it was known as VF-5 back in 1930-2.

One of these is RAdm. R. E. "Whitey" Blick, now head of aviation personnel section of OpNav, and the other is RAdm. W. G. Tomlinson, who recently completed a cruise as head of the Pacific division of MATS. Another luminary, a former member of the *Red Rippers* is Dave Rittenhouse, former skipper of the squadron, who is now a high official in Grumman Aircraft Engineering Corporation.

CAPTAIN, USN
WAR COLLEGE, WASHINGTON, D. C.

SIRS:

In the catapulting article about the USS *Bataan*, CVL-29, in the May issue, you stated the *Bataan* was commissioned in May 1943. I am sure if you recheck you will find it was November 17, 1943 at Philadelphia, Penn. I was a member of the crew on the eventful day.

WM. T. DOBSON, CSI
NAS ST. LOUIS, MO.

* The date of commission was Nov. 17, 1943. The carrier fired its 5,000th catapult shot off Korea in March. This is not a record for carriers, however, since the *Sax Jacinto* (CVL-30) had 7,332 shots on one catapult when decommissioned June 20, 1946. Other ships leading the *Bataan* are: *Belleau Wood* (CVL-24) 6,805; *Cabot* (CVL-28) 6,274; *Chenango* (CVE-28) 5,869, and *Cowpens* (CVL-25) 5,295.



SIRS:

It is noted in the excellent article, "Aviation Stores Afloat," in the May *Naval Aviation News*, a caption refers to USS *Jupiter* as the "Navy's only aviation supply ship." Not so!

The USS *Menelaus* (ARL-13) was de-mothballed in December 1950. Originally designed as a repair ship on an LST hull, she has been extensively modified to accommodate and issue aviation stores. Admittedly *Jupiter* is at present the only ship carrying the hull designation AVS. Perhaps it is fitting that *Menelaus* should be the "Trojan Horse" of aviation supply ships since she is named for the husband of Helen of Troy.

G. L. GOVER
SUPPLY OFFICER



SIRS:

During the period of July 1950 to April 1951 (one cruise) and aboard the USS *Philippine Sea* (CV-47) we had 30 pilots qualify for membership to the honorary Centurian Club having made 100 or more carrier landings. Nearly all landings were completed during combat operations off the coast of Korea.

Following is a list of pilots, by squadron that completed the necessary landings making them eligible for the Centurian Club.

VF-113
Cdr. J. T. O'Neil, 108 Ens. E. S. Wallace, 107
Lt. W. G. McGinty, 106 Ens. J. E. Fairchild, 103
Lt. N. R. Quiel, 100
Lt. (jg) H. K. Matthes, Ens. K. A. Burrows, 104
109 Ens. E. J. Klapka, 114
Ens. J. E. Hamil, 110 Ens. L. R. Olson, 106
Ens. J. E. McKnight, Ens. A. B. Forrest, 101
100

VF-114
Lt. E. W. Ylitalo, 105 Ens. J. A. Thompson, 106
Lt. (jg) E. E. Irish, 103 Ens. I. M. Barker, 106
Lt. (jg) J. W. Ross, 121 Ens. R. A. Hamre, 102
Lt. (jg) J. G. Bumstead, 104 Ens. W. L. Redmon, 101
Ens. E. A. Bernard, 104 Ens. C. W. Summitt, 101

VA-115
Lt. S. G. Gorsline, 100

VC-61
Lt. L. W. Moffett, 111 Lt. (jg) R. S. Hosier, 100

VC-8
Lt. D. W. Logan, 105 Lt. C. J. Oas, 110
Lt. C. E. Higel, 108 Lt. (jg) C. R. Carpenter, 110
Lt. M. E. Fitzgerald, 105

E. W. GREENE
CAG-11

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● THE COVER

Two F9F's from the Princeton (center) come home from strikes in Korea while another carrier, the Philippine Sea, steams along (top right).

● CITY QUIZ

(Inside back cover)

Top—Atlantic City, N. J.; Lower—Avalon Beach, Santa Catalina Island, Cal.

● SUBSCRIPTIONS

An unclassified edition of *Naval Aviation News*, containing special articles of interest to Reserves, is available on subscription for \$2 a year through Superintendent of Documents, Government Printing Office, Washington 25, D. C.

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BEACHES AND BAYS

If you got lost on a cross-country and came out over these beach resorts, would you know where you were? One's on the Atlantic and one in the Pacific. *Answers appear on last page.*



RESTRICTED

NAVAL AVIATION
NEWS



CAN YOU BE FOOLED?

Take a good look at the picture above . . . see anything wrong with it? Actually, it is a composite of three photographs and has a serious flaw in it—the wake. Well-informed people are hard to fool. One way to keep well-informed about naval aviation is to read the *Naval Aviation News* each month. All it takes is two dollars and the coupon published below.

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