

RESTRICTED

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CORSAIRS' 'SQUIRES'

Like the squires who girded the knights of old before leaving for combat, plane captains of VMF-212's Corsairs adjust shoulder straps before a combat strike in Korea. Flying off the CVE Rendova, the Devilcat squadron's fighters furnish close air support to ground troops from offshore. Their long range and armament-carrying capacity make the F4U popular



Fledgling Whirlybirds

HANGAR flying is as old as aviation. Nobody knows when the first pilot, unable to talk with his hands in his pockets, used his hands to demonstrate an aerial maneuver, or a combat engagement over the front.

Since 1917 many a pilot has described his gunnery by having one hand make a run on the other.

It took more than 40 years from the first flight of the Wright Brothers for a new kind of pilot to change that typical gesture. Today, the helicopter pilot, with his place in aviation secure, demonstrates in a manner similar to that used by instructor Lt. J. B. Russell

(above) in discussing a flight with his student at NAAS ELLYSON Field, Pensacola, Lt. (jg) R. C. Brower. They are standing in front of the schedule board.

For a year now Navy and Marine training of pilots in the whirlybirds has been growing steadily. Some Marine pilots still are being trained at Marine Corps Schools, Quantico. Navy and Marine enlisted mechanics are being trained at the NAVAL AIR TECHNICAL TRAINING CENTER, MEMPHIS, with additional Marines at Quantico. Naval aviation's fastest growing baby needs and is receiving well-trained personnel.



THIS is pilot's eye view of an approach to figure eight for precision flight practice

LIKE no other type of flying, the helicopter requires full time attention of both hands and arms. Sitting side-by-side, the instructor and student discuss each maneuver. It is tough enough for a United States citizen to talk with his hands occupied otherwise. The most tongue-tied individuals, however, are certain pilots from South American countries who take the course at NAAS ELLYSON FIELD. They're apt to forget and start talking with their hands, and helicopters just don't fly hands off.

Ulcer Gulch for flight instructors has long been the rear seat of an SNJ Texan trainer. Whirlybird teachers have all the emotional and nervous strains of the ordinary instructor. Added to these are the limited operating area (within the boundaries of the field) and the low frequency vibration of all helicopters. Result is illustrated in the cartoon on page five drawn by Lt. (jg) Mark Starr.

A new and radically different species

of bird, the helicopter has provided its share of maintenance headaches. All units operating these aircraft have had their share of trouble. To help alleviate this condition, the Helicopter Maintenance Course (Class C) was established at Memphis. This will be described later.

Because of the restricted and concentrated area required for helicopter training it was found necessary to segregate the 'copters from other training in conventional aircraft. Thus, when pilot training was shifted from NAS LAKEHURST to the Pensacola area, the training unit, commanded by Cdr. Ben Moore, was located at NAAS ELLYSON FIELD where there is plenty of mat area available for practice.

Up to the present time, pilot output has been limited by severe maintenance troubles and lagging production of new types of aircraft. Rapidly increasing production of trainers—the Bell HTL-5 and the Hiller HTE-2—and operational types—the Piasecki HUP-2 for the fleet and Sikorsky HRS-1,2 for the Marines—will increase demand for pilots and mechanics. By spring of 1952, the mat at Ellyson Field, with swarms of helicopters covering it, will look like the landing platform of a martin birdhouse.

Perhaps the most unusual feature of the course offered by Helicopter Training Unit One is that in over one year of operation no student has "busted out" because of lack of flight proficiency.

OF COURSE, all students are full-fledged naval aviators, most of whom have had operational experience for varying periods after finishing flight training. A small number of students have gone directly to HTU-1 after the completion of flight training.

A new student arriving at Ellyson is all eyes and ears. He knows that he is in for a whole new set of reactions. His



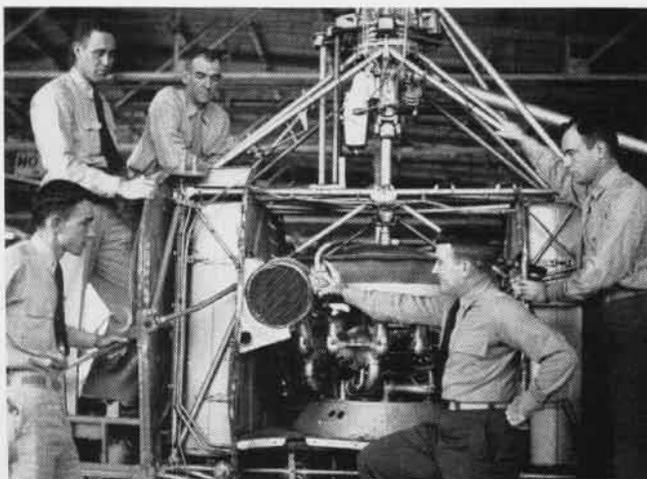
BY FOLLOWING figure eight and square pattern closely student learns to correct for wind

first instruction is in the classroom. This all important ground phase takes him into an indoctrination period then into the theory of helicopter flight. A little history of this method of aerial locomotion is sprinkled here and there. (See NANews, August 1951).

It is soon discovered that the basic principles of flight are the same. A smooth flow of air over an airfoil produces the lift.

IN THIS case, however, the flow is generated by the airfoil traveling in a circular path. Thus the helicopter gains its lift independently of the motion of the aircraft. That's what sets the helicopter apart. It doesn't have to maintain a minimum forward speed. In this aircraft, the student learns, airspeed over the airfoil is related to the revolutions per minute of the rotor. Allowing the rpm to fall too low is similar to going too slow in the conventional aircraft.

Early in the course, he learns the con-



A STRIPPED down dead bird is the practical classroom for students Ens. Jamieson, Lt. Hampton, Capt. Simpson, Lt. Hamilton, Capt. Ross



A LITTLE relaxation is in order after strenuous hops; enjoying ready room are students Lt. Ryan, Lt. Algermission, Capt. Culp

trol system too. Lift can be controlled in three dimensions—vertical, horizontal and directional.

Aside from basic principles, it is soon learned that the helicopter is a complicated bird which has introduced a host of new problems. Not the least of these is stability. Most conventional aircraft will fly hands off; their design assures this. The pinwheel, however, requires constant attention.

The tip-path-plane, or the plane through which the rotors pass during rotation can best be visualized as a disk whose edges are bounded by the tips of the whirling rotor blades. When this disk is tilted, the helicopter moves in the direction of the tilt. Part of the lift is translated into horizontal movement.

Lift is varied by varying the angle of attack, or pitch, of all the rotor blades at the same time. That is collective pitch, controlled by a lever at the pilot's side. Directional movement is accomplished by changing the pitch of an individual blade while it is passing through part of a revolution. It is called cyclic pitch. This control is a stick which is like the stick in a conventional aircraft. In this manner the disk is tilted. Moving the stick in any direction will cause the helicopter to move in that direction.

"Rudder" pedals control fuselage heading, but not direction of flight. In the tail-rotor type of aircraft they change the angle of attack of the tail rotor blades, causing the tail to go one direction or the other. With coaxial, or contra-rotating rotors, varying torque in the two rotors is introduced to control direction, while with tandem rotors tilting the disks in opposite directions does the job. The throttle is a motor-cycle-type grip mounted on the collective pitch lever at the side of the pilot.

Subsequent lessons go into the theory



CLASSES at NAAS Ellyson Field are about evenly divided between Navy and Marine pilots, with an occasional Coast Guard officer; instructor is LCdr. Fink, training officer

of flight thoroughly. Engineering and structures, a must for every pilot who flies any aircraft, takes 18 class periods, compared with seven for the flight theory phase.

ONE LESSON in the ground course emphasizes that long life for pinwheel pilots is tied to proper loading even more than for conventional aircraft. Because of critical stability characteristics in single-rotor aircraft the loading must remain near the center of gravity. An off-center load has caused many a helicopter to come to grief shortly after takeoff.

In the HO3S the allowable travel of the center of gravity is only 3.78 inches.

The would-be pilots learn to work out the loading problems with weight-adjusters similar to slide-rules. Often

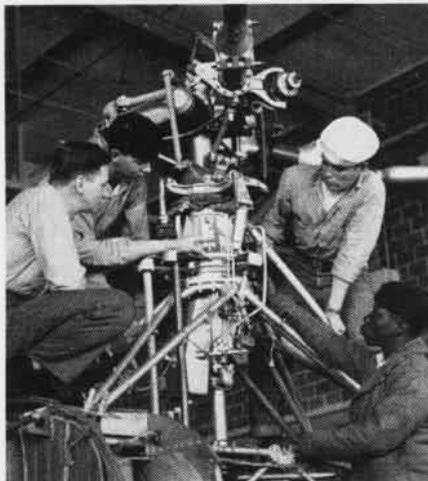
ballast must be carried in addition to whatever cargo or passengers are loaded. One safety check, even after care is taken in loading, is to hover one foot off the deck to check balance.

Maximum weight also enters the picture. While hovering, a helicopter takes advantage of the "ground cushion" effect, which aids lift. When shifting from hovering to forward movement the aircraft flies off the cushion. As speed increases, translational lift is obtained. Some lifting ability is lost during the shift, so maximum allowable weight depends on lift at that period.

CONSIDERATION must also be given to avoiding an overload in the event of engine failure which would make an autorotation emergency land-



HILLER HTE is studied by Capt. Crowell, LCdr. Morse, Lt. Ryan, Lt. Christensen, Lt. Silliman



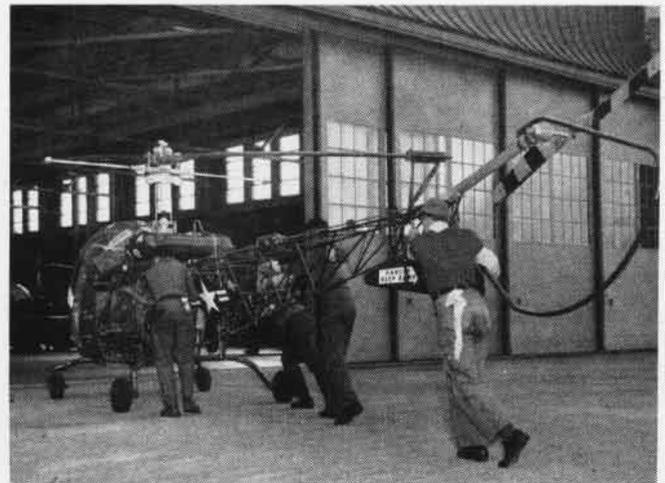
ELLYSON instructor Dabl explains rotor head assembly to D. Wilson, C. Firth, T. Gayden



AT MEMPHIS mechanics school instructor Acord shows use of bearing puller for HO3S rotor



ACTIVITIES at Ellyson are run like carrier deck; typical team is line officer Coyne, Grizzell, AD1, Jones, ADC, Stepic, and Garriga



WHEN aircraft is "downed" after flight it is immediately pushed into hangar; Clark, Duncan, Miller, Stepic roll HTL-4 in for work

ing necessary. Weight considerations must also allow for decreased lift at higher altitudes and under climatic conditions of less air density.

HELICOPTERS are required to operate under a variety of conditions. They fly from ships in the tropics and the Arctic regions. They must operate ashore in forward areas where the terrain is rugged. One part of the ground school course is devoted to acquainting the embryo whirlybird pilots with what they can expect in fleet squadrons.

Aboard ships of the Navy, most pilots can expect to be based aboard carriers, battleships and cruisers. To a lesser extent there are operations on board icebreakers. LCdr. Chris Fink, training officer of HTU-1 operated from the tender *Burton Island* during *Operation Highjump* in the Antarctic in 1946 and from the icebreaker *Edisto* in the Arctic 1947.

The Exec., LCdr. Charles Tanner, also participated in *Operation Highjump*. Lt. (jg) Bill Matthews, an instructor, also operated in the Arctic. Fink, on the midwatch as officer-of-the-deck, would be relieved by the skipper to go aloft to find a lead through the ice. On returning the skipper would turn the deck back to him saying, "O.K., you spotted the lead up there, now find your way through it."

Shipboard operations require precision in handling on deck because of the movement of the ship, and special considerations in flying the aircraft to take care of pitch and roll. The helicopter has a high center of gravity and can easily turn over. A five-man crew can handle one, but they must be well trained. On board an aircraft carrier the standard job is to take station along the starboard side of the ship during takeoff operations and aft on the same side for

landing operations.

The present day counterpart of the old catapult planes of cruisers and battleships is the helicopter. The unit is organized the same. Missions performed are mine spotting and spotting gunfire. In Korea much shore bombardment of ships is directed from helicopters.

Marine pilots, based ashore, must consider the hazards of rough terrain. Eddies of wind in the vicinity of a mountain or hill can be dangerous.

ALL SERVICES make tremendous use of helicopters for utility work. As a means of rapid communication, it has no peer ashore or afloat. Mail and personnel transfer form a large portion of the operations. The helicopter detail is busy at sea. It is busy in port.

Some other subjects covered are: hoisting of personnel rescued from the sea and land; medical care of survivors;



RESCUE hoist installed in the Piasecki HRP-1 is demonstrated to Memphis maintenance course students by instructor Humphries



REENACTMENT of a rescue made last summer by a pilot of HTU-1 shows how persons in Pensacola Bay were blown by HTE to the shore



IN BETWEEN periods at Ellyson Field crews busily refuel and shoot minor troubles; whole line is run similar to carrier deck



THIS scene will be multiplied four times as training load at Ellyson picks up with deliveries of aircraft to operating units

operations in hilly terrain where air currents are tricky; and photography.

Students attending the course at Ellyson are about equally divided between Navy and Marine pilots. One Coast Guard pilot is in each class. Aim is to have all pilot training there eventually.

Keeping the pinwheels flying is an important task. The pilots at Ellyson must know their aircraft thoroughly. Mechanics trained at NATTC MEMPHIS know them in more detail.

Mechs attending this Class C school are given a course lasting eight weeks including 320 hours of classroom instruction. Although it is devoted mostly to maintenance, there are also subjects in military training, physical training and recognition. All men who attend are rated mechanics. They must understand helicopter construction, maintain rotor systems, flight controls, power plants, transmission systems and drive shafts. They must know how to inspect aircraft before and after flights. They must drill in ground handling and observe all safety precautions.

The rotor head of a helicopter is a complicated mechanism. At first glance it is a crazy quilt of gears and arms.

THE TRANSMISSION system is also complicated because the engine is remotely located from the rotor head. These long transmission lines plus the reduction gear boxes create maintenance and design headaches. Cooling of the engine is a special problem too because there is no forward speed much of the time to furnish natural air flow for cooling. There is a clutch assembly too.

Rotors come in for a lot of study. Most of them are not rigid; can flap up and down and move forward and backward on their hinges. All rotors with three or more blades must be non-rigid.

Two rotored types can be semi-rigid.

Mechanics are given the history and background of the rotary wing aircraft the same as the pilots. Each part of the



FLAG, Navy Exchange building and water tanks frame Bell HTL-4 trainer at NAAS Ellyson



PORTRAIT of helicopter instructor at Ellyson Field after three student flights in a row

aircraft comes in for special study. Specific models are gone over in detail.

Since these men will be crew leaders their comprehension must be complete. Trouble shooting of every part of the aircraft is thoroughly understood. They will also have many flights in helicopters. That's an added incentive to learn the job well.

The actual flight training at Ellyson is divided into primary, intermediate and advanced phases. The first phase in HTL's and HTE's includes ground handling and taxiing, holding constant altitude, maintaining constant rpm, attitude control, hovering, transition to forward flight, climbing, gliding, sideward and rearward flight, vertical takeoffs, and above all autorotation.

Autorotation is to the helicopter pilot what emergency landings are to the conventional aircraft pilot. With an engine failure, a safe landing can be made by making use of the ability of the rotor blades to continue turning after the engine fails.

Some flights are made with aircraft fitted with wheels, others with skids. Marine Capt. T. R. Cowdry, out for his first solo in the "B" stage and carrying his first passenger experienced complete engine failure in a 'copter fitted with skids. From 500 feet he made the first forward speed landing on skids.

One maneuver to teach precision, pictured here, is flying over a figure eight, and a square pattern. This teaches the pilots to take into account varying winds.

LATER, in the advanced stage in service-type helicopters, hoisting is practiced—a job many will have to do in operational squadrons when rescuing personnel. Other items practiced are backward takeoffs, running takeoffs and landings, cross country flying, ditching procedures and high wind procedures.



GRAMPAW PETTIBONE

Butterflies

Dilbert called for another beer. He was having a bang-up time with some of his cronies at a little bar not far from the air station. It was pretty late, but why should he worry. All he had to do the next day was to drive a few bodies to Washington in a Beechcraft. If he couldn't cope with an SNB, hangover or no hangover, he deserved to stop flying. That's the way Dilbert had it figured.

He was a little late getting up the next morning.

"Missed breakfast again", he muttered, as he hurriedly dressed, "Oh, well, I'll snag a cup of coffee at the snack bar before take-off."

By the time Dilbert had gone through the motions of checking the aircraft and obtaining a clearance, his passengers looked a little impatient so he decided to skip the trip to the snack bar and be on his way. The weather was VFR and he carried no co-pilot. One of his passengers rode in the right hand seat.

He settled down at cruising altitude in accordance with his flight plan. The weather wasn't bad—just a few broken clouds. Turbulence was moderate.

After about 30 minutes, Dilbert realized that he didn't feel so well. His stomach was just a little unsettled. He broke out in a cold sweat, so he opened the sliding window. About this time he experienced a definite feeling of nausea, and asked the passenger in the right seat to open his window too.

He decided that he could not, in his present state, continue with the flight. He had to get on the ground—and quickly. Fortunately a large airport lay just ahead. He mumbled to the passenger in the right hand seat that the weather didn't look too good and that he was going to land and check it. The passenger, being hep to such new fangled contraptions as two-way voice radio, wondered about this decision, but decided not to say anything.

Once on the ground Dilbert heaved a sigh of relief and resolved that before he stepped into the Beechcraft again, he would absorb a little nourishment—or at least try. He informed his passengers that this was a "one hour comfort stop" and that they might as well have lunch, because he was going to wait for the weather to improve. This suggestion met with mixed response, since (a) it was



about two hours until lunch time, and (b) the weather didn't look at all bad; but Dilbert disappeared.

About 45 minutes later Dilbert ran a small experiment which involved a bowl of chicken soup. The experiment was a success and Dilbert felt quite a bit better.

At exactly noon, he announced that the weather was now satisfactory and that the flight could continue to Washington.

He wasn't far wrong this time. Once past Lakehurst, there was not a cloud to be found in the sky. For once the weather was "embarrassingly good".



Grampaw Pettibone Says:

This was definitely one of Dilbert's better days. He was a little late, but he made it without so much as a scratch on the airplane—and for Dilbert that is something.

Of course, there's no telling what might have happened had the weather really turned bad.

Now What Do I Do?

The pilot in the picture below, looks like he has the book out, hunting up the



answer to his problem. The Aircraft Accident Report Says: "When the L.S.O. gave the pilot a cut, he nosed over only slightly and floated up the deck. Realizing that he had not caught a wire, he pushed over into the number one barrier."

An alert photographer snapped this picture just before he settled back to the deck—still right side-up.

Whodunit?



Accident analysts looking over a group of SNB - JRB accidents in which the landing gear collapsed during the takeoff roll noted that several occurred

on the first flight after the plane came out of a 120-hour check.

With this clue, the analysts studied the various items of work performed in a 120-hour check were reviewed to try to find out what might be causing the accidents.

The answer seems to be surprisingly simple. During a 120-hour check, the plane is placed on jacks and the landing gear is cycled electrically and manually in order to determine that both systems are functioning.

If no one remembers to make sure that the landing gear switch is in the "DOWN" position upon the completion of these tests, the plane may be released to the line with the wheels down and the switch for the electrical system in the "UP" position.

Of course, the pilot should note this condition when he goes through his prestarting check, but he doesn't always do this. He knows the wheels are down because the plane wasn't sitting on its belly when he climbed in. Normally, he doesn't have to do anything with his landing gear until right after takeoff. Therefore, he more or less is conditioned against doing anything about it until he gets off the deck. If the switch has been left in the "UP" position and he doesn't catch it, the accident will be charged to "pilot error," but the pilot will feel that he has been "booby-trapped." He's about right at that, however, this won't change the record.

Difference of Opinion

The pilot of an F4U-5N went through the check-off list prior to takeoff on a local test flight. He used the following tab settings for takeoff: four degrees right rudder, one degree nose up.

The takeoff was normal and he retracted the landing gear and closed the canopy. As he began to gather airspeed, he flipped the switch for the electric rudder trim tab control to add a little left rudder. The mechanism malfunctioned (probably because of a short circuit) and immediately threw in full left rudder tab.

As there is no override system for the rudder tab, the pilot made repeated efforts to eliminate the left tab by putting the switch to the right. When this was unsuccessful, he called the tower for an emergency landing. In order to avoid mountains on the right, he started a 180° turn to the left to get back to the field. After about 90° of this turn, he was unable to hold sufficient right rudder to prevent a threatening stall. The F4U started a spin to the left and the pilot cut power and pushed the nose down recovering at an altitude of about 200 feet. He was then about half way down the length of the runway he had hoped to use and some distance to the left. He ruled out a belly landing parallel to the last part of the runway as he felt he would be unable to stop before hitting a hill beyond the runway. Adding just enough power to clear the top by about 20 feet, he made it over the hill.

By this time his right leg was growing weak and beginning to cramp. The bay of the submarine base came into view and he decided to make a water landing rather than risk another spin—should his leg give out.

The water landing was uneventful, and he was picked up by a helicopter shortly after the ditching.



Grampaw Pettibone Says:

The pilots on the accident board decided that there was only one way to determine accurately the extent of this fellow's problem after the malfunction of the rudder tab. Three test flights were made in similarly configured F4U-5N's to simulate this difficulty at safe altitudes. In the course of these experiments, they made some interesting discoveries, the first of which is that in a fix like this, a short pilot has an advantage over a tall pilot. Two of the pilots were of slight build and their legs were short enough that they were able to lock the knee joint in the full extended position while holding the rudder. The third board member was of about the same build as the pilot who ditched and had to maintain the pressure at all times with his leg bent. He was able to do this for 35

minutes by using alternate legs on the same rudder.

During the tests, one of the two smaller pilots had an identical failure of the rudder tab control and found that he was no longer simulating an emergency. He had one!

He had, in addition, the advantage of recent practice and knowledge of what he could and couldn't do with the plane in this condition, and he flew the F4U back to base where he made a satisfactory landing. He stated that he would have had a great deal of difficulty except for the fact that he locked his leg in the full extended position and when his right leg got too tired, he used both legs on the right rudder.

By a split vote the board assigned material failure as the primary cause of the ditching and pilot error as the secondary cause. They made the following suggestions as to correct procedure in such an emergency:

1. If the tab failure occurs right after takeoff, concentrate on climbing straight ahead to a safe altitude, rather than trying a hasty turn back to the field, with the attendant high power settings, low airspeed, and lack of altitude.

2. The plane will handle normally as long as you can maintain enough rudder pressure to keep the ball centered. Use one leg to rest the other, and if necessary use both legs on the same rudder.

Run For Your Life

The accident pictured here developed a couple of brand new track stars—the occupants of the parked truck, who didn't know how fast they could run until they spotted the F8F leaving the runway and heading in their direction.

Fortunately, both were well out of the way before the impact.

The accident was caused by a combination of circumstances. The brakes on the F8F were weak; there was a crosswind from the right; and the pilot bounced badly as he touched down. The truck was parked 117 feet off the duty runway.

On landing the *Bearcat* weather-



cocked into the wind and the pilot found that he didn't have sufficient control to straighten it out. He went off the runway on the right hand side at an angle of about 70° and tried without success to miss the truck which loomed up ahead by applying right brake and rudder.

The external fuel tank which contained about 20 gallons of gas was sheared off on impact and the gasoline ignited. The pilot, who was uninjured in the crash, got out before things got too hot for comfort.



Grampaw Pettibone Says:

If you have any doubt about the condition of the brakes, your best bet is to ground the plane until they can be fixed. If you discover a probable brake failure by pumping your brakes prior to landing, as occurred in this case, grab the mike and let the folks in the tower know about it. They can see to it that trucks, planes, and other movable objects are placed where you won't be so likely to run into them if you have little or no control after touching down.

Fatal Errors

The pilot had just completed a ground school course in the FH-1 and had taken a written examination on the plane. He had been given a thorough cockpit checkout. An instructor was with him until the moment that he taxied out for his initial flight.

The FH-1 carried a full drop tank, and the takeoff was made with full flaps. At an altitude of about 100 feet one engine apparently failed. A large puff of smoke was observed, and immediately afterward the pilot radioed, "Mayday, Mayday, I'm settling in. I can't help it!"

Seconds later the jet settled in a heavily wooded area. The impact and subsequent fire killed the pilot and destroyed the plane.



Grampaw Pettibone Says:

Of all the times to have an emergency—I think the worst possible is on your first takeoff in a new type aircraft. In this instance, the pilot appears to have made two mistakes which cost him his life:

1. He didn't jettison his belly tank when the engine failure occurred, even though he had enough altitude and was over an unpopulated area.

2. He didn't handle his flaps properly in the emergency. When they probed through the wreckage, investigators found the flaps in the full extended position.

The FH-1 handbook recommends one-fourth to one-half flap for normal takeoff. It further warns that, if the takeoff has been made with full flap and an engine failure occurs, the flaps must be retracted to the one-half position at 105 knots and then fully retracted at 120 knots IAS.



NAPALM BOMBS PACK XMAS GREETINGS FROM MARINES TO REDS IN KOREA; IN PHOTO ARE SGT. ELI LLOYD, CAPTS. EDWARD LEFAIVRE, DERRICKSON

KOREAN AIR WAR

Rescue under Fire

In one of the most smoothly coordinated behind-enemy-lines rescues of the Korean war, Leatherneck *Corsair* pilot, 2nd Lt. Dean C. Macho, was snatched from Communist hands near the North Korean capital of Pyongyang recently.

Flying in a four-plane strike, Lt. Macho's plane was hit by enemy AA fire. He radioed his flight leader, Capt. Jack H. Wilkinson, that he was hit and needed air cover. He flew the stricken

Corsair eight miles south of the city before making a skillful crash landing in rough terrain. He radioed that he was uninjured and would take cover near the plane.

As Capt. Wilkinson and 2nd Lt. James J. Prior circled low over the wreckage of the plane, the fourth member of the flight, MSgt. Billy R. Green, climbed for altitude and radioed for a helicopter to rescue Lt. Macho.

For a short while after he crashed,

the young flier observed no enemy action, but soon a circle of Reds moved in toward him and started firing. He took cover in a hole near his plane as the circling *Corsairs* made rocket, napalm and strafing runs on the Reds.

One napalm bomb landed squarely on a ridge covered with enemy troops. The two planes overhead were joined by two more "Devilcat" squadron *Corsairs* in attacking three nearby villages housing enemy troops.

After more than an hour under fire from Reds on all sides, Macho was picked up by an Air Force helicopter.

Veteran Marines praised the young flyer's courage and calmness under fire. Lt. Macho was graduated from flight training in October 1950. This is his first combat duty.

Jets Abolish Battalion

An enemy battalion, caught flat-footed on an open North Korean road, was attacked by a flight of *Panther* jets of MAW-1 which destroyed an estimated 100 Red troops.

Maj. Samuel B. Folsom was leading

HEAVILY-LOADED AD's from Antietam flying over ruined railroad marshalling yard at Wonsan; note bomb-smashed river bridges





SIX ARMY men from Korean foxholes got a surprise Thanksgiving treat aboard the Essex when they were given the full treatment aboard

his flight on a reconnaissance mission along the road when he spotted about 25 enemy troops. They took cover in a nearby thicket, but fragmentation bombs landed in the same small patch of bush.

A little farther down the road, Maj. Folsom and his wingman, 1st Lt. Fred G. Connelly, saw another group of about 25 troops. Just beyond them the road curved sharply around the mountain, and as the two flyers flew around it, they spied the kind of target every fighter pilot dreams about.

The road stretched for some three miles straight down the valley, and enemy troops lined both sides as far as the Leathernecks could see. They were on top of the Communists before they were discovered, and then it was too late to escape.

At altitudes of 50 feet and less, the pair made repeated strafing runs on the column. When their ammunition was exhausted, they estimated they had killed 100 Communists.

Maj. Folsom, who serves as operations officer for the Panther jet squadron remarked, "It was the largest number of troops I've seen in the open since the Choshin Reservoir campaign."

Leatherneck Record

1.Col. James A. Feeley's "Black Sheep" squadron of MAW-1 has set a new record of 50 combat sorties in a single day against the Communists north of Seoul.

To make the record of 50 Corsair fighter-bomber flights, some of the Leatherneck pilots climbed in and out of their cockpits as many as three times during the day.

The advance echelon of 38 ordnance and engineering ground crewmen in the "Black Sheep" outfit worked steadily 16 hours, refueling the single-engine aircraft, rearming them, and patching bullet holes.

The squadron's previous record for a single day was 41 sorties, flown last August from an aircraft carrier deck.

Strafing Upward

"It was the first time we ever shot upward to strafe buildings," the Marine Black Sheep pilot declared, shaking his head in disbelief.

He was Capt. A. K. Phillips, who had returned from a mass raid on the North Korean capital of Pyongyang. After screaming down through broken clouds to drop their 1000-pound bombs on the city's principal bridge, his flight ducked so low over the housetops they had to pull up sharply to clear several taller military buildings. In doing so, they blasted the buildings with 20 mm.

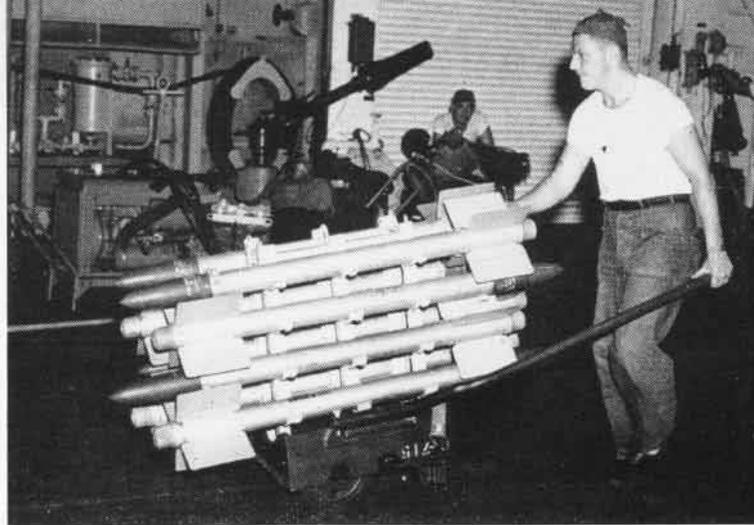
LSO Lands Valuable Freight

It isn't every landing signal officer who is called upon to wave a four-star General aboard an aircraft carrier.

That very event transpired in Korean waters when Lt. Walter T. Fitzgerald of Carrier Group 102 aboard the *Bon Homme Richard* waved the paddles for a TBM "Turkey" transport carrying General Matthew Ridgway, Far East commander.

Shivering a little—and not entirely from the brisk November breeze—Fitzgerald, with the cooperation of the pilot, brought the plane in to a perfect carrier landing.

Sighing as he handed the flags to his assistant, greying Lt. Fitzgerald wiped his brow and muttered, "A barrier crash



MOST ROCKETS used in Korea are 5" HVAR's, but here J. R. Harrington, AO2, of Rendova pushes 3.5" AR's down the bangar deck

on that one and I'd never make Lieutenant Commander!"

No report was received on the reactions of the Turkey pilot who had to make the landing with a four-star General aboard.

It Never Rains, But—

All those explosions you hear around the First Marine Aircraft wing's headquarters in Korea are not bombs, they're popcorn.

It seems Sgt. Dean Gilmore wrote his mother back in Idaho to send him a bag of popcorn. He got it all right—100 pounds of it, plus 1,000 pounds more, done up in neat two-pound packages for men of MAG-12's headquarters squadron.

Gilmore's aunt raises popcorn in Twin Falls. She told the local radio station about her Korean cousin's request and the Idaho Popcorn Growers Assn., took it up from there.



RESCUED pilots Lts. O'Bryan, Bryant tell Essex pinwheel Lt. Jones how it feels

CATCHING a few winks is A. J. Yette, ABM3, amid 50 cal ammunition on carrier Rendova



HUGE BOMB crater marks accuracy of Essex dive-bombing to keep Communist trains out



ANOTHER photo showing accurate bombing by Essex carrier planes; engine lies on side and several cars are afire; a Navy air role in Korea has been to keep supply lines from running

All for One

The carrier *Rendova* has a fighter team called "The Fearless Four" which is fast making a name for itself at clobbering the Communists in Korea.

All from VMF-212, they are Maj. William H. "Old Ironsides" Rankin, exec of the outfit; 1st Lt. Alonzo L. Norrbom and Capt. Robert R. Tabler, both Reserves called up to duty, and "tail-end Charlie"—1st Lt. Robert M. DuPuy.

Reason for the quarter's success at polishing off convoys, trains and bridges is the teamwork they have worked out ahead of time. If the lead man in an attack scares up troops or a vehicle, his teammates polish it off.

Their flying hasn't been uneventful either, Rankin having been shot down in No Man's Land between the two fighting lines and Norrbom being shot down and landing at sea. AA fire frequently damages their planes but the team is still flying.

RENDOVA'S 'Fearless Four' Dupuy, Tabler, standing, Rankin, Norrbom check targets



Rescue Under Fire

It takes a special kind of courage to fly slow, unarmed rescue helicopters down at treetop level in the teeth of enemy gunfire to rescue downed pilots in North Korea, but it happens every day.

Two helicopters from a Mine Squadron operating from LSD's offshore, were sent out to pick up some U.N. pilots behind enemy lines. Lt. Jack M. Farwell went out 55 miles west of Wonsan, a good hop for a short-range helicopter, to pick up Lt. Muller of the 2nd South African Air Force.

As the helicopter was rising with the pilot, a bullet smashed the instrument panel and cut 20 wires. Some gauges and the radio were knocked out. When he tried to land aboard the *Gunston Hall*, LSD-5, he got a wave-off as the left pedal would not come up and allow use of right rudder. Farwell bent back a metal strip that had been hit by a bullet and was jamming the control

LT. FARWELL, operating off LSD, stands beside helicopter used in daring rescue



and made his landing.

Earlier in the day, on a mine reconnaissance mission near Hungnam, AP Chester W. Buss met small arms fire when trying to pick up a pilot 15 miles from Wonsan. While escorting fighters bombing and machine gunned an enemy-infested ridge nearby, crewman Ralph O. Sherrill, AD3, hoisted up the badly-burned pilot, Lt. (jg) Leslie R. Downs of VF-783. As the helicopter rose, enemy riflemen popped out of the brush and fired on them but did not hit the plane.

Try, Try Again

Cruisers' gunfire-spotting helicopters don't often make rescues, but Duane W. Thorin, CAP, flying the *Toledo's* pinwheel went inland in Korea to save an Air Force *Mustang* pilot who was pinned down by enemy fire for 24 hours.

Capt. Fred Waid was the fourth man picked up by the helicopter in as many months. He bailed out 50 miles inland

AIR FORCE Capt. Waid, Lt. (jg) Goodell in huddle after rescue by Toledo's helicopter





CAPT. ROBERT McFARLANE of cruiser *Los Angeles* repays penny he borrowed in Japanese shop from Lt. (jg) John H. Keane; Captain's helicopter picked up Keane after *Corsair* was ditched



MARINE *Devilcat* pilots who blew up two ammo dumps on one sortie talk over exploit aboard *Rendova*; Maj. S. D. G. Peterson tells debriefing officer Capt. Marvin A. Chapman of feat

behind enemy lines. Unable to find Waid on his first hunt, Thorin was debarked from the *Toledo* on a nearby island to resume the search next day while the *Toledo* went north to bombard Chongjin.

Two more rescue tries next day were balked to heavy AA fire and low fuel. On the third try Waid was rescued.

Last August, the helicopter picked up Lt. Robert T. Walker from the *Boxer* after he ditched his AA-hit *Skyraider*. It was like old home week—a month earlier the same pinwheel had rescued him from behind enemy lines.

Shylock in Bed

Bon Homme Richard pilot Lt. (jg) John H. Keane believes in collecting his debts, even if it is only a penny and a Navy captain owes it to him.

It all came about in a strange way. Capt. Robert N. McFarlane, skipper of the heavy cruiser *Los Angeles*, was shopping in a Japanese seaport for souvenirs for his family. When the cost of the gifts was figured up, he lacked one penny of having enough money to pay the bill.

A young naval officer standing nearby

volunteered the needed penny. Capt. McFarlane promised to repay the debt some day. The chance came sooner than he figured.

Shortly afterward, a Navy *Corsair* ditched near the *Los Angeles* and the cruiser's helicopter picked him up. Of course the pilot was the obliging penny-lender, Keane. Capt. McFarlane visited the pilot in the ship's sick bay and repaid the debt. (see photo)

10,000 Combat Hours

Pilots of the "Devilcat" squadron, a *Corsair* fighter-bomber outfit of MAW-1, flew their 10,000th combat hour recently from an air base in South Korea.

The "Devilcats" are the only Marine day-fighter squadron in the Orient flying F4U-5's, latest and fastest model of Chance Vought's famed WW II *Corsair* line.

They have flown their bomb-and-rocket-laden planes from airfields all over Korea and from aircraft carriers of the U. S. Navy in adjacent waters.

The squadron has been commanded by LCol. Richard W. Wyczawski and LCol. Claude H. Welsh.

Ammo Dump Goes Sky-High

Tooling around North Korea in his "Nightmare" *Tigercat*, Capt. Manning T. Jannell became curious about a light he saw on the ground.

He caught the light in his sights and let a rocket go, just to see what happened. As he passed over the area, a small fire started, then all hell broke loose.

The whole sky lighted up in one tremendous explosion. His F7F *Tigercat* bucked like a dinghy in a choppy sea, and flaming pieces of stuff flew up to about 7,000 feet. Flying at 2,000 feet, he wondered if he would ever see home again.

Quaking in his boots, he climbed to observe his handiwork. He called a fellow "Nightmare", 1st Lt. Ernest R. Olsen, to come over and take a look.

From some miles away came the reply, "I can see it from here. But I'll come by." He did, and threw some rockets at the edge of the conflagration.

A second explosion as large as the first rocked the area.

One large ammunition dump was scratched.

SNOWBOUND on an advanced Marine airstrip are these two L-19 observation planes from VMO-6 in Korea; with coming of winter, flight operations in frigid Korean terrain become rugged



HELICOPTER crewman A. J. Lienczewski gets out of craft after he was hit by enemy gunfire behind lines, bandaged himself up; note hole of bullet which bit him, in lower fuselage



USS LOS ANGI

'OPERATION MORALE LIFT'

IT WILL never win filmland's "Oscar." It will never be shown publicly. It will never be panned or praised by the critics. But those who see "Operation Morale Lift" will vote it the greatest and most important movie production of the year.

Filmed aboard NAS ALAMEDA and NAS SAN DIEGO, Christmas greetings from the families of men serving overseas aboard the *Badoeng Strait*, *Valley*



BABY ROBINSON PLAYS SCENE AT AN EARLY AGE

Forge, *Essex* and *Antietam* were recorded on sound movie film and were shown to the men on the carriers on Christmas day.

As the sound cameras rolled, a clown performed for the youngsters, holding their attention and making them laugh so that their daddies would have a big smile from them on Christmas day. Kiddies recited their prayers and spoke



FAMILIES RECEIVE RADIOPHOTOS FROM ESSEX

pieces they had learned in school, bringing their fathers up-to-date on the things they have been taught. Occasionally a youngster broke down in the middle of his performance, but the scene usually ended with mother managing to produce a smile through the tears.

For some of the men "Operation Morale Lift" enabled them to see their children who were born after they sailed for Korean waters.

A surprise finish was written at NAS ALAMEDA when a young mother and her day-old, prematurely-born baby were added to the 138 family groups that were filmed.

Although weary from cinematizing steadily for two days, the camera crew, headed by Chief Photographer John V. Pflaum, took all of their movie equipment to the hospital. There they filmed Mrs. Marie Robinson pointing with pride to the incubator which held the tiny baby girl, Sally Jan. Lt(jg) Rufo

Robinson, a VF-837 pilot aboard the *Antietam*, saw his newly-born daughter via film on Christmas day.

The operation also worked in reverse for some Navy families when men aboard the *Essex* were able to send greetings to their families in San Francisco via a test run of Navy radiophoto equipment. Photos of men and letters they wrote were received in San Francisco the day before they were written because of the time difference over the International Date Line.

When "Operation Morale Lift" was finally finished and on its way to the carriers, the tired camera crews admitted that the happiness of the families they had filmed was the nicest Christmas present they ever got.

New Cutlass First Flight F7U-3 Larger, Heavier than -1 Model

The Navy's newest fighter plane, the F7U-3 *Cutlass*, has made its first flight at the Chance Vought Aircraft company field in Dallas.

Larger and better equipped than the original F7U-1, the big swept-wing, tailless fighter will be the first plane of its type to operate off a carrier. In appearance, the new model is about the same as the first *Cutlass*, with higher vertical stabilizers. An F7U-1 with the "tail rudders" made its carrier qualification tests aboard the CVB *Midway* last summer.

The twin-jet F7U-3 has superior high altitude performance, a greater rate of climb, greater range and heavier firepower. It has a dual hydraulic power control system, each system being completely independent. To improve maintenance, the plane has more than 100 access doors and panels.

The cockpit has large access doors outside the fuselage to permit work on the consoles without getting upside down in the cockpit. Engine servicing calls for aft removal rather than through engine access doors in the bottom of the fuselage. This system will save time and make it easier to work on the engine's afterburners.

Maintenance and servicing were made easier by running all electrical lines on the right side of the fuselage and all hydraulic lines, with a few exceptions, on the left side. The F7U-1's two sets of speed brakes were replaced by a single set. The greater weight of the -3 model brought a switch to a heavier nose landing gear with dual wheels.

Another first flight was chalked up by the Chance Vought AU-1 *Corsair*, a propeller-driven attack-type plane designed for support ground troops. This plane resembles an F4U, but has a single-stage engine and more armor plating.

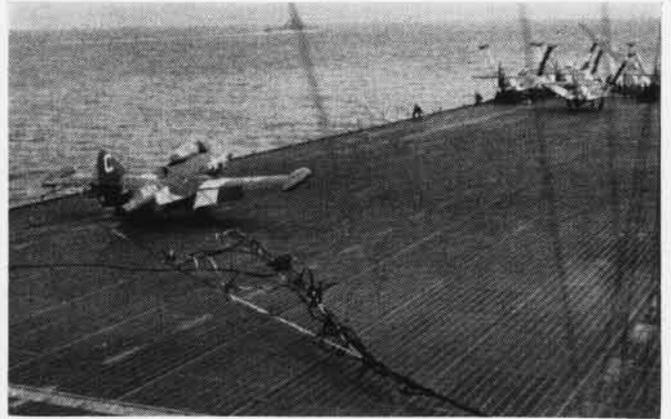


LIGHTS! CAMERA! LT(JG) STILLWELL WILL HEAR HIS WIFE AND SONS ABOARD THE ESSEX

IT NEVER PAYS TO LAND A PLANE LONG



PANTHER ABOARD MIDWAY COMES IN HIGH, MISSING ALL OF THE WIRES



SPEED IS TOO GREAT FOR BARRIERS, SO F9F RIPS THROUGH LAST ONE



JUST BEFORE GOING OVER SIDE, RAMPAGING PLANE HITS PARKED JETS



PARTS OF PLANE FLY, FIRE LEAPS UP AFTER IT RAMS OTHERS ON BOW



THAT ERROR OF JUDGMENT DURING LANDING COST THE NAVY A MILLION AND A HALF DOLLARS WORTH OF PLANES, HERE FLOATING IN THE WATER

JET PILOT CAPSULE EJECTION

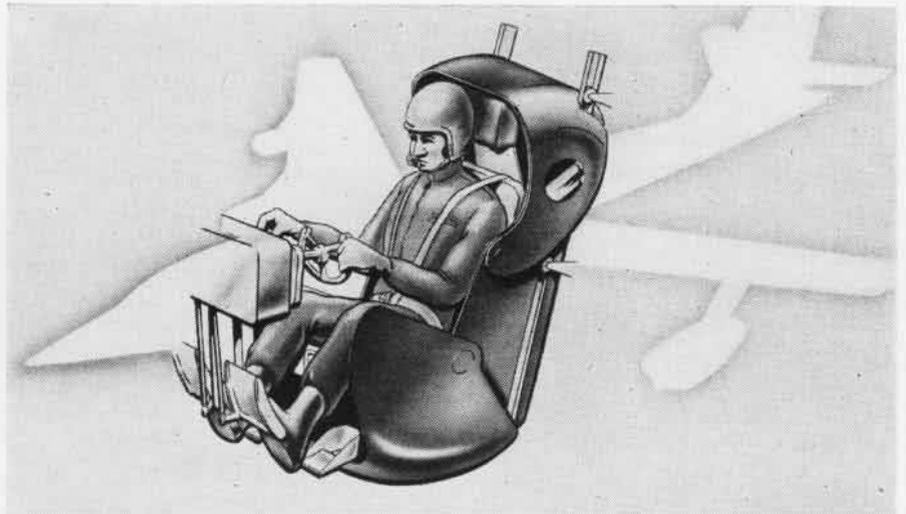
JET PILOTS of today, when their planes get into trouble, use their ejection seats and catapult themselves to safety.

At least one Navy pilot has used his seat safely at a speed of approximately 600 mph or more. But what about the pilot in tomorrow's high speed jet which goes faster than that? The limit for safe use of an ejection seat is thought to be around 600 mph. Above that, the slipstream impact on a man's body is about like a sledgehammer blow.

The answer to the pilot safety problem at transonic and supersonic speeds has gone beyond the "we ought to do something about it" stage; the Bureau of Aeronautics through a contract with Goodyear Aircraft Corp., has initiated the development of an ejectable seat capsule model which may be the answer for multi-place planes.

BUAER figures that an ejection seat is satisfactory for escape at speeds up to 520 knots and 45,000 feet altitude. Above those limits, more protection must be provided. Temperatures run around minus 65° that high up, there is insufficient oxygen in the air to sustain life, and a man may suffer from explosive decompression in going from his pressurized cockpit to the open air. An enclosed capsule appears to be the most practical answer.

BUAER's attack on the problem is really two-phased. For high speed fighters and planes where the crewmembers are closely grouped, it is developing an ejectable cockpit capsule for escape in emergencies. For planes with pilots forward and crewmen elsewhere in the fuselage, the individual capsule or "egg" is considered the best way to save them. The man in his seat will be enclosed in a fiberglass shell. This is tossed out of the plane in the same way as today's ejection seat.



PILOT SITS FORWARD IN NEW ESCAPE CAPSULE WHILE FLYING; SHELL GIVES FLAK PROTECTION

After considerable research was done by the Airborne Equipment Division of BUAER into methods of saving pilots in high speed planes, development of the Goodyear seat capsule was launched about a year ago. A full-sized, mockup of the capsule recently was demonstrated by the Airborne Equipment Division to interested personnel.

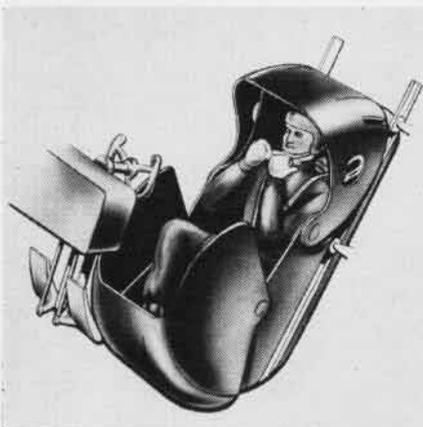
BRIEFLY, here is how the capsule works. The pilot sits partially inside the shell in his regular seat, complete with back-type parachute and survival equipment. The fiberglass "egg" has clamshell-like doors which will close, completely encasing him in an emergency. Should the pilot (or crewman) want to get out of his plane, he would pull a handle between his legs on the front of the seatpan. This would retract his seat 7" into the shell. In the mockup model, springloading pulled the plane's control yoke forward against the instrument panel when the pilot released it, clearing the way for the

clamshell doors to close tightly.

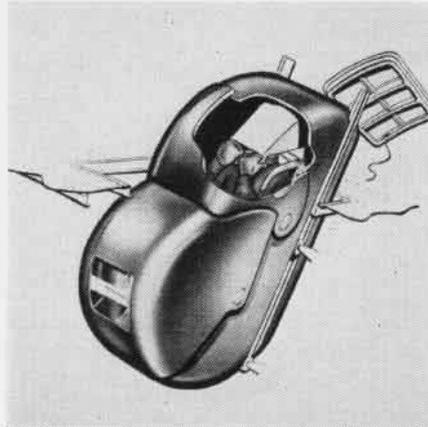
The two clamshell doors then close and the escape hatch on the plane jettisons automatically so the "egg" can be shot out. This last operation also would arm the catapult. Present plans call for the man to reach up and pull a face curtain down, as on today's ejection seat, firing the capsule out of the plane. Since he is enclosed in a tightly-closed capsule, the face curtain possibly may be changed to some other system of head-retention device as the capsule is refined further.

An ejection seat is shot out of the plane by a single "cannon" tube in the rear of the seat, using a 37 mm shell to propel it upward. The capsule-type device would utilize a "U" shaped cannon, permitting better space utilization and increase the "push" in a smaller-sized tube.

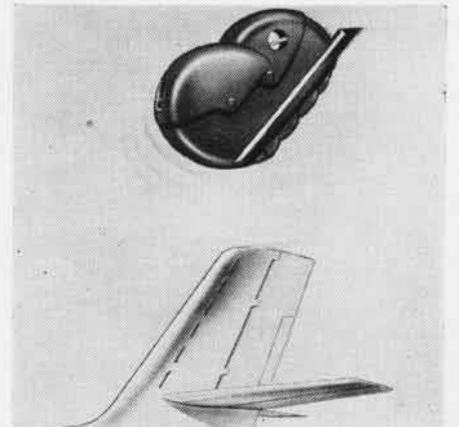
Once the capsule is shot out of the plane, a small stabilizing fin at the top rear will give it directional stability. Wind tunnel tests showed the capsule



SEAT RETRACTS into capsule, control wheel retracts and doors of 'egg' begin closing



PLANE'S hatch jettisons, arming catapult; pilot pulls face curtain to eject capsule



FINNS ON tail of capsule stabilize it, even at supersonic speeds, after it is ejected

was stable from subsonic to supersonic speeds with this fin. The capsule will have a 38' parachute which is reefed and will deploy after suitable delay. After four or five seconds, a small pilot chute is released to slow the fall.

The main one would stay reefed until the capsule was down to 18,000 feet altitude. There its barometric control would release it. In case of a low-altitude bailout, a time delay mechanism will permit it to operate as soon as deceleration would allow safe deployment of the chute. He can elect to "ride it down", or bail out of the capsule and use his back parachute after he reaches a safe altitude.

The pilot can ride his capsule right down to the water or land. While he is at high altitude, he can breath oxygen from the emergency bottle in his seat pack. The capsule is capable of including all presently-used survival equipment such as life rafts, rations and the like. Since it is tightly closed, the capsule can be used as a life raft itself. At any time the pilot can jettison the two clamshell doors by pulling internal safety releases.

Because it is strongly built, the capsule structure will absorb the brunt of the landing shock when the pilot comes down. The honeycomb fiberglas will add little to the weight of the plane, despite its size, because of other savings possible, one of them in less armor-plate required to stop flak. Since the capsule is close to the pilot's body, less armorplate area will be required to give him adequate angular protection.

The capsule idea has other good features:

Pressurization—Should the plane be hit by anti-aircraft fire at high altitude and lose its cabin pressurization, crew members could close themselves in their capsules, using them as emergency pressure cells. Provision could be made for remote controlling the plane from inside the capsule.

Fire protection—In case of fire, the fiberglas capsule could be closed for protection of personnel. The honeycomb construction is a good insulator and does not burn. In the event of a crash fire while taking off or landing, the pilot might keep himself alive until firefighters could get to him.

Flak protection—Since the tough fiberglas encloses the pilot on three sides, wider protection from shell fragments is afforded than usual armor-plating. All materials are non-critical in supply and offer a maximum of strength for a minimum amount of weight.

Survival—The capsule would aid in

survival on land or in water, in the Arctic or tropics. Doors are watertight and the man could stay in the "egg" rather than try to stay alive in frigid Arctic waters. It also could be used for survival after landings on ice or snow, where shelter is non-existent.

Crash protection—Last but not least, in the last seconds of an impending crash, the closing of the capsule doors could afford additional protection and increase chances of crash survival. Like present equipment, the capsule installation will be stressed to withstand a 40 G crash deceleration.



THE DARN THING BACKFIRED!

New Attack Bomber Flies Twin Turbo-prop XA2J Is Carrier Plane

After being kept under wraps for several years, the Navy's first twin turbo-prop, carrier-based attack plane, the North American XA2J-1 *Savage* was flown for the first time January 4 from Los Angeles International Airport.

With Bob Baker, company test pilot, at the controls, the bomber was flown direct to Edwards Air Force Base at Muroc Dry Lake where Navy and Air Force experimental planes are tested. The first flight lasted 30 minutes.

Powered by two XT40 turbo-prop engines turning six bladed contra-rotating propellers, the *Savage* has a top speed in excess of 400 mph. Somewhat heavier than its big predecessor, the AJ-1 *Savage*, it also has greater tactical range.



NAVY'S XA2J-1 SAVAGE, A TURBO-PROP CARRIER-BASED BOMBER, FIRST FLEW ON 4 JANUARY

It is the heaviest of the Navy's carrier-based planes, weighing in excess of 26 tons.

Capable of carrying a bomb load of 10,000 pounds, the plane carries 20mm guns as armament. A crew of three is housed in a pressurized cockpit.

The XA2J-1 has a wing span of over 70 feet and a comparable length. Wing-tips fold inward and vertical tail downward. It has tricycle landing gear and standard naval arresting equipment for carrier landings.

Pilot Returns to Shangri-La Won Silver Star in World War II Action

When Lt. Richard W. Mann heard that his old ship, famed in the war as the "Tokyo Express" was coming out of moriballs, he immediately requested assignment to her. The Navy Department obliged, and today Lt. Mann is assistant CIC officer aboard the aircraft carrier *Shangri-La*.

During World War II, Lt. Mann, a pilot with VB-85, was shot down in the Pacific while on a bombing mission off the *Shangri-La*. He had successfully dumped his bomb load on enemy shipping in Kure Harbor, when his Curtiss *Helldiver* was struck by anti-aircraft fire. Picked up by a Japanese fishing craft, he was subjected to beatings and constant interrogation during his imprisonment by the Japanese in the Ofuna prisoner of war camp near Tokyo.

For his heroism in the Kure air strike, Lt. Mann was awarded the Silver Star.

Cuba Plane Aids Northerner Relays Messages, Quonset to Anacostia

VR-1, PATUXENT—With the coming of cold weather, the problem of communications aboard the squadron's RSD's becomes more bothersome as temperatures go down.

One flight, just departed from Quonset Point, R. I., was unable to contact Anacostia, D. C. on the 6290 kc frequency. So a direct relay was established through another plane which was flying at the time between Miami, Fla., and Guantanamo, Cuba. The latter plane contacted the Anacostia tower for the plane over New England.

AF Welcomes Navy Pilots



WORKING together are (l. to r.) Maj. L. Thompson, LCdr. O'Neil, Capt. C. E. Hudgens and Lt. Carlin. They are studying radar observer's gear in F-94 jet fighter

ONE WAY to stress unity in the unification program is to let services swap personnel. Every year the air power of the United States is strengthened when 25 pilots of the Air Force and Navy are exchanged.

At McChord Air Force Base, Washington, three Navy pilots are learning how the Air Force operates. The pilots attached to the 325th Fighter-Interceptor Wing are LCdr. Martin G. O'Neil, Lt. Walter P. Carlin, and Maj. John F. Bolt, USMC. It is their job to assimilate doctrine, practices and experiences that will give them an insight into and understanding of the workings of the Air Force.

"The flying is no different," said Lt. Carlin who has been flying the Navy F9F Panther. "You still have to pull on the stick to go up and push to go down, and occasionally there is mechanical trouble. The difference in the Air Force is the paper work and operational procedures."

Asked about the Air Force F-94, he said, "It's a good aircraft, but I guess I am partial to the Navy F9F."

The Navy men are also checking out as alert pilots for all-weather flying with the 317th squadron.

"This is the first all-weather flying I've done," Lt. Carlin said, "and I like it. It's different from Navy flying in that the flying I was doing was more of a group operation rather than the individual flying the Air Force alert crews do."

The Navy men receive no special treatment while attached to the Air Force. They are assigned flying duty

with the other men and have to pull extra duties. The only distinguishing marks are their Navy uniforms which they wear at all times.

Air Force pilots on exchange are serving with carrier-based Navy fighter squadrons off Korea. Others are with patrol squadrons and some in the Navy Training Command.

LCdr. O'Neil came to McChord from VF-112, NAS MIRAMAR, where he was flying the F9F. He has had three years services overseas and holds 5 DFC's, 14 Air Medals and other decorations.

Maj. Bolt came to McChord from MAS CHERRY POINT. He has been in service since November 1941, serving a year in the Solomon Islands in 1943 and nine months on a carrier. He holds the DFC with gold star.

Lt. Carlin has been on active duty since June 1945 when he was graduated from the Naval Academy. He served 22 months in the Far East and during 1950 was on Mediterranean duty.

Something New Is Added

Air Reserves To Get Helicopters

In modern air operations helicopters are becoming increasingly important. The Korean war has shown that the eggbeater is here to stay.

In keeping with its mission of maintaining Air Reserves as "Modern Minute Men", Naval Air Reserve plans to commission three Reserve helicopter squadrons by 15 January 1952 and eight more prior to 1 July 1952.

NAS OAKLAND, NAS LOS ALAMITOS and NAS NEW ORLEANS are the first three stations where helicopter squad-

rons will be commissioned. Squadrons will be established later at the following stations: Glenview, Minneapolis, Grosse Ile, Squantum, Willow Grove, Miami, St. Louis and New York.

"Whirly-bird" pilots will be recruited from among Reserve aviators affiliated with Organized squadrons and AAU's and will receive a short helicopter training course at NAS PENSACOLA.

Each squadron will be equipped with the HTE-2 type helicopter for training its 12-pilot complement.

Adm. Lonnquest Wins Honor

Elected President of Naval Engineers

RAdm. Theodore C. Lonnquest, deputy and assistant chief of the Bureau of Aeronautics, and member of NACA, has been elected president of the American Society of Naval Engineers.

RAdm. Lonnquest is the first aero-



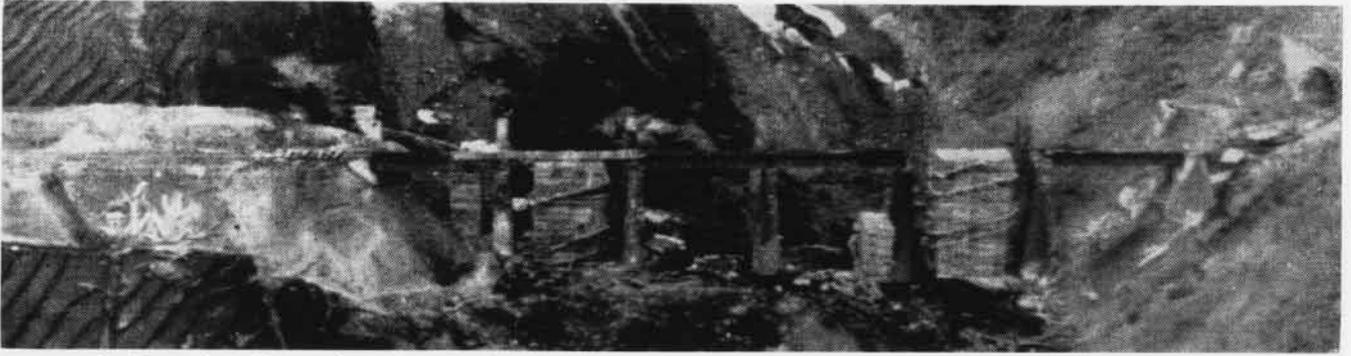
RADM. LONNQUEST HEADS ENGINEERS' SOCIETY

nautical engineer to be so honored in the 63 years the Society has been working to advance naval engineering. He is the first naval aviator to be elected since RAdm. Alfred W. Johnson, now retired, held the post in 1937.

He is one of the few senior naval aviators to hold a designation in both heavier-than-air and lighter-than-air craft. During World War II, he was responsible for design and development of the Navy's wartime aircraft and airborne equipment and after the war directed material activities of Joint Task Force One at Bikini atom bomb tests. In 1950, RAdm. Lonnquest was elected a Fellow in the Institute of Aeronautical Sciences in recognition of his work in aeronautical engineering.

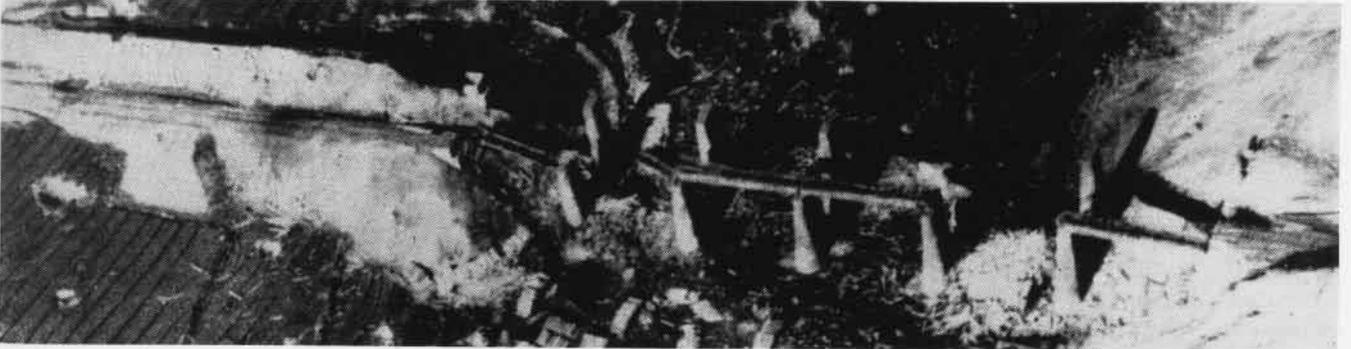
• VR-32, SAN DIEGO—Because the HTL helicopters they were ferrying had such short range, this outfit used an R4D or SNB "chase plane" to carry extra gasoline. The planes would land at small CAA emergency fields and refuel the pinwheels. Two saddle mounts were developed later to enable the HTL to carry more fuel and obviate the chase planes.

NAVY WRECKS KOREA'S 'BOUNCING BRIDGE'



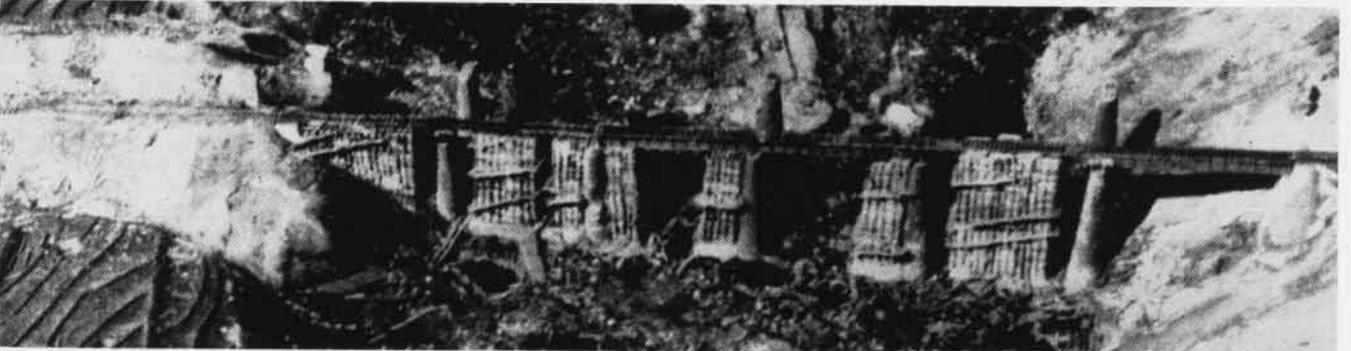
IT TOOK the Navy six strikes to discourage the Communists from rebuilding the "Bouncing Bridge of Carlson's Canyon," crossing a 600-foot wide ravine between two tunnels near Songjin, North

Korea. LCdr. Clement M. Craig first spotted the bridge while returning from a combat mission. Later that same day a strike went out and damaged one approach. From then on it was just



one long scramble between the U. S. Navy and the Communists to wreck and rebuild the strategic span. It was particularly "hot" because all Communist and North Korean supplies moving

south from Manchuria along the northeast rail system had to cross this concrete-and-steel bridge. At each end of the bridge was a tunnel, which made it still juicier as a target. Strike



#2 went out the day after it was spotted, led by LCdr. Harold G. Carlson, commanding officer of VA-195. It dropped one span and damaged two others. RAdm. Ralph A. Ofstie was

so pleased with results he named the bridge "Carlson's Canyon." Ten days later the Communists had hauled up lumber and made extensive repairs after Strike #3 had knocked out a second span,



so Strike #4 was sent in. All new construction was knocked out. Two days later, photos showed new stockpiles of ties being collected (see second photo above). Two weeks later the bridge

was all repaired, except for rails to roll traffic south again. Strikes #5 and #6, with Skyraiders dropping 2,000-lb bombs, clobbered the bridge once and for all, as shown in last photo.



STRIPPED-DOWN KAMAN HELICOPTER WITH GAS-TURBINE POWER: NOTE SMALL POWERPLANT SIZE

Jet Power on New Pinwheel Kaman Helicopter Uses Boeing Turbine

The Navy has applied the jet power principle to helicopters and has successfully flown an experimental K-225 pinwheel powered by a gas turbine.

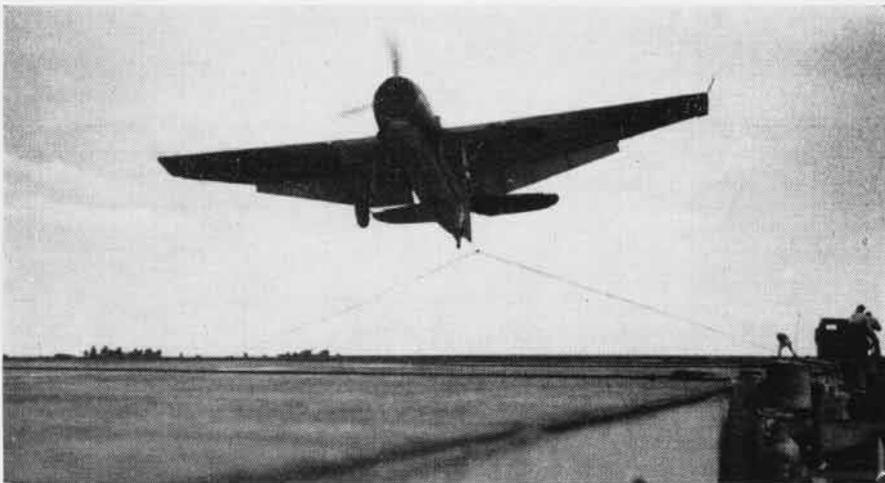
The Kaman Aircraft Corp., developed the helicopter under contract with BuAer. The 125-horsepower gas turbine, the YT-50, was built by Boeing Aircraft Co. Although similar in principle to the gas turbines in jets, the K-225 installation differs in the application of power. Instead of using exhaust gases for direct thrust, the power is used to turn the shaft of the rotor blades.

Engineers predict marked increases in

helicopter performance due to savings of weight—always a critical factor in helicopters—the gas turbine being half the weight of a comparable 500-lb. piston engine installation. It also is simpler in design.

The turbine, unlike a piston engine, requires neither a centrifugal clutch nor a cooling fan. It can operate on low grade fuels like kerosene or on high octane gas. William R. Murray, former Navy pilot, was the first to fly the new helicopter.

- VU-5, GUAM—B. R. Junger, AA, recently was presented the Eagle Scout award—first Navy man to receive scouting's highest award while serving on Guam. The presentation was filmed for television release.



TUG OF WARS between planes and arresting wires frequently make exciting pictures, but probably none more so than this TBF aboard the Yorktown in 1944. Air Group Three with VT-3 was aboard at the time. The plane caught an early wire, bounced and the pilot applied war emergency power. Three or four seconds after the picture was snapped the wheels of this torpedo bomber extended roughly half the normal distance below the plane.

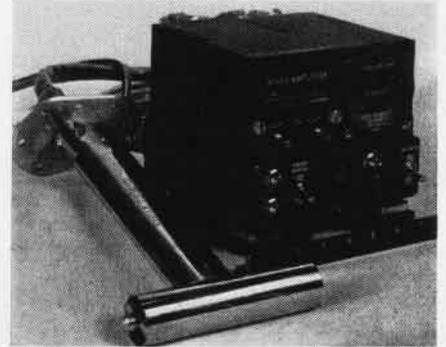
Vortex Thermometer Devised

Naval Research Lab Solves Problem

It has long been a problem to develop a thermometer that will read the correct air temperature at all speeds of an aircraft. An aircraft flying at 500 mph is heated about 45° F. by the combined effects of compression and friction, and a thermometer extended into the air stream is affected similarly. The amount of temperature rise is proportional to the square of the velocity.

The Naval Research Laboratory, under a BUAER project, has solved the problem with a vortex thermometer. The basic idea was previously used by Bernard Vonnegut in making a thermometer to be used in cloud-seeding experiments. In the NRL thermometer a tube extends axially into the air.

Within the tube a spiral vane produces a whirling motion of the air. The center of this whirling motion is a region of lowered pressure. The cooling effect of the lowered pressure just cancels out the heating effect of the compression. The thermometer placed within this vortex reads the correct air temperature. When the air plane goes faster



SPECIAL NRL THERMOMETER PROVES ACCURATE

and the heating effect is increased, the cooling effect is also increased.

The temperature sensing element is of the wire resistance type with the signal being carried to the amplifier by cable and then to a digital indicator similar to the mileage indicator on a speedometer. With this equipment, the temperature has been measured at all speeds and altitudes attainable with a B-29 aircraft with an accuracy within 1/2° F.

Calibrating tests have been made on a whirling arm at the NRL up to 500 mph, and experimental models have been satisfactorily tested at Eglin Air Force Base, Fla.

Winter Training Scheduled

Marines Build Camp in Mountains

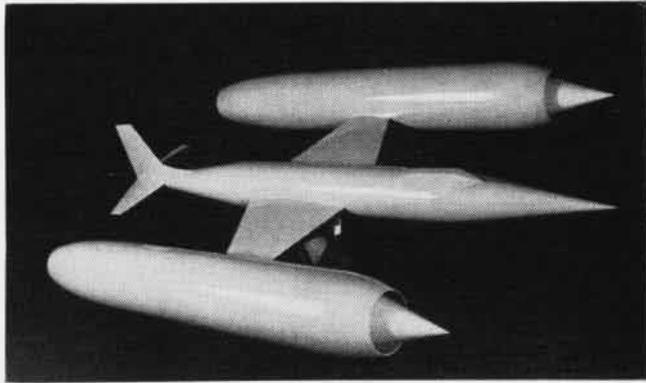
Personnel from MCAS EL TORO are undergoing cold-weather training high in the mountains at Fallon, Nevada.

Purpose of the maneuvers is to determine more efficient procedures and methods of cold weather flight and maintenance operations, measure adequacy of clothing for line maintenance personnel and establish the period of time in which aviation Marines may be expected to efficiently perform assigned duties in freezing temperatures.

SUPERSONIC RAMJET AFTERBURNER



THE AIRPLANE of the future using afterburners to achieve 1350 mph will have turbojet engines of about the size shown in photo



WITHOUT afterburners, the same plane would have to have huge turbojet engines like those shown here to generate same speed

SUPERSONIC guided missiles require highly-precise, split-second automatic fuel control, particularly during rapid maneuvering, the National Advisory Committee for Aeronautics stated in reporting great progress in more powerful turbojet, ramjet and rocket engines.

Using a 17' ramjet mounted in the 8'x6' section of the world's largest supersonic wind tunnel, NACA's Lewis Flight Propulsion Laboratory found as fuel flow was increased, internal pressures built up. This caused drastic changes in the airflow pattern around the inlet, until a strong shock wave began to move ahead. It finally began oscillating violently.

This pulsing has serious consequences, either blowing out the engine's flame, or, if severe enough, destroying the engine and missile through structural failure.

The Cleveland Laboratory put on display an experimental missile which was being tested in the supersonic tunnel (see photo below). It had a ramjet en-

gine buried in the fuselage. Of tail-first design, it had horizontal tail surfaces located on the nose instead of behind the wing. Another design had two ramjets in wing nacelles.

Using models, the Laboratory demonstrated how much power an afterburner adds to a turbojet engine. The first photo above shows how big a pair of engines is necessary to drive a plane at 1350 miles an hour using afterburners. The second photo shows how big the engines would have to be to achieve that speed without afterburners, which double the thrust at supersonic speeds.

NACA reported that control surfaces located in the nose of a missile had advantages, but also created new problems. Deflection of the control surfaces during maneuvers causing swirling disturbances in the uniform supersonic air flow behind it. Location of the ramjets air inlet in such a disturbed flow can result in high losses of engine efficiency.

Other recent scientific advances in flight propulsion revealed by the Laboratory included:

Icing—This problem has been intensified because of the high speed of jet planes causing the interception of ice-forming cloud droplets faster than for ordinary planes. Research in the icing tunnel has provided the key to possible reduction of the heat required for de-icing to one-tenth that used under present-day techniques.

Fuels—New fuels of higher heat content and improved combustion characteristics are "definitely to be looked for in the future".

Materials—New materials of superior strength and durability, capable of successful operation at high temperatures generated by jets are on their way. These can be made from materials plentiful in this country.

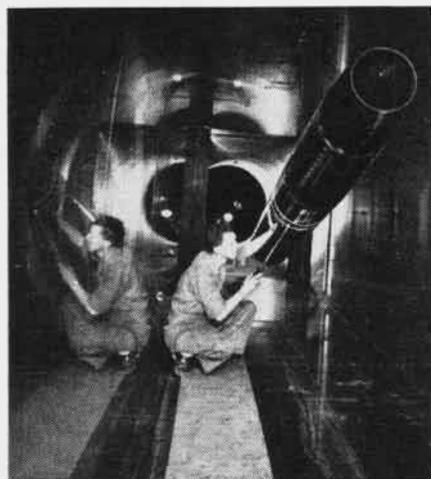
Cooling—Techniques in this field, which will enable the thrust of turbo-

jet and the power of turboprop engines to be more than doubled, have been brought to an advanced research stage. Further effort is required before they can be fully used in production engines.

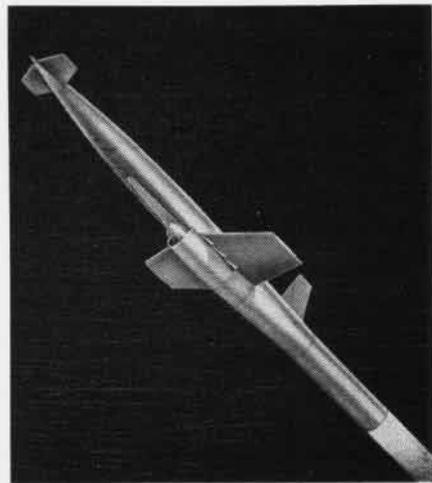
Afterburning—Lewis Laboratory research was greatly responsible for development of this device in the tail-pipe of a turbojet. Afterburners can change a subsonic engine into one adequate for speeds of 1500 mph.

NACA is also working at automatic control systems for high speed planes, with a single control lever virtually mandatory. Such systems are extremely complex and must be aimed at cutting down oscillation of engine thrust at high altitudes, among other things. This vibration may be so violent as to make combat impossible and result in rapid destruction of the engine.

One of the "hot spots" in a jet engine is the turbine blades, which must also withstand high centrifugal force and hot corrosion as well. The Laboratory found cool air forced through tubes inside the turbine blades effectively cut down the temperatures met.



IN LEWIS laboratory's slick 8 x 6-foot wind tunnel workers position 17' ramjet engine



RAMJET in fuselage powers guided missile; note control surfaces on nose of the plane



● AVRO 707B

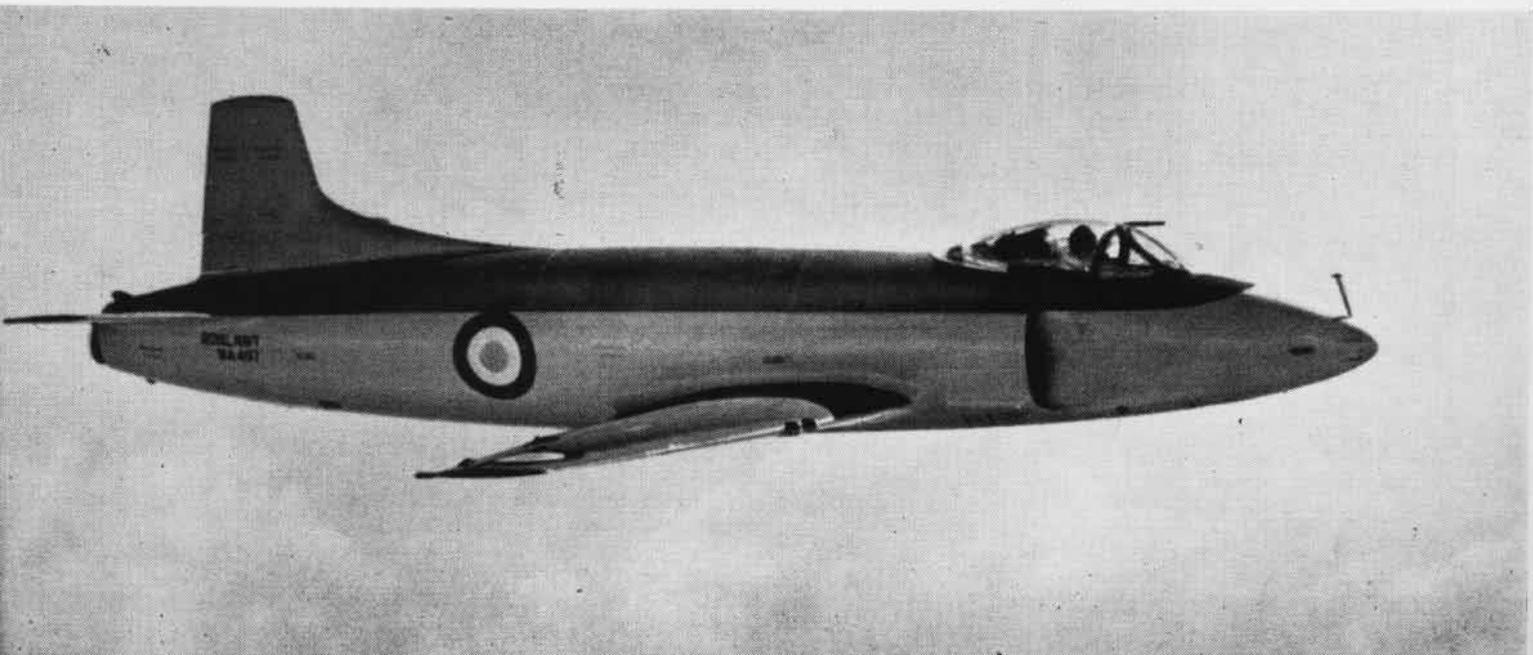


● SEA HAWK P.1072 WITH SNARLER

british

New versions of British Navy jet in the air are featured in the conference between the two Avros of the aircoop from top fuselage of the Hawker Sea Hawk have tail for extra boost in take-off of the carrier-based Vickers wing, butterfly tail and swept w

● VICKERS SUPERMARINE ATTACKER

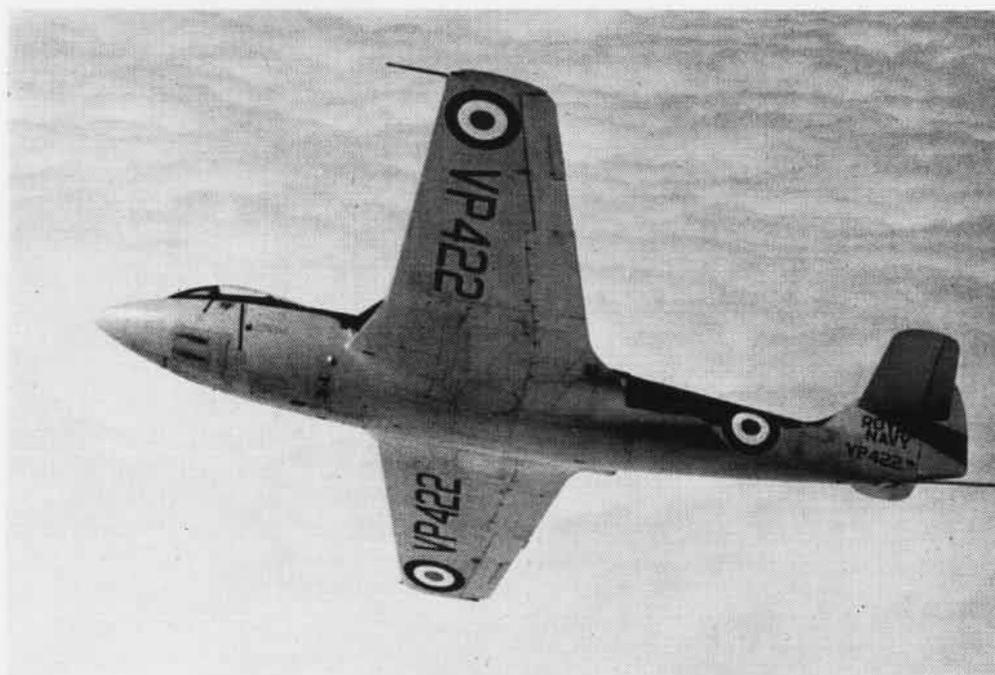




● AVRO 707A

et pairs

jets and the cleanest delta-wing
s recognition spread. Major dif-
delta-wing planes is the relocation
ge to wing roots. Latest versions
the Snarler rocket motor in the
r for high speeds. Three varia-
s Attacker are shown—straight
g, the latter two with Avon jets.

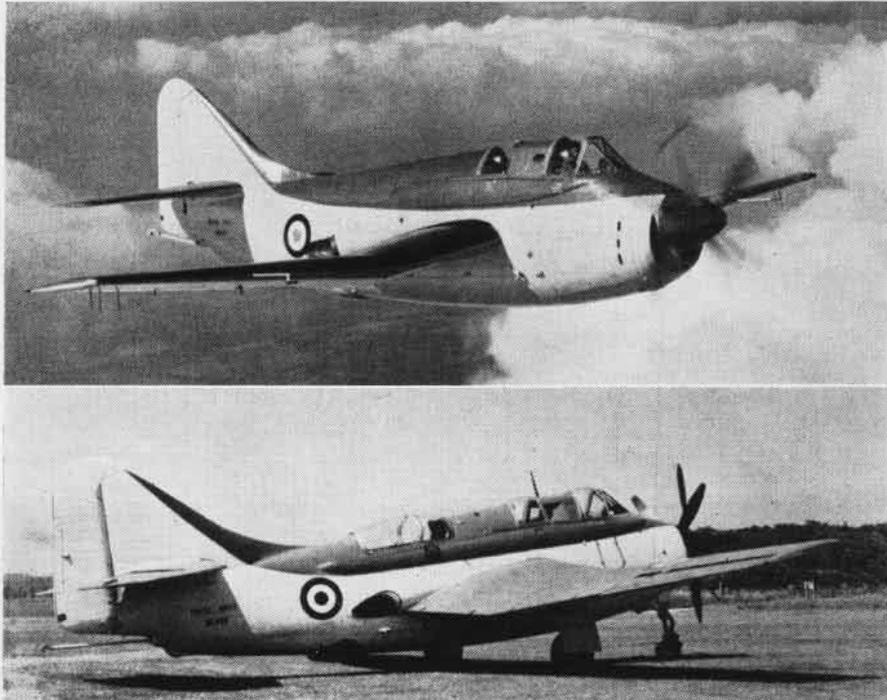


● HAWKER P.1040 SEA HAWK

● SUPERMARINE 508 AND 541 'SWIFT' (TOP)



BRITISH BRING OUT SPEEDY JETS



TOP VIEW SHOWS EARLY TYPE OF FAIREY GANNET ASW PLANE: NOTE REAR COCKPIT IN LOWER VIEW

ON THE preceding pages are presented pictures of new British aircraft which some day will be flying off the decks of Royal Navy carriers, or already are operational. Although the emphasis is on jets, propellered planes like the Fairey *Gannet* ASW plane with its turbojet engine are flying.

Avro Twins. Two delta-wing experimental planes developed by Avro have demonstrated many of the advantages of this design. The faster 707A has wing-root intakes for its Rolls Royce *Derwent* jet engine while the 707B has a single dorsal intake abaft the cockpit.

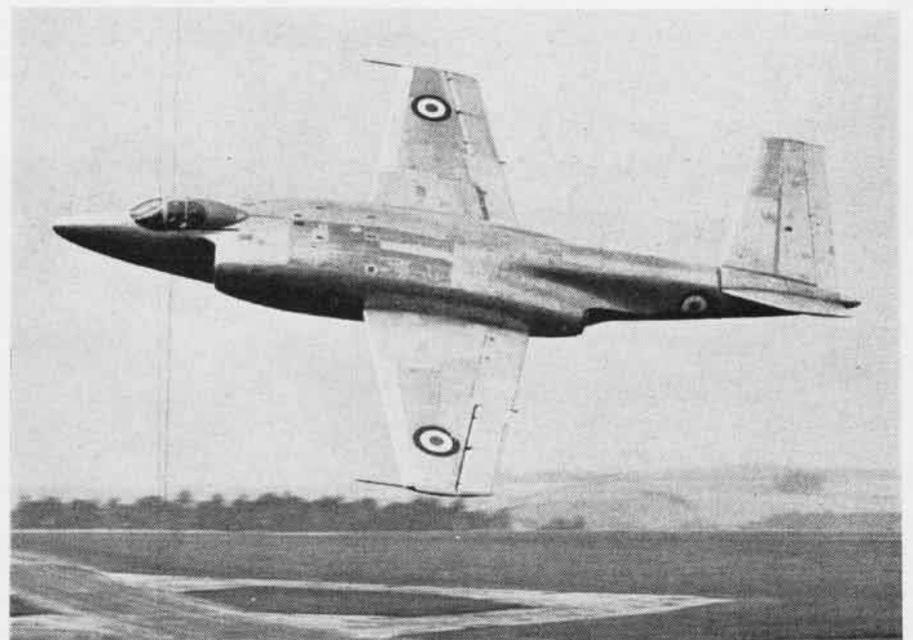
Fairey Gannet. Britain's outstanding contribution to anti-submarine warfare is the Fairey *Gannet*. Of special interest are its Armstrong Siddeley *Double Mamba* engine, a two-in-one proposition, its capacious bombbay, and its double-fold wings for efficient carrier stowage.

British Twin-Jet Delta. Gloster's GA.5 delta-wing all-weather fighter is the world's first twin-jet delta. Power is provided by two 7,200-lb thrust *Sapphire* jet engines. The engines are faired into each side of fuselage with air intakes just forward of the wing roots. The prototype made its first flight on 26 November 1951.

Italian G.80. The Fiat G.80 jet fighter trainer made its first flight on 8 December 1951. It is an all-metal low-wing aircraft powered by a Rolls-Royce *Nene* turbojet engine. The aircraft is fitted with two ejection seats in tandem.

Bristol Freighters for R.N.Z.A.F. New Zealand has ordered a number of twin-engined Bristol freighters. These cargo aircraft are a new version of the freighter developed for the R.N.Z.A.F.

Ethiopian Air Force. The Imperial Ethiopian Air Force (IEAF) is being trained by a group of Swedish pilots. Their equipment includes Swedish *Safir* trainers, SAAB-17A single-engine attack planes, American AT-17 *Bobcats* and British *Fireflies*.



NEW VIEW OF VICKERS SUPERMARINE 508 WITH BUTTERFLY TAIL, POWERED BY TWO AVON ENGINES

RECOGNITION

Swedish J-29. The SAAB J-29 is in quantity production for the Swedish Royal Air Force. This aircraft is a modern swept-wing fighter in a comparable class with the U. S. F-86 *Sabre* and Soviet MIG-15. With the J-29 operational the R.S.A.F. will be the World's third air force with swept-wing jet fighters.

Spanish CASA 202 Halcon. The CASA firm is completing work on a twin-engined low-wing all-metal transport. Accommodations will include seats for around 16 passengers and a crew of 3. A nose wheel type landing gear is to be employed with dual-wheel main landing gear.

New Russian Helicopter. The Soviet helicopter, designed by Mil, resembles the U. S. Navy's HO4S or the commercial equivalent S-52. Seating accommodations are for around four in a rather small cabin. A fixed tricycle-type landing gear is fitted to the machine with a skid attached to the tail boom to guard the vertical rotor.

H.M.S. Eagle. The *Eagle* is the 21st ship of her name in the annals of the Royal Navy. Full-load displacement of the new aircraft carrier is 45,000 tons. Unlike U. S. carriers the *Eagle* features two-story hangars. Crew comforts include air conditioned living spaces. A new operational feature of the ship is a combined double-deck operations room and aircraft direction room.

RESERVE PLANES PERFORM ABOVE MIGHTY NIAGARA

"AS LONG as the weather's good, we're going to forget pilot's ground school and concentrate on flying!" That's the way the CO's of Organized Reserve squadrons talk to the pilots in the ready room at NAS NIAGARA FALLS.

In a land where winter seems to stretch out forever with snow, sleet and freezing winds, there's plenty of time to concentrate on ground school. Every good day is a flying day and as many planes as possible are launched from the station.

During fiscal 1951, Reserve squadrons at NAS NIAGARA FALLS flew a total of 14,464.2 hours. The best month was August when squadrons racked up a total of 2,181.9 syllabus flight hours. So far this year 10,353.0 hours have been flown, ample proof that the squadrons concentrate on flying when the weather is favorable.

Whether or not the weather is decent, nothing discourages the enthusiasm of the Organized Reservists who train at NAS NIAGARA FALLS. Many of them travel hundreds of miles from Syracuse,



SIGHTSEEING for free, a flight of Navy Corsairs from VF-852 is shown in a tactical formation over the Canadian or "Horseshoe" falls at Niagara Falls, New York

Ithaca and Rome, New York to attend their monthly weekend drills. One fighter pilot flies all the way from Elizabeth, N. J., to fly with his squadron.

Hundreds of spectators gather every weekend to watch the beehive of activity along Niagara Falls Boulevard. They probably see more types of airplanes around Municipal Airport than at any other field in the Naval Air Reserve Training Command. The runways are shared by the naval air station, the mu-

nicipal airport, Bell Aircraft Corporation and the New York Air National Guard.

It isn't unusual to see a Piper *Cub*, a commercial airliner, several Navy and Air Force planes all waiting their turns to use the runways, while overhead a Bell helicopter or two hovers like a mother hen herding her flock. The mutual cooperation which exists in sharing the facilities of the field reflects the community attitude toward the station.



BELL Aircraft personnel and stationkeepers demonstrate a simulated helicopter evacuation rescue during Armed Forces Day



NO IDENTIFICATION cards are needed as enlisted personnel of VMP-441 start out on quarter-mile bike during annual cruise



LUCKY winners of Bell Trophy! Shown are Capt. A. W. McKechnie, Secretary John F. Floberg, Capt. N. O. Anderson, Ray P. Whitman of Bell Aircraft and LCdr. Champlin

AFTER WORLD War II, naval aviation veterans retained a high amount of interest in all phases of naval aviation. As the result of much organizational work, the group received permission to establish an AVU(A) which was commissioned in August 1947 under LCdr. Victor A. Zucarelli.

The unit was supported by NAS NEW YORK which provided three SNJ trainers for twice-a-month training periods. As the unit multiplied in size and enthusiasm, the burden of support became more difficult, and it seemed inevitable that its decommissioning must be directed. It was at this bitter moment in the unit's history that the community stepped in to help them.

Civic officials and civic organizations, together with industrial leaders, university presidents and a large segment of the public in general protested and insisted that the most simple and effective solution to all the problems lay in the

establishment of a naval air station to serve the entire western New York area.

Word soon spread that the community probably would get a naval air station. On 18 December 1948 members of the AVU(A) and civic officials stood in one of the two hangars which comprised Bell Aircraft's former Modification Center and heard Cdr. L. D. Ruch, the station's first CO, read his orders and formally commission the station.

As the station complement increased, the men turned to with plenty of spirit to construct and renovate classrooms and shops. Training devices and equipment were installed in the shops along with the equipment necessary for maintaining the aircraft.

With the expansion of the organizational and flight training syllabus, week-end drills settled into a familiar routine. An in-service training program was designed to give each officer and man a thorough coverage in his specialty.

Today classroom lectures are followed by actual on-the-job training with close attention given to the practical factors for each specialty. Detailed records are kept of each individual's progress and the men are encouraged to prepare for advancements in rate.

Ground officers are also given a thorough check-out in their specialties.

NAS NIAGARA FALLS is making a concerted effort now to qualify all pilots for their instrument cards. VMF-441 was recalled to active duty in October 1951 and within the first month aboard the station, while undergoing familiarization training, 13 pilots out of a possible 25 qualified for their cards.

Annual training duty for fiscal 1951 found most of the squadrons taking off for Grosse Ile, Norfolk or Atlantic City. VMF-441 and VA-856 (now VS-851) "cruised" at NAS NIAGARA FALLS. Both squadrons made high scores on the bombing, rocket firing and gunnery range located 34 miles west of the station. The range, approximately 142.63 square miles in area, is located on Lake Ontario along with an acrobatic area 25.5 miles west of the station.

On the community front, the station plays an important role in many events. When a ship is missing on Lake Erie or Lake Ontario, planes from the station join the Coast Guard in the search.

In the summer of 1949 the Navy participated in the Magna Charta celebration held between Niagara Falls, N. Y. and Ontario to perpetuate the friendly relations existing between this country and Canada. A beauty contest was held to select "Miss Naval Air Reserve" who would be crowned queen of the entire celebration. Canadians along the frontier were pleasantly surprised when a Canadian girl was chosen.

With the arrival of the film, "Flying Leatherneck," at a local theater, Marine Air Detachment stationkeepers held



HANGAR-flying on an off day—VF-851's Dodson gestures for mates, Gettman, Moore, Bartels, Warner, Masterson, Mahoney



"MISS Naval Air Reserve" is this pretty Canadian miss. Local merchants donated prizes and trophy for Magna Charta Celebration



CLEANUP detail for Armed Forces Day. Stationkeepers Heinrich, Tondera and McGuire give TBM Avenger torpedo bomber its bath



NOT EVEN fire can spoil his perfect record. Chief Mueller borrowed suit to attend drill the day after his house burned down

premier ceremonies and elected a local girl as "Miss Leatherneck."

Further proof of area acceptance of the station was demonstrated by Lawrence D. Bell, president of Bell Aircraft. He placed in competition a trophy to be awarded annually to the squadron judged the most efficient and outstanding of the year.

The first award of the trophy was made last May during Armed Forces Day to LCdr. Frank J. Champlin, CO of VF-852.

The roles of Organized Reserve Squadrons contain many prominent local citizens. LCdr. Seymour B. Dunn of VP-851 is dean of Hobart College at Geneva, N. Y. LCdr. Robert W. Ramage, CO of VS-851, is district sales manager for a large steel company. LCdr. Ramage was awarded the Navy Cross and is credited with destroying a Jap cruiser by scoring four direct hits. LCdr. Daniel C. Sheedy, CO of FASRON-851, also holds the Navy Cross.

Reserve training has become a family affair for many western New York-

ers. For instance, the five Washington brothers—Raymond, Leslie, Donald, Gerald and Kenneth—are all members of VS-851. Then there are the four Knight brothers—Raymond, Philip, Donald and Robert—who are assigned to the photo lab. Husband and wife combinations include Lt. (jg) Philip A. Loes, FASRON-855, and Lt. (jg) Dorothy

Loes, VF-852; Arthur Lagendyk, ADEC, and wife Eileen, SA, both of VP-851.

Currently leading the drive to make his station one of the finest in the Reserve circuit is Capt. Norman O. Anderson, longtime member of the Naval Reserve. Capt. Anderson is outstanding in the field of aviation education. Another important member of the team is the station's new executive officer, Cdr. William F. McDonald, veteran of 22 years in the Naval Reserve.

The event which has most affected activities at the station was the outbreak of Korean hostilities. VA-859 volunteered for active duty shortly thereafter. The squadron, commanded by LCdr. Richard E. Moot, prominent Buffalo attorney and inventor of the "Moot Suit", used by ISO's at night, is assigned to CVG-8 with the Atlantic Fleet.

Orders to active duty have been received by 61 pilots and ground officers, proving that Naval Air Reserve Training at NAS NIAGARA FALLS is paying big returns to the taxpayers.

Organized Reserve Squadrons

WING STAFF-85—Cdr. Ernest G. Vetter, Cmdr.; LCdr. Kenneth M. Fullerton, Jr., Asst. Cmdr.; LCdr. John W. Nichols, Asst. Cmdr.

VF-851—Lt. Charles O. Dodson, Jr., CO; Lt. Vincent J. Mahoney, Exec.

VF-852—LCdr. Frank J. Champlin, CO; Lt. Earl E. Graf, Exec.

VS-851—LCdr. Robert W. Ramage, CO; Lt. Harry A. Thor, Exec.

VP-851—LCdr. Victor A. Zucarelli, CO; Lt. Edward H. W. Jones, Exec.

FASRON-851—LCdr. Daniel C. Sheedy, CO; Lt. Richard B. Morris, Exec.

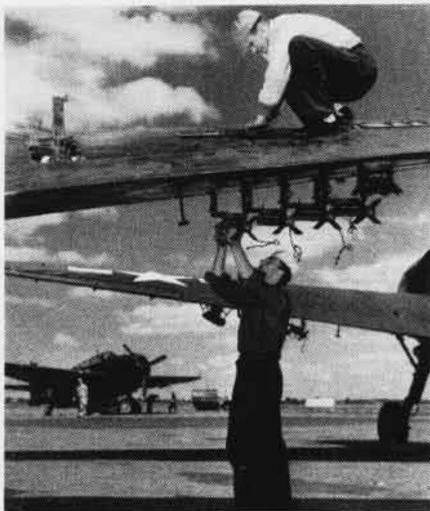
FASRON-855—Lt. Edwin H. Probst, CO; Lt. Walter Popen, Exec.

AAU-851—LCdr. Irving A. Enevold, CO; Lt. Robert J. Mulholland, Exec.

VMF-441—Maj. Robert Tucker, CO; Capt. John H. Creveling, Jr., Exec.



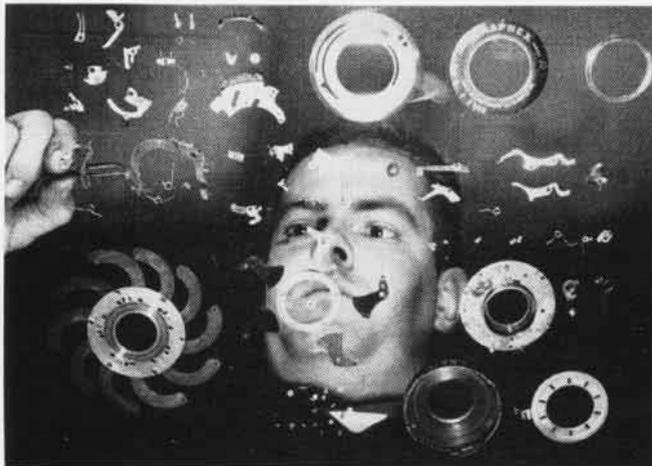
HERE'S how we do it—Anthony Gutka shows use of acetylene torch to Victor Petrishin



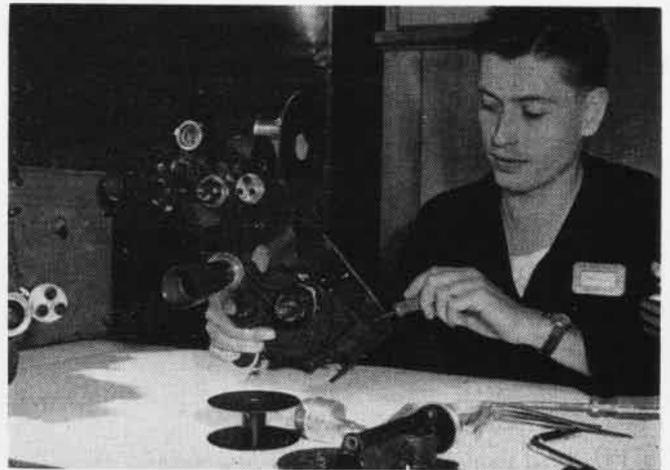
MEMBERS of VA-856 re-arm a torpedo bomber at NAS Niagara Falls prior to flight



JUST WHAT does that squadron have? All five Washington brothers are members of VS-851



CAMERA SHUTTER SEPARATES INTO MYRIAD OF FINELY MACHINED PARTS



BEFORE GRADUATION TRAINEES MUST BE ABLE TO REPAIR MOVIE CAMERA



ALL-THUMBS CHARACTER CAN CAUSE AS MUCH DAMAGE AS THE WEATHER

CAMERA REPAIRMEN WELL TRAINED

NAVY CAMERAS are subject to many forms of abuse. Enemy bullets, rough carrier landings, salt water dunkings, spray, and wide variations of temperature and humidity can put aerial and hand held cameras out of commission.

That's where the camera repair personnel appear on the scene. They are men who are not only photographers but also mechanically adept. Their training is received during a twelve weeks course at the Camera Repair School, Class "C", one of four schools within the Naval Air Technical Training Unit, NAS, Pensacola. Curriculum of the school includes maintenance and repair of all makes of cameras and related equipment, including aerial, motion picture and ground cameras, and range-finders, intervalometers, normal and high speed shutters.

On the Korean war front, the need for repairmen is great because of the wide climatic variations. Photographic reconnaissance planes have to work under extremes of the weather, plus mud, dust and water. Their work continues smoothly because the Pensacola graduates are on the job.



REPAIRMEN MUST BE ABLE TO REPAIR SHUTTER OF ANY AERIAL CAMERA



IN TIME OF WAR, AERIAL CAMERAS MUST BE IN TOP-NOTCH CONDITION



JALOPY-OWNERS who are naval aviators probably would like to paint fancy signs on their airplanes too, but all weren't as lucky as Lt. (jg) D. G. Faulkner, an "enemy"

pilot on the CVB Midway during its Mediterranean cruise. His plane was plastered with numerous signs like "What's Up, Doc?", "Dilbert Express" and "Lost Again."

VR's Leave Nothing Undone No Job Too Big Or Small For Them

In the midst of flying VIP's on inspection tours, Navy transport squadrons managed to find time to conduct operations in the interests of humanity.

VR-21 possibly saved the life of Mrs. Lalvyla A. Kimes, wife of Master Sgt. Cleatus L., USA, on a mercy flight to Midway Island. The woman suffered injuries to her head and back in a fall aboard an MST vessel enroute from the Far East to the West Coast. The transport was diverted to Midway and the Kimes family put ashore for air evacuation.

A VR-21 plane and crew took off from NAS BARBER'S POINT one hour and fifteen minutes after the flight was authorized by CINCPACFLT. The round trip was completed in an elapsed time of 14 hours and 40 minutes, including a three-hour stop at Midway for a medical consultation and examination by a neurologist from Tripler Army Hospital flown to Midway on the mercy flight.

The Navy gave another assist to the Army when VR-3, a naval component of MATS, flew Pvt. Edward L. Durgan to Annette Island, within a few miles of his home in Ketchikan, Alaska. Pvt. Durgan, who lost both legs in an ammunition explosion at Elielson AFB last June, spent the holiday season at home and was returned by VR-3 to the Naval Hospital at Oakland for further treatment.

An unexpected but welcome Christmas gift was delivered to 83 sailors stationed at Kwajalein by VMR-152 and VR-21. The men were scheduled for rotation during the month of December but the ship they were scheduled to board wouldn't arrive in San Francisco

until the 29th. RAdm. M. E. Arnold, realizing how much it meant to the men to be home for the holidays, requested air transportation for them as far as Pearl Harbor, where they could board a ship that was scheduled to arrive in the States by 20 December. Two planes from VMR-152 and one from VR-21 picked up the men, starting them on the first lap of their journey.

- NARTU MEMPHIS—LCdr. Cecil E. Harris, second ranking Navy air ace during World War II, was one of 63 pilots who took three-months refresher training. He was a school principal in Cresbard, S. D., before being called back to duty. He is slated for flight instructing at Pensacola.

Pressure Pattern Navigation

VR-1 Finds System Cuts Time in Flight

VR-1, PATUXENT—Winter storms and rough weather over the long Atlantic hops has necessitated pressure pattern flight planning and navigation, with some surprisingly accurate results.

This type of flight planning uses the 700 milibar chart and allows the flight to proceed through the smoother part of a stormy air mass and takes advantage of the best available winds.

Take one typical flight, piloted by LCdr. W. C. Ross, with Lt. G. S. Young as navigator. It left England on an average magnetic heading of 280°, passed over southern Ireland and held this heading to 14° West. There it altered heading to 222° magnetic and proceeded to Lages AFB.

At one point during the flight, the plane was 240 nautical miles north of the normal rhumb line course. In miles flown, the actual flight was 130 nautical miles longer, but the flight arrived 35 minutes earlier by flying this route.

The entire flight, with the exception of the last hour, when the navigator shot two sun lines for ground speed checks, was done by radio altimeter and pressure pattern drift.

Later, two special flights from Keflavik, Iceland, to Argentia, Newfoundland, used this type of flight planning and navigation. Both flew 150 miles farther, but saved one hour and 30 minutes in actual flight time. A third saved two hours flying time by using pressure pattern system, although the distance was 150 miles more.



NAVY OR MARINE? Take a look at that name on the wing, then compare it to the words on the fuselage. Actually, the plane belonged to VF-781 flying off the Bon Homme Richard off Korea. Lt. John J. Brodhag picked up the Panther's new empennage in a swap with VMF-311. They were operating out of K-3, an airstrip in South Korea, where the two squadrons were near neighbors, just as they were when the Marines were flying out of El Toro and VF-781 from Los Alamitos. Who gets credit for a kill hasn't yet been decided.



LT. BAKER HELPS A MOPPET WITH HER DINNER

Carrier Men Have Big Hearts Antietam Shows True Spirit of Giving

The mess cooks, bakers and cooks of the USS *Antietam* believe that if you give a little love to a child, you get a great deal back. They decided on Thanksgiving Day it would be fitting to do something for unfortunate children even though they were thousands of miles from home.

Lt. Thomas Baker of the Commissary Department carried the idea to Chaplain Pieri and arrangements were made to bring 50 orphans from the Fujisawa Orphanage aboard for Thanksgiving dinner.

It was a big day for the kids—plenty of ham and turkey with all the trimmings. After eating their fill, the little guests sat back to enjoy the antics of Bugs Bunny and other cartoons.

Carrying the spirit of giving even further, personnel of the carrier are establishing a fund which will be given to the Shrine Crippled Children's Fund.

Three Stations Reactivated

Kaneohe, Norman, Barin Open Gates

The Navy has announced reactivation of air stations at Barin Field, Alabama; Kaneohe Bay, T.H., and the Naval Air Technical Training Center at Norman, Okla.

The Hawaiian air station will be a Marine Corps activity, housing a regimental combat team and Marine Air Group, so the two can do integrated amphibious training of air and ground units on a continuous basis. About 3,000 Marine aviation personnel will be based there, with an eventual build-up to about 3,600.

Barin Field will be a naval auxiliary air station under the Naval Air Basic Training Command. Navy pilots also will get carrier qualification training there. About 2,000 Navy personnel will be assigned there for duty. Since it was closed in 1947, the field has been used only as a landing area.

Reactivation of the Norman NATTC was to be completed by the middle of January. The training center will have

2,200 naval personnel attached, with 600 additional civilians. During the war 12,000 persons were there. Since closure, University of Oklahoma and the state cerebral palsy institute have occupied some of the buildings.



EMPTY?? EMPTY!!

New Dilbert Posters Issued

'More Boners' Needles Brainless Pilots

A new series of *Dilbert* posters, made famous in flight training during World War II, has been produced by the Aviation Training division of DCNO (Air) under the title of "More Boners".

Drawn by Robert Osborn, whose cartoons have illustrated *Grampaw Pettibone* from his inception in 1943, the new series of 72 posters has been distributed to all naval air stations, carrier air groups, FASrons, carriers, AV's, AVP's and flight training commands. The NavAer publication number is NA 00-80ZZ-41.

The posters are aimed at the multitude of flight errors student and "graduate" pilots make, like forgetting to switch tanks, landing too fast or long, ground looping, taxiing too fast and trying to fly through thunderheads.



THE DOUBLE DUTY BOYS—AL AND SAM KATZ

They're Carbon-Copy Katz Brothers' Lives Parallel Each Other

Although they're not twins, "Weekend Warriors" Alvin and Samuel Katz of Niagara Falls, N. Y. lead lives that are closer than wet postage stamps folded back to back.

Back in 1942, when Alvin was 21 and Sam was 19, both enlisted in the Navy. After boot camp training at Sampson Naval Training Center, both attended Naval Radio School and then served in the southwest Pacific theatre of operations. Both received orders to Naval Officer's Training School and earned their commissions in 1945. Both were transferred to Miami for study at the Advanced Line Training School and in April 1946 returned to inactive duty.

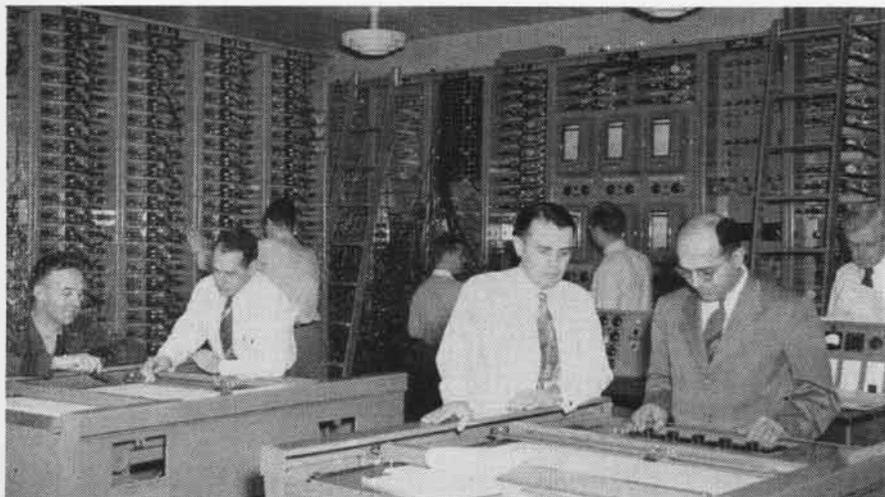
In March 1948 both Ensigns joined the Organized Naval Air Reserve, but to break the monotony of their assignments, Sam was assigned to FASron-855 and Al to VF-851. Both received their promotions to Lt(jg) in 1948.

In civilian life, they follow this same carbon copy. They both reside in Niagara Falls and are insurance brokers. They're both married and to sisters.



THEY FINALLY TATTOOED A FUEL SYSTEM ON DILBERT

"Typhoon" Aids Science



FLIGHT PATH OF A SIMULATED MISSILE PROBLEM IS STUDIED ON TYPHOON PLOTTING BOARDS

THERE is one *Typhoon* which doesn't blow an ill wind. It sounds unbelievable, but it is true.

Typhoon is a new "super computer" which is used by the Analytical and Computer Group at the U. S. Naval Air Development Center, Johnsville, Bucks County, Pa., to study war and the many complicated problems electronic devices have injected into our national defense effort. Extensive naval air battles and tactical operations are continually in progress at NADC at very little expense to the taxpayer and with no loss of lives or casualties to personnel or equipment.

To the layman *Typhoon* appears to be a gigantic maze of dials, lights, jack plugs and wires. It could appear to the casual, unlearned observer not unlike a giant telephone control switchboard combined with radio or television controls and a few medical, electronically-controlled graph-writing devices thrown in for good measure. Like a tremendously complicated slide rule, *Typhoon* with proper operation can duplicate the solution of mathematical problems of an unbelievably complicated nature in an infinitesimally small fraction of the time required for human computation.

The "super computer" is the result of one of the several similar develop-

mental programs initiated in 1946 by the Special Devices Center of the Office of Naval Research at BuAer request.

Typhoon was built for NADC by the RCA Laboratories, Princeton, N. J. In addition, NADC also operates several smaller REAC computers used to solve complex guided missile and general mathematical problems.

These studies determine the outcome of synthetic aerial battles and tactical operations problems. The results of NADC analyses are used to determine the types of aircraft, guided missiles, radar screens, armament, aircraft carriers and tactical disposition of these equipments best suited for fleet defensive and offensive needs.

Actually, the operation of *Typhoon* and its smaller computers makes test flying possible for pennies instead of dollars. New designs, which need not be carried beyond the drawing board stage are tested on computers, saving uncounted thousands in otherwise required experimental design activity. Theoretical designs of airborne missiles may be varied 60 times an hour, if necessary, and complete performance of each variation of the missiles observed and recorded.

The *Typhoon* computer not only has the capacity to handle the equations of motion of the missile itself, but is capable of incorporating in its representation a target, tracking system, guidance computation control and stabilization systems, and a realistic generation of aerodynamic forces on the missiles. However, it isn't a giant "brain"—while it can analyze and report what a missile may do, it can't tell it what to do.

NADC credits much of its present ability to operate the *Typhoon* computer to the cooperation it has received

from the University of Pennsylvania. The affiliation with NADC is one of the university's important contributions to the defense program. Under the affiliation arrangement, the University of Pennsylvania's School of Medicine, the Moore School of Electrical Engineering, and NADC have agreed to a mutual exchange of personnel and facilities.

The university's Moore School has been a pioneer in the field of super computers. This combination provides a complement of computing machines unique in the United States and a skilled technical pool of experienced operators.

Fast Rescue Saves Tot, 2 Alaskan Help Call Brings Fast Action

VR-3, MOFFETT FIELD—Some fast first aid work by a plane that happened to be flying past lonely Kenai island in Alaska saved the life of a two-year-old baby suffering from acute appendicitis.

The RSD was flown by LCDr. H. R. L. Thompson, en route from McChord AFB, Wash., to Elmendorf AFB, Alaska. Elmendorf airways asked him if he could land at Kenai and pick up the patient. Twenty minutes later the big MATS transport touched down on the little-used gravel airstrip and mother and child were loaded aboard.

Only 45 minutes afterward, an ambulance picked them up at Elmendorf and took them to a hospital—total elapsed time from the time the emergency aid call was received until the plane delivered the patient was one hour.

Crewmen who helped in the rescue were Lt. Jack B. Perkins, Ens. William A. Platte, Frank M. Murphy, AD1; Lloyd M. Anderson, A12; William A. Bufford, A13; Harold W. Francke, AN, and Don K. Jennings, AN.



IT'S GETTING to be a habit with VR-8 to win the MATS Pacific Division safety award for safe flying. Here Capt. Joseph C. Clifton, who surrendered his spot to Cdr. B. M. Streat, holds the Flying Safety Award which his outfit has won five out of last seven quarters. During July-September quarter, VR-8 flew 7,000 accident-free hours in the Pacific. LCDr. John C. Lafferty is maintenance head.



MODEL REPEATS MOTION OF MISSILE IN FLIGHT

ACTIVATED VMF WINS RIDDER TROPHY



WITH those new stars on his shoulders, BGen. V. J. McCaul and Col. J. D. Harsberger see BGen. C. S. Jerome present Ridder Trophy to Major J. C. Musselman, CO of VMF-132

Musselman, Jr., CO of VMF-132. Basis of the competition for fighter squadrons is drill attendance, flight performance, flight safety and proficiency at summer maneuvers.

The Marine Air Reserve Trophy (Ridder Trophy) was originally presented to the Marine Air Reserve by Herman Ridder, noted aviation enthusiast and publisher, of St. Paul, Minn.

VMF-142, NAS MIAMI, was the first to win the trophy in 1949. The following year it was awarded to VMF-451, known as the "Fighting Phillies", at NAS WILLOW GROVE. VMF-132 has been operating as part of the Organized Marine Reserve since 1946. At the time of the annual inspection, the squadron was undergoing an eight-week period of intensive training at NAS NEW YORK, having been recalled to extended active duty last October.

WHILE competition for the Ridder Trophy was keen this year, it was limited to the 10 Marine fighter squadrons throughout the Marine Air Reserve Training Command unaffected by mobilization.

There is also a Marine Air Reserve trophy awarded annually to the outstanding Marine ground control intercept squadron. These squadrons are unique because the Marine Air Reserve Training Command maintains the only organized training activity of this type among the nation's air reserves.

These units form an unusual air combat organization, comprising mobile elements of electronic spotting, tracking and plotting devices to locate approaching enemy aircraft and to direct interception by Marine fighter planes.

This year there could be no presentation of the trophy to an MGCIS as the

MARINE Reserves at NAS NEW YORK are likely to remember last November's annual inspection for a long time. Not only did one of their squadrons win the Marine Air Reserve Trophy, but the day held a big surprise for Colonel Verne J. McCaul, Commander, Marine Air Reserve Training.

The surprise occurred during the afternoon when the Colonel met the plane of an old friend, Brigadier General Clayton S. Jerome, Assistant Commandant of the Marine Corps (Air), who was arriving from Washington, D. C. to officiate ostensibly in presenting the Marine Air Reserve Trophy to NAS NEW YORK'S VMF-132.

As Gen. Jerome left his plane and addressed the honor guard, he unexpectedly read the official directive promoting Col. McCaul to the rank of Brigadier General. At the conclusion, he affixed the bright new star on each shoulder of the startled former Colonel.

The colorful military inspection ceremonies that evening became even more colorful with the appearance of BGen. V. J. McCaul.

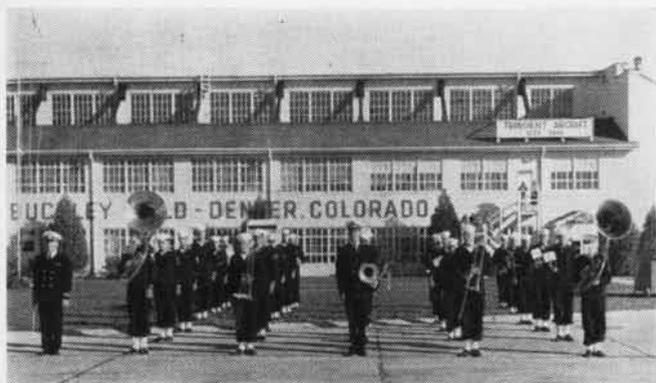
Recognized as the nation's top *Flying Leatherneck* Reserve Squadron during the first six months of 1951, VMF-132 was praised for its peak efficiency by Gen. Jerome. The 21-inch solid silver trophy was presented to Major John C.



TURNING his face to the future and next year's trophy, Major Pertle, CO of MGCIS-22, explains radio and radar equipment



SANTA Claus' helpers—Hassart, Dittus, Vollmar, Henderson—join with Capt. Renfro of NAS Oakland in off-loading presents



IT WON'T be an Army or Air Force band playing at NAS Denver any more. The thirty-piece band is the pride of the station

personnel of all organized units were mobilized. However, next year it may be a different story.

When MGICIS-22 held its monthly drill in October, it turned into "old home week" at NAS GLENVIEW with the reunion of members of the original squadron which was called to active duty in August 1950.

The members were officially welcomed back to the Organized Marine Air Reserve by Lt. Col. H. B. Penne, CO of the Marine Air Detachment. They promptly "turned to" to square away electronics equipment that they had hurriedly left to see duty with the First Marine Air Wing in Korea.

Between splicing wires and replacing old radio and radar tubes, sea stories were told high and wide concerning operations against the Communists at Inchon, Seoul, Kimpo and the Changjin Reservoir by the many personnel who had been there.

When MGICIS-22 was activated, its CO was a 41-year old electrical shop teacher at Chicago's Lane Tech High School, Capt. Lester C. Pertle. Now 14 months later, he has returned to NAS GLENVIEW to take over the reins of the same outfit, a bit more battle-wise and with the gold leaves of a Major.

Reserves Fly For Santa

Five R-4D aircraft from the Naval Air Reserve Training Command recently left Billy Mitchell Field in Milwaukee for NAS OAKLAND. They were carrying eight tons of Christmas packages from the kind-hearted citizens of Wisconsin to wounded servicemen in Korea and Japan whose Christmas might have been rather bleak otherwise.

This is the second Christmas airlift under sponsorship of the Milwaukee Sentinel in which the Naval Air Reserve has participated.

Readers contributed more than \$25,000 for the gift campaign. As the planes prepared to take off, several hundred people gathered at the field and stood with bowed heads while clergymen invoked divine blessing on the gifts.



RESERVISTS Shoy, Gumm, Cox, Dehler, Calvert and Brownlee work on upper air charts with instructors O'Connor, Schroeder

When the R-4D's reached Oakland, the packages were delivered to NAS ALAMEDA and loaded aboard a Navy cargo plane bound for the Far East.

Reserve planes participating in the gift airlift were provided by NAS MINNEAPOLIS, NAS DENVER, NAS OLATHE and NAS COLUMBUS.

Doubling In Brass

NAS DENVER can boast that it is a station with a versatile crew. Take Lt. (jg) G. P. Ivancie, for instance, who is station dental officer but can also double as a band leader.

Things started out the same as any other drill day at the air station one recent Sunday. Three squadrons of "Weekend Warriors" were concentrating on the business at hand.

Suddenly a startling sound filled the fall air. Somewhere a band was playing martial music. All work in the hangars ceased as everyone within hearing distance stopped to listen. For years NAS DENVER contacted the Army or Air Force when a band was needed for a special occasion, but this Sunday was

no different from any other. That's why everyone thought it was a recording.

When the tunes continued, some of the more curious Reserves stepped outside the hangar to investigate. The sight of a 30-piece Navy band stopped them in their tracks.

The smiling faces of the officers and men expressed better than words the pride they felt in finally having their own Navy band.

Reserves Find Training Still Pays

Six Volunteer Reserve aerologists on annual training duty recently at Navy Weather Central caught up with the latest technical aspects of their job. They learned about analysis of 30,000 and 40,000-foot wind and pressure fields. Emphasis was placed on the increased importance of these levels in the operation of jet aircraft. Back when World War II ended, jet aircraft were just beginning to enter the aviation picture.

• NAS NIAGARA FALLS—This station recently played host to 16 United Nations Korean veterans, currently touring the United States for the blood donor campaign.



FOCUSING attention on the critical need for blood by our fighting forces in Korea, United Nations Korean veterans are greeted at NAS Niagara by Capt. N. O. Anderson

New Nav Course Is Offered Refresher in Navigation Now Available

Naval aviators who have hunted for tiny carriers in the vast Pacific ocean or flown up the mountainous Korean valleys looking for targets realize the value of navigation. Every Navy pilot is a navigator.

A new refresher course in Air Navigation has been released by the U. S. Naval Correspondence Course Center under NAVPERS #10959. The course consists of six assignments. Supplementary text is written to balance between the elementary and advanced. It presents basic material for the novice, yet keeps the interest of the advanced student. In addition, the enrollee uses an E6B dead reckoning computer, a Mk 3A plotting board and a Mk 8A computer to aid in the course.

The student solves problems in relative motion, using movements of fictitious ships and aircraft. On paper, he makes scouting runs off carriers. He solves plotting problems of single-engine and multi-engine navigation. The course covers contact flight, dead reckoning, charts and maps.

Volunteer Reservists should write to the commandant of their home naval districts and ask for application form NAVPERS 992. Organized Reservists can get the form from their units, whose commanding officers will endorse it and send it to the correspondence center in Brooklyn, N. Y.

P2V Makes 2,200th Landing Whidbey Training Unit Trains Crew

NAS WHIDBEY ISLAND — "The Thing" touched down at this station on 29 October to mark the 15,000th landing by FASRON-112's transitional training department—and thereby hangs quite a tale.

Whidbey's "Thing" is the second oldest operating *Neptune* in the Navy. It is looked on with loving eyes by airmen for it has an accident free record and has made 2,200 landings without incident since joining the TTD shortly after the Korean War started.

With the start of the war, an urgent need arose for trained crews and re-



PILOT MORAN POSES BEFORE BEARDED 'THING'



DURING amphibious exercises on the Potomac off Quantico, this HRP-1 got into trouble; picture was taken at moment of impact with water; occupants suffered minor injuries

placement pools in Navy multi-engine aircraft. In its 15 months of existence, TTD has trained two full squadrons and provided 72 crews.

Capt. Dale Harris, Commander Fleet Air Wing Four, was on hand for the 15,000th landing and presented the pilot, Lt. L. A. Moran, with a lucky horseshoe wreath. In the photo he is posed with the crew beneath the bearded nose of "The Thing."

New Firestone Rocket Motors

Mass Production Carried on in Akron

Motors for aircraft rockets now are being mass-produced in Akron, O., by the Firestone Tire & Rubber Company. These rockets, standardized for use by Navy or Air Force combat aircraft, are part of a contract with the Bureau of Ordnance.

Heavy machinery, ovens, chemical tanks and conveyor equipment for the manufacture of the many thousands of rocket motors called for in the contract are now in operation in Plant III, the



ROCKET READY FOR WARHEAD AND CHARGE

Defense Products Division of Firestone.

Units manufactured by Firestone are shipped to Navy depots for propellant charging and attachment of war heads.

Outside Akron, Firestone operates the Ravenna Arsenal for Army Ordnance, second largest in the country, for loading and reconditioning artillery shells and aerial bombs. At Fall River, Mass., gas masks and life vests are being turned out in quantities.

Puncture-sealing fuel cells are being

fabricated and cured on a round-the-clock basis in the company's Los Angeles plant. At Memphis, life rafts and life boats are scheduled for manufacture to meet a contract with Navy and Army engineers.

Lovely Femmes Aid Safety Flight Board Shows Women, Cartoons

VC-11, MIRAMAR—A flight safety board full of cartoons and messages on how to become an "old, bold pilot" has helped the VC-11 Miramar detachment finish off fiscal 1951 with 1137 accident-



COPPLE, CUMMINS INSPECT CARTOON ON BOARD

free hours and first place in ComAir-Pac's VC-VS safety competition.

Each week the board is completely changed and an officer submits a slogan for the privilege of having his favorite photograph displayed. For reasons of propriety, the lady depicted in the accompanying photo is more completely clothed than the ones who normally dominate the board.

It is believed by LCdr. J. H. Copple, officer in charge, and Lt. H. M. Cummins, flight safety officer, that during the morning briefing, one of the safety bulletins or cartoons surrounding the center may creep into the pilots' vision and be retained.

The board, 5½'x7', is trimmed in bright red with a white background. A cartoon depicting a local near accident or Dilbert maneuver is drawn by R. E. Diezman, ADC, and then posted.

Can You Actually Tie This?

VA-115 Gets Set for 'Necktie Party'

Officers of VA-115 aboard NAS SAN DIEGO are now ready for come what may in the line of "necktie parties"—thanks to a man from the wide open spaces of Texas.

The squadron received a surprise package recently, containing enough green silk neckties for each of the 34 officers.

Handpainted on the front of each tie is a miniature of the squadron's insignia and on the back is a label reading, "Made especially for Navy Squadron VA-115".

For a day, strict uniform regulations were eased in the squadron area to allow the pilots to wear their ties. VA-115 skipper, Cdr. Charles H. Carr, also proclaimed them "squadron ties" for all future social events.

Donor of the ties was F. W. Lake,



VA-115'S DITTMAR CHECKS NECKTIE INSIGNIA

father of one of the pilots. In return, he was given an honorary tie, upon which each of the officers had inscribed his name.



ZP-651 ORGANIZED RESERVISTS from NAS AKRON participated with regular Navy components in Atlantic war game maneuvers during their recent cruise; here Cdr. McNaul, NARTU LAKEHURST CO, (r), congratulates Lt. Hess on successful anti-submarine warfare training mission; watching are Reserves deBauernfeind (squadron CO), Looker and Cusher (front), and Cain, Martin, Moore, Carmichael, Cassidy and Miksch (rear), all of ZP-651

VA-45 Pilot Wins Bombing

Worchesek Best Bomber in Atlantic

VA-45, ATLANTIC—Hottest dive bomber pilot in the Atlantic fleet is Ens. Bob Worchesek of VA-45, stationed at NAS JACKSONVILLE.

Worchesek won the bombing accuracy championship for the Jax area when competitive exercises were held last spring. When the squadron skipper, Cdr. George O. Wood, returned from



EAGLE-EYE WORCHESK, COMAIRLANT CHAMPION

the Mediterranean with the outfit he found a letter from Adm. John J. Balandine informing the ensign that his score was not only the best in ComFairJax but in the entire Atlantic fleet.

Worchesek dropped six miniature bombs on a rocket target for an average error of 21.6 feet to win the Atlantic Fleet's championship.

French Pilot Good Bomber

MDAP Trainee At Cabaniss Scores High

NAAS CABANISS FIELD—"Nothing to it, just like riding a rail," remarked Lt. (jg) Raymond J. Jaboulay, French



LIKE SHOOTING FISH, SAYS FRENCH AVIATOR

naval officer. He was referring to his excellent bombing scores which have won him the Navy "E".

Lt. Jaboulay, a native of Lyon, France, is assigned to VF ATU-1 and is receiving flight training under the Mutual Defense Assistance Pact.

Flying an F6F Hellcat, Jaboulay has dropped all his bombs within the 100-foot circle and on a recent bombing flight his average was 42 feet.

Missile Training at Mugu

Intensive Course Aids Fleet Program

NAMTC POINT MUGU—Great progress is being made in getting guided missiles into the fleet and much of the credit must be given to the graduates of the Guided Missile School.

To be eligible for the school, candidates must have above-average intelligence (GCT plus ARI test score of 115 or higher) and at least a high school education. They must have had at least four years of active service and two years obligated duty to serve. A year of sea duty since the last stateside tour is also required.

If the qualifications seem rigid, the reason can be seen by glancing at the courses included in the intensive five-month training.

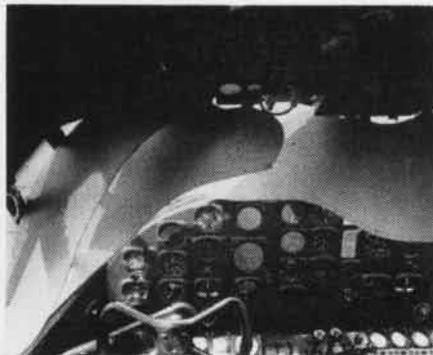
The introduction covers such topics as aerodynamics, instrumentation, guidance and other similar fields. The engineering science classes include mathematics and physics. Other rugged courses are electronics, propulsion, launching and explosives.

Average rate of attrition is about 10%. Night classes are offered for additional study and those who fail the weekly quizzes are required to attend for unsatisfactory ratings received in subjects during the previous week.

The monotony of class work is relieved by numerous field trips to observe missile launchings at NAMTC and aboard the USS Norton Sound. There are also lectures by NAMTC project engineers.

Upon graduation the students are assigned by BUPERS for duty at NAMTC, further training at other activities, or for guided missile duty with the fleet.

Flying Hoods Used in Training



PILOT'S VISIBILITY IS CUT OUT BY PANELS

Latest design for an instrument flying hood comes from NAS ANACOSTIA. It was made for use in the SNB/JRB type aircraft by Ernest D. White, ADC, who serves in the Instrument Training Division.

The three panel arrangement has these advantages:

1. Complete and unrestricted visibility for the safety pilot.
2. Rapid installation or removal of panels.
3. Ease of stowage in the aircraft.
4. Simplicity and low cost of manufacture.
5. These panels can be used in any side-by-side cockpit simply by altering the size and shape of the various panels.

Flight training hoods have long been the subject of experimentation. Back in 1946, the Instrument Flight Instructor's School at Atlanta (NANEWS, July 1946) developed blue-amber curtains for the inside of the cockpit. These were designed to let the instructor see out and keep the student on instruments.

Sometimes hoods have been put on the pilots, rather than on the aircraft. In March 1948, NANEWS described an "eyeshade" device, something like blinders on horses. This was developed by VF-4-A, Quonset Point. It prevented the pilot from seeing anything but the instrument panel.

The same year VMP-354 at Cherry Point developed blind flying goggles (NANEWS, July 1948). There was especially good coverage at the side so that the pilot could not possibly sneak a look at the bright blue yonder.

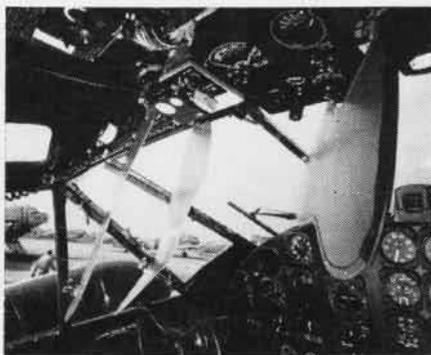
Probably the Marines at NAS ANACOSTIA have developed one of the fanciest instrument hoods. It is a venetian blind or louver type hood for SNB/JRB aircraft (NANEWS, June 1951) made of five pieces: center windshield, front left windshield, hinged ice panel, left triangle panel and a solid hood piece which restricted the pilot's visibility to the right.

The trend in hood designs appears to be away from the blinder type and toward panels which can be easily installed and adjusted.

Synthetic Lubricant Is Made Navy, Air Force, Industry Pool Efforts

Combined efforts of the Navy, Air Force and industry have resulted in the first joint military specification for a synthetic lubricating oil for gas turbine aircraft engines.

After initial research by Naval Re-



PANEL INSTALLATION IN LEFT FRONT COCKPIT

search Laboratory, an aggressive joint development and testing program by BuAer, the Air Force and industry established its suitability. The new oil is applicable to both turbo-jet and turbo-prop engines.

It will withstand operating temperatures from minus 65 to plus 500 degrees Fahrenheit. At the lower temperature it is about one-third as sirupy, or viscous, as the best petroleum-base product; at upper temperatures it is one-twentieth as volatile and will not boil off—musts for lubricants used in gas turbine engines.

The oil is not intended for reciprocating engines. Its high cost and relatively short supply is expected to prevent widespread commercial use.

MATS School at Kelly AFB Air Traffic School Trains AF-Navy Men

The use of giant cargo planes in MATS globe-circling operations has

necessitated standardization of procedures and specialized training for traffic men. The answer to the problem is found in a school at Kelly AFB. It's the nation's only school for training traffic officers, loadmasters, flight stewards and air transportation specialists.

Operated by the 1700th AT Group of Continental Division, AF and Navy personnel are sent to Kelly from bases throughout the U. S. They learn the correct way to load a three-ton aircraft engine aboard a million dollar transport, or save passengers' lives should disaster strike. The school teaches air traffic procedures from two types of commercial airline traffic schools—those for training airline stewards and those operated by airlines specializing in cargo airlift exclusively.

Offers Motel For Holiday Gold Star Mother Makes Others Happy

Here's one mother who doesn't forget that Christmas is the time of year when families should be together. In memory of her son who was killed on Iwo Jima, the owner of a motel in Corona del Mar offered seven of her apartments to visiting relatives of enlisted personnel at MCAS EL TORO during the holidays.

In four of the apartments there was room for a couple with two or three children. The other three accommodated a couple with one child. Each apartment had a kitchen so the families could cook their own meals.

Not content with just assuring families that they could be together during the holidays, she served Christmas breakfast and dinner to the families and provided presents for the children.



TWO HUGE planes, representing the Navy's largest transport types, are shown flying wing over NAS Moffett Field, Calif., in this fine aerial photo. They are the JRM Mars and the R60 Constitution (rear). The lead plane is the 145,000-pound Philippine Mars which flies the Alameda-Hawaii transport run for VR-2. The biggest Mars plane, the Caroline, two years ago carried 263 passengers plus six crewmen from San Diego to Alameda. The Navy has four of these huge Martin flying boats and two of the 180-passenger Lockheed Constitutions, which also are operated by Fleet Logistic Air Wing. The Caroline Mars weighs 165,000 pounds to 184,000 for the Constitution; wing span is 200 feet and 189 respectively.



J-48 MOUNTED UNDER B-29 IS READIED FOR MOUNTING OF AFTERBURNER



T-34 TURBOPROP HAS BEEN FLYING IN NOSE OF B-17 SINCE LAST SUMMER

FLYING TEST BEDS USED

A TIME eating factor in the development of Navy jet engines always has been the necessity of testing those engines on the ground. No ground installation can duplicate the conditions of flight.

Until a new engine actually flies, the manufacturer cannot be sure his product can do the job for which it was designed.

To overcome this difficulty one manufacturer, Pratt and Whitney Aircraft at East Hartford, Conn., has speeded up the process through an innovation—the flying test bed.

Currently playing major roles at P&W are three war-weary Boeing bombers, each powered by four piston engines and fitted with an experimental jet as a fifth engine. These planes are:

- A Boeing B-17 *Flying Fortress* purchased from a war surplus scrap heap in Oklahoma. This B-17 mounts a Navy T-34 turboprop in its elongated nose where formerly a bombardier operated.
- A Boeing B-29 *Superfortress* on loan from the Navy, which calls it the P2B, carries the powerful Navy's J-48 jet engine slung under its bomb bay. The J-48 has a dry rating of 6,250 pounds static thrust which is increased by the use of water injection and the afterburner
- A Boeing B-50 *Superfortress* on loan from the USAF Strategic Air Command. This aircraft is being modified to fly a new and still more powerful P&W jet engine which will be carried in a "pod" nacelle suspended under its belly.

Each of the jet engines being tested can produce more power than all four piston engines in the flying test bed in which it is installed.

According to Wright A. Parkins, P&W engineering manager, the primary function of a flying test bed is "to get a new engine into the air at an early stage in its development in order to dis-

cover and correct its operational weaknesses before production begins."

When a new jet or turboprop engine is installed alone in an aircraft, the element of safety is gone. Even before such an installation, they must be almost foolproof. With the airlift system, however, an engine can be flown at an earlier stage of development. Takeoffs and landings can be made on the piston engines.

In case of difficulties with the experimental engine, it can be shut down and the plane safely returned to home base with its precious cargo of engineering personnel and test data.

This safety factor allows a much wider field of experimentation. The pilots and engineers can "feel out" the extreme range of the engine's operating characteristics. It is also possible to maintain the specific test conditions desired more precisely with the big bombers than in a single-seater fighter.

Eventually, an engine must be tested in a high speed fighter, however. Lacking in the big planes are the elements of maximum stress and maneuverability.

A good example of the time saved by beginning tests in the flying test beds is that of the T-34 turboprop which has been flying in the B-17 since last summer. The T-34 will probably have 18 months of flight testing logged by the time it powers an aircraft on its own. Likewise, the B-50 will carry a newer turbojet many months before it otherwise could fly.

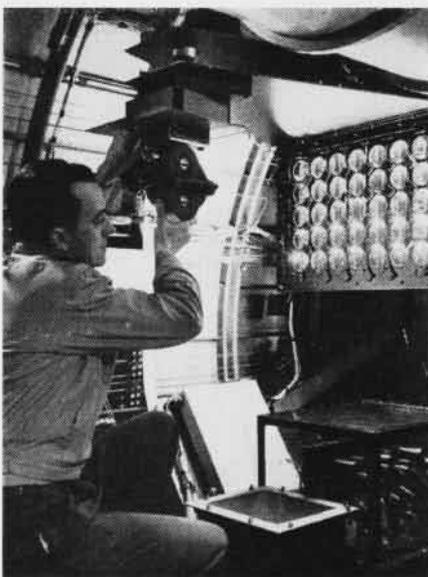
INSTEAD of heavy bomb loads, the flying test beds are now fitted to carry the test engines, special fuel supplies and tons of special test and recording instruments.

Ten additional crew members are carried on all flights: a test engineer to operate the experimental engine from a specially rigged post; a data observer to check the functioning of the elaborate array of instruments.

Many engine problems cannot be adequately simulated on ground test stand facilities. In the air, the "bugs" that inevitably plague any new development can be identified, isolated and eliminated.

The test flights provide data on the cause and cure of engine blow-outs during quick accelerations at high altitudes. With one engine, information was obtained which raised the altitude at which the engine could be relighted from 10,000 to over 30,000 feet.

One cure for engine malfunctioning at high altitudes which has been applied is an improved fuel control system. Another was spark plug and ignition developments which raised the relight altitude. All added together have resulted in better combat performance.



MOVIE CAMERA RECORDS ENGINE TEST READINGS

Electronics Progress on Exhibit

IT'S A LONG way back to 1940 in the field of airborne electronics, and the devices of that year were far from primitive.

In 1940 the first radar used 44 tubes. Four years later, it had 116 tubes; and in 1948 that figure had mushroomed to 861—and it's still going up.

And not only are devices more complicated, there are more of them. The PB4Y-2 of World War II had 174 elec-



CDR. MARSHALL EXPLAINS UNIT TO ADM. DUNCAN

tronic items. The P2V of today has 459 items which represent about 40% of the total cost of the airplane.

These facts were brought home to more than 1,000 civilian and military personnel who studied the exhibit recently set up for one week by the Naval Aviation Electronics Service Unit. Sponsored by the Electronics Division of the Bureau of Aeronautics, it was designed to give those responsible for fleet readiness an opportunity to inspect and become familiar with a substantial number of new post-war aviation electronics items.

Navy Department officials concerned with fiscal matters, supply, production, installation and maintenance of fleet equipment in other specialties had an opportunity for the first time to study and examine many new pieces of electronics gear. Aviation electronics was emphasized.

The increased complexity of electronics equipment was in evidence in every part of the exhibit. For purposes of comparison, the AN/APS-15 airborne search radar of WW II vintage was shown along with the later AN/APS-31 and 33 search radar. The very latest is the AB/APS-21 search radar which could only be mentioned by designation letters.

There were more than 70 equipments on display—electronic missile control sets, special hydrophone units for anti-submarine warfare, and a hush-hush variety of mach pulling guided missiles.

The AN/AGA airborne radio teletype terminal equipment was a peep through a crack in the door of the se-



NAVY SCIENTISTS STUDY NEW FEATURES OF RADAR

curity classification wall around one of the developments. This equipment will provide a continuous watch for a two-way radio circuit. Information received is recorded on tape, and the constant attendance of an operator is not required.

The unit is adaptable to most standard aircraft or ground radio communications sets and is now installed in limited numbers in special aircraft. Flight evaluation is going on at the Naval Air Test Center, Patuxent River, Maryland.

Fueling Mistakes Remedied

With both gasoline and kerosene-type jet fuel being handled on many air stations, there is a potential danger of inadvertently putting the wrong fuel in an aircraft.

One major accident occurred from jet fuel being placed in an R4D.

At NAS QUONSET POINT, R. I., a plane captain put JP3 fuel in a TBM Avenger. Fortunately, the error was caught. Although the trucks were plainly and conspicuously marked, it was felt that something more graphic, more animated was needed.

The Supply Department pooled its collective brains and came up with a brass plate which attaches to the hose nozzle. Along with markings on the trucks and pumping systems



CONSPICUOUS MARKING SHOWS TYPE OF FUEL

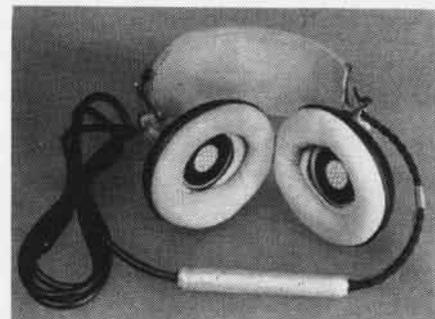
themselves, it is believed the cure should work.

Similar markings are installed indicating 115 octane and 91 octane grades of gasoline.

They Won't Wander Anymore

Plagued with the problem of lost, misplaced and cannibalized headsets on PV, SNB and JRB aircraft, NAS NIAGARA FALLS has finally devised a system for their permanent installation.

The headset and extension cord are secured together by a piece of No. 52 S aluminum tubing with a 9/16 inch inside diameter and crimped at both ends. The other end of the extension cord is clamped to the structure of the aircraft approximately eight inches



HEADSET AND CORD SHOWING ALUMINUM TUBING

near the jackbox, using a Phillipshead screw.

The system has been in operation for a short period and already satisfactory results have been obtained.

Inverter Line Tester Made

Noting the high number of failures of the instrument inverter in the P9F-2B aircraft, the electronic section of VMF-311 designed and built a line maintenance tester. The inverter may be checked on the bench or in the aircraft.

As constructed in the field, the case was made from a bomb fuse box and all instruments and electrical parts were used from stock on hand.

The technician is able to obtain inverter check such as DC output, AC output, phase rotation, cycles per second, and 30-60-90-120 hour aircraft checks of the instrument inverter while still installed in the aircraft. A phase rotation meter similar to power tester (E88-SPE-T100671) is required for the RPM phase rotation and CPS check.

This test equipment should save time and man-hours for aircraft and bench checks can be made at one time. It eliminates the removal of the inverter from the aircraft which was required previously.

Full details may be had by writing Commanding officer, VMF-311, MAG33, FPO, San Francisco, Cal.

● NAAS WHITING FIELD—NavCad Richard Berteau recently completed his primary training in the record time of 65.9 hours, beating the previous low by four hours.

● NARTU SEATTLE—Two pilots from NAS SAN DIEGO lectured Reserve units on fleet fighter squadron tactics. Such visits enable fleet representatives to demonstrate operational equipment, give ground school lectures and discuss collateral duties with their opposites in the Organized Reserve.

'MOBILE MABEL' DELIVERS GOODS EFFICIENTLY



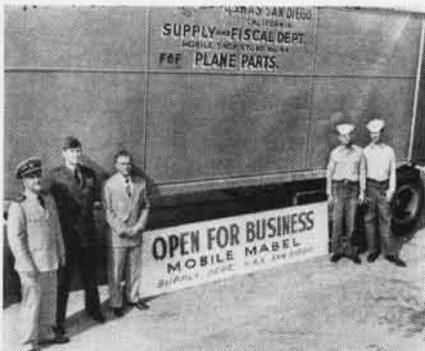
HOLES, AK3, AND TIMMONS, AA, ARE BUSY PUTTING STOCK ON THE SHELVES OF THE TRAILER

MOBILE MABEL hit the road last summer and made an instant success with her "customers." Designed to deliver aircraft parts to squadrons temporarily based at remote operating stations, Mobile Shop Store #44 was commissioned at NAS SAN DIEGO and quickly proved its worth.

It is the spiritual descendant of peddlers who brought goods to families in pioneer areas. Of course, it has a fancy name today—logistic support.

"Mobile Mabel" is the brain child of Capt. C. M. Boundy and his Shop Store Officer, Lt. G. K. Wilcox. They thought the truck up when NAS SAN DIEGO was asked to furnish aeronautical supplies to ten 18-plane F6F reserve squadrons to be based at NAAS EL CENTRO for consecutive training courses of two weeks each throughout the summer.

A 30' x 6' x 6'7" refrigerated van



CAPT. BOUNDY WITH STAFF AND 'MOBILE MABEL'

trailer was made into a shop store. Wooden bins were built along the length of each bulkhead.

Three hundred separate items with a high usage rate were stocked as well as larger parts such as boxed carburetors and cylinder assemblies. Propeller, landing gear struts, surfaces and tires were shipped to El Centro where they were issued from a bulk warehouse. However, aisle space was available in the trailer for ten tires, two landing gear struts, and two cradled tail or flap surfaces. In spite of limited space, "Mobile Mabel" carried a 90-day stock level of a tailored Section "B" allowance.

The mobile shop was towed to El Centro, a distance of 118 miles, parked on the "flight line" and opened for business on the first day of flight operations. Halfway through the training cruise, "Mabel" was brought back to San Diego, restocked completely and returned to El Centro, all within a 72-hour period. During the two-week cruises of the ten reserve squadrons, issues valued to \$13,764 were made in support of 180 F6F aircraft.

Again returned to NAS SAN DIEGO, the mobile shop was then dispatched to the newly activated auxiliary landing field at Ream, Cal., to support a squadron of F6F's. Ten days later, after the Ready Issue Store at Ream was completed and the trailer's stock transferred to it, Mobile Shop Store #44 was returned to NAS SAN DIEGO. It is standing by and can be restocked on a

day's notice to furnish support where needed.

Although no medal will go to "Mobile Mabel," she has more than earned her keep. One Marine Corps officer was particularly interested in adapting a mobile unit of this type for use in Korea where there is use for expediency and versatility in logistics. Perhaps "Mobile Mabel," also known as "Boundy's Bouncing Bins," could be the answer to the need for mobile supply.

Moffett Field Goes to Sea

Many naval air stations are located along bodies of water where deep sea vessels man approach and leave their cargoes at docks.

Newest station to make cheap water transportation available is the naval air station at Moffett Field, Calif.

Located at the extreme southern end of San Francisco bay, the station will be provided access to the bay through a deepwater barge channel and dock on the seaward side of the station. It will serve primarily to carry fuel to the base and to ship aircraft up the bay to NAS ALAMEDA for overhaul and repair.

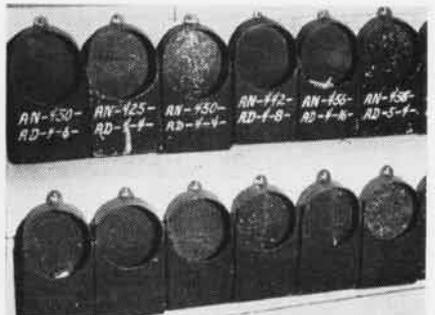
At its terminus the port will have a dock 300 feet long. The channel will be 200 feet wide and 12 feet deep. To complete the channel it will be necessary to dredge 1,300,000 cubic yards of soil.

Trays Save Niagara Rivets

NAS NIAGARA FALLS—T/Sgt. Marvin Wright, USMC, has devised a compact tray for carrying rivets from the metal shop storeroom and keeping them handy to the workbench or aircraft.

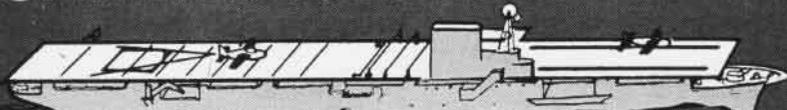
Since rivets are not scattered around loose on the workbench or on the hangar deck when these trays are used, it is estimated that they will save four or five pounds of rivets per year at this station. In addition since the trays are plainly marked with the type of rivet they contain and are made easily accessible, their use is also expected to save many man hours over the period of a year.

The device is manufactured from galvanized sheet metal to the following dimensions: length 6"; width 3"; depth 1"; and diameter of opening 3".

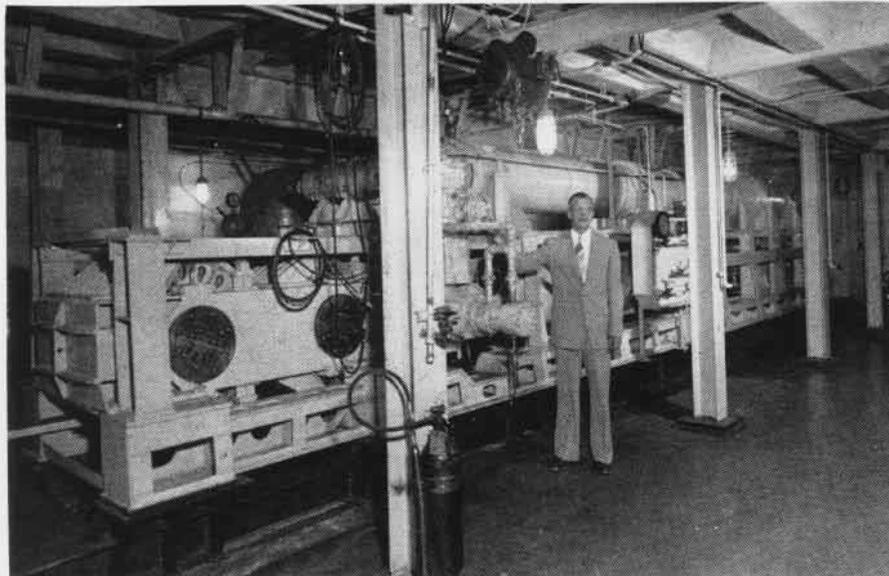


RIVET HOLDER-DISPENSERS ARE READY FOR USE

CARRIER NOTES



BUREAU OF AERONAUTICS—SHIPS INSTALLATIONS DIVISION



MK 7 ARRESTING GEAR BEING EVALUATED AT NAVAL AIR MATERIAL CENTER HAS PLENTY OF POWER

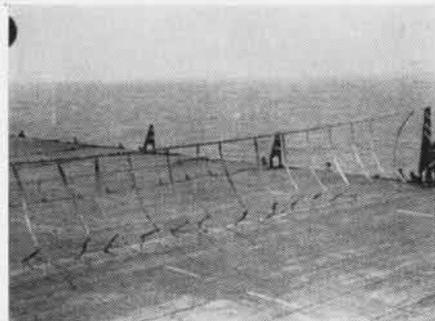
Mark 7 Arresting Gear

Pictured here is the prototype Mk 7 arresting gear engine discussed in the May 1951 issue of NAVAL AVIATION NEWS. It is now being evaluated at the Naval Air Materiel Center for subsequent installation aboard Project 27C conversions and the USS *Forrestal* (CVB-39). This engine, designed and developed by the Center, is capable of absorbing more than three times the total kinetic energy of the Mk 5 arresting gear.

Prior to the initial shipboard installation, which is planned for the USS *Hancock*, two engines will be installed at the Naval Air Test Center, Patuxent River, Md., for carrier suitability tests. This facility will have sufficient capacity to arrest all current and proposed types of naval aircraft and is planned for completion about November 1952.

Barricade Improvements

The picture here shows the experimental barricade installation aboard the USS *Valley*



VALLEY FORGE'S BARRIER FIX BEING IMPROVED

Forge (CV-45) which is also similar to that of the USS *Philippine Sea* (CV-47). Operational evaluation of these two installations and that of the USS *Midway* (CVB-41) has resulted in certain design changes being incorporated as a part of the new installations recently authorized.

Such installations will have an aft folding barricade stanchion which is required to keep the vertical engaging straps taut while the barricade is in the lowered position. Slack creates a hazard to aircraft because of the possible engagement of some part of the aircraft with a nylon loop formed by such slack. The aft folding is accomplished by utilizing extensible anchor straps.

In order to get deck space for this installation, it has been necessary on some classes of ships to replace the last barrier stanchion with the barricade stanchion relocated further forward. Current installations are being made far enough forward so that the stanchion can be readily lengthened in the future when a higher barricade may be required for certain swept wing aircraft. The new barricade stanchion will have provisions for installing regular barriers (either conventional or barrier adapter) if required during any particular operation.

Flight Deck Planking

Reports from the fleet indicate the superiority of laminated teak-Douglas fir deck planking over solid Douglas fir in the landing area of carrier flight decks. The Bureau of Ships, in consideration of the above, has authorized replacement of the Douglas fir planking with laminated teak-Douglas fir in

the landing areas of all wood deck types of carriers.

Seams in the planking of this area are to be caulked with a thiokol base caulking compound, a synthetic material, which in addition will be used in the catapult warm-up area.

Laminated teak-Douglas fir planking installations are now in use on the USS *Oriskany* (CV-34), USS *Essex* (CV-9), USS *Wasp* (CV-18), USS *Bairoko* (CVE-115) and the USS *Siboney* (CVE-112). Further installations will be accomplished in all 27A-class conversions and on other carriers when practicable.

Improved Sheave Bearings

As a result of sheave bearing failures reported by active vessels operating jet type aircraft, a project has been established at Naval Air Materiel Center to develop improved deck and fairlead bearings for Mk 5 arresting gear. It is expected that the improved bearings will be available for installation by 1 January 1953.

As an interim measure, it is recommended that ships operating jet aircraft during carrier qualifications, make every effort to insure that deck and fairlead sheaves are kept lubricated and that lubricant is reaching bearing surfaces at all times. Repeated lubrication of sheave bearings during protracted operations will considerably increase their service life.

A C Technicians Learn F3D-2

A naval air mobile training unit at MCAS EL TORO is introducing students to the intricate mechanisms controlling the high-powered F3D-2 twin-jet fighter. The unit brought with it mockups and cutaways of the systems incorporated in the aircraft. These are used with a comprehensive course in theory.

Included in the curriculum are the electrical panels, hydraulics, fuel and lubrication systems, complete engine outlay, air conditioner, ordnance and landing and arresting gear.

The unit is a field training school with headquarters at NATCC MEMPHIS. The command has some 20 similar organizations around the country demonstrating every type of naval aircraft.



ONE REASON pilots get poor gunner scores can be ordnancemen who use the plane's gunsight as a handle to help get out of the cockpit. NAAS Cabaniss Field's ATU-2 produced the above cartoon to remind the culprits not to be a "gunsight puller" at work

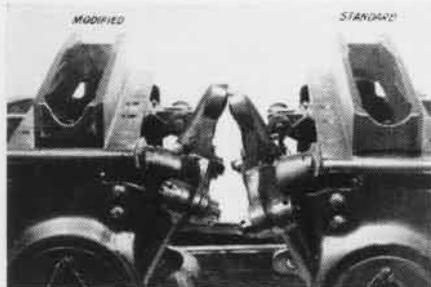


AVIATION ORDNANCE

Field Develops New Devices

Several devices designed by field personnel at Ordnance facilities have improved the performance of the 20mm M3 aircraft cannon. The first device reduces the number of "stubbed" or "telescoped" rounds to a minimum.

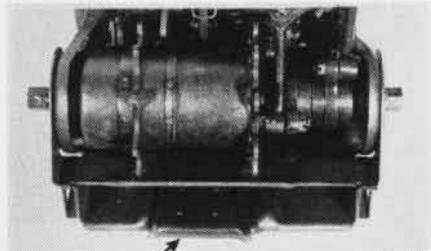
The forward portion of the feeder mouth is cut down by $\frac{3}{8}$ inch, and a 37° angle is machined on the remaining surface. Heretofore it was possible for the nose of the projectile to hit the forward part of the feed



FEEDER MOUTH MODIFICATION CLEARLY SHOWN

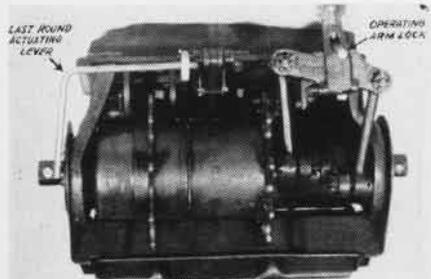
mouth, an action which occasionally resulted in a premature explosion of the HE in the round. Now the modification permits proper camming action of the round for correct chambering under all conditions and eliminates the danger of premature explosions through stubbing.

Another approved modification to the feed



SIMPLE CALIBRATING DEVICE POSITIONS LINKS

mechanism eliminates one of the most troublesome and time-wasting tasks involved in servicing the 20mm gun. In the past, it has been necessary to recalibrate ammunition with a hand belter immediately prior to loading in order to position the links properly. This laborious procedure is eliminated by riveting a simple calibrating device to



MSGT. HUNT DESIGNED, OPERATED THE ARM LOCK

the mouth of the feed.

In addition to easing the load now imposed upon ordnance personnel, this device reduces the number of gun stoppages caused by misaligned links and provides for more reliable gun performance.

An operating arm lock, which was first made by MSgt. Robert L. Hunt, 1st Marine Air Wing, Squadron 513, is now under consideration by the Bureau of Ordnance. This device positively locks the operating arm in place and eliminates the possibility of its jumping out of place during actual firing. It also provides the ordnance men with an easily located unlocking handle when the ordnance man is dependent upon feel alone. It is anticipated that further acceptance tests by BUORD will prove this device worthy of incorporation on all M2 feeders.

Another device under consideration is a cartridge-actuating lever designed by MSgt. Jack A. James, Headquarters Squadron, MAG-33. The actuator allows the ordnance man to drop the last round from the feeder merely by depressing the protruding handle and releasing it. The device not only provides a saving of time and knuckles, but permits a positive releasing action which has great safety value.

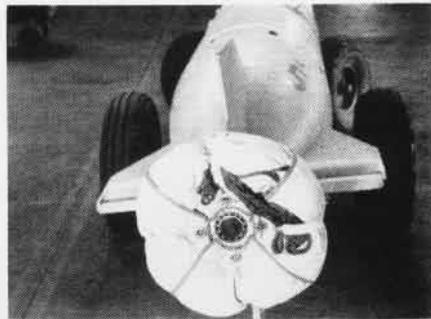
Tail Chutes for Torpedoes

During World War II, stabilization of aircraft launched torpedoes was accomplished by means of plywood accessories, i.e., drag rings and box stabilizers. While these are satisfactory stabilizers, they do not materially reduce the speed of the weapon during its fall. This matter of reduction in water entry speed meant little in the case of the torpedo Mk 13 because of its sturdiness.

Acoustic torpedoes, however, are damaged when launched at the upper speed limits of present day attack type airplanes. To permit attacks at highest aircraft speeds, some device is required to reduce the speed of the torpedo during its fall from the aircraft to a value below that at which damage to the torpedo occurs. The air stabilizer Mk 22 Mod 0 (parachute) has been developed to reduce the torpedo's speed and stabilize it during its fall.

Major Assemblies—The air stabilizer Mk 22 Mod 0 consists of three major assemblies; the parachute Mk 13 Mod 0; the parachute pack Mk 12 Mod 2; the release mechanism Mk 14 Mod 0. The complete stabilizer, shaped like a doughnut, weighs 12 pounds when mounted in place on the aft end of the propeller shaft and extends the overall length of the torpedo by four and three-fourths inches. The diameter of the stabilizer is 15 inches. The stabilizers are shipped in lots of 10 in hermetically sealed containers.

The 60-inch diameter nylon parachute utilized in the stabilizer was specifically developed for this purpose. It is the culmina-



CHUTE REDUCES TORPEDO WATER ENTRY SPEED

tion of the work that the Germans started during World War II on stabilizing parachutes. The design of this type of chute is characterized by fabric surfaces extending inward at an angle of 45° from the edges of the canopy. The guide surface parachute does not oscillate as does the hemispherical (man-carrying) parachute. The steady drag exerted by the guide surface parachute rapidly damps out initial oscillations of the torpedo and maintains the torpedo tangent to its trajectory throughout its flight. The 60-inch diameter for the parachute was selected as best fitted to stabilize and to develop sufficient drag to reduce the water entry speed of the torpedoes to acceptable values.

Pack Protects Parachute—The parachute pack protects the parachute in handling and during flight aboard the aircraft. The 12-foot static line, faked in place on the pack, is intended to be long enough to prevent fouling aircraft and parachute when the torpedo is dropped. The static line should always be taken up taut and never permitted to belly out into the aircraft's slipstream. It remains attached to the aircraft after opening the pack and snatching the chute out into the air stream. A weak link at the end of the static line separated the parachute from the static line. An opening in the parachute pack accommodates the release mechanism which is seated in and fastened to the shroud line ring. The drag of the chute is transmitted through the shroud line ring to the release mechanism.

The release mechanism links the parachute to the torpedo during air flight of the torpedo and releases the parachute and pack when the torpedo enters the water. The release mechanism Mk 14 Mod 0 is mounted on the stud on the end of the propeller shaft. This point of attachment was chosen to avoid interference by the propellers with the shroud lines. The release mechanism is inertia-operated and is so adjusted that it operates only on shock of water entry. A spring insures positive separation of the unit. Since the torpedo propellers may windmill or be driven during the free fall of the torpedo, a ball bearing is provided to prevent the shroud lines from being twisted together in such a way as to prevent the parachute from opening.

In Limited Production—The air stabilizer parachute is now in limited production. Initial distribution will be made to those activities using the mine Mk 24 and torpedo Mk 34. The issuance of this stabilizer does not recall from service use the available plywood drag rings and box type air tails.

LETTERS

SIRS:

Your article "Card Stunts Aboard Carriers" in the October issue must not have been intended as a complete naming of the carriers on which "name spelling" has taken place. You left the *Shangri-La* off the list.

I don't know what date in October, 1945, the *Bunker Hill* returned, but in the 22 October 1945 issue of *Los Angeles Daily News* is a Navy photo of the *Shangri-La* as she entered Long Beach harbor.

In this photo you can plainly see the word *Aloha* spelled out by the men on the flight deck. The *Shangri-La* along with the *Hancock*, was returning from the war, also on a *Magic Carpet* run from Okinawa with a load of Marines and Seabees. I was with VF-2 aboard the *Shangri-La* at the time, and we thought it looked pretty smart.

I also want to express my pleasure on seeing displayed in this issue of the *News* the squadron insignia of our own VF-821.

LEON SEGAL, LT.

AWS-82

NEW ORLEANS, LA.

¶ The *News* printed all the photographs it could find of carriers spelling out words on their flight decks, a la college card stunts. Since then a couple more have come in from the West



SIRS:

Being a four-fan photo pilot, I hate to see my cohorts in jet photography miss a chance for public recognition of their hard and dangerous work. The picture on pg. 10 of the October *NEWS* shows two of VC-61's *Panther* photo jets "circling the fleet that came to stay."

The mission markers aft the two cockpits are, I'll bet, cameras denoting photo hops, rather than close air support missions.

Until January of this year, I was attached to VC-61, flying antiquated PB4Y1 photo planes.

CHARLES H. WELLING, JR., LT. (JG)
USS ADIRONDACK
NAPLES, ITALY



SIRS:

A statement in the November 1951 *NANews* to the effect that FAWTUPAC had accumulated 1000 hours time on an R3350-24-WA engine has warmed the cockles of our heart. We wish to congratulate FAWTUPAC on this splendid achievement.

Within the past four months, Patrol Squadron Three has had three R3350-26-WA engines surpass 1000 hours of operation, one of which reached 1087.7 hours. In addition, we had four engines reach between 930 and

950 hours before the aircraft were transferred to overhaul; and two engines reached 997.5 and 972.6 hours respectively. The latter two engine changes were occasioned by operational commitments.

During the above period, VP-3 had the unique experience of maintaining two planes in the air 24 hours a day, seven days a week for a period of 60 days at an advance base, and participated in Phases II, III, and IV of LANTFLEX 52 for a period of three weeks, two of which the squadron was based in San Juan.

L. E. DECAMP, CDR.
COMMANDING OFFICER



SIRS:

If memory serves me right, I believe that the accident which is pictured in your September, 1951, issue occurred on the good old fighting lady, USS *Yorktown*. I believe if you will look into the files of that old happy home you can find the pilot's name.

M. T. EVANS, CAPT.

NAMTC, PT. MUGU, CALIF.

¶ The *News* has never been able definitely to pin down on what carrier that F6F pulled itself in half on the arresting wire. Letters from readers have said they thought it happened on the old *Princeton* in 1943, the *Belleau Wood* in 1943, the *Essex* in 1945 and the *Hornet* in 1944, so perhaps the Navy had several such accidents. The *News* thanks LCdr. John A. Harper of VF-862; Carl E. Golden, a plank owner on the *Hornet*, and Lt. A. Marn of Boston, for writing in.



SIRS:

In your article on *Radio Drone Planes* in the July 1951 issue, you state that "In November 1937, for example, an early NAF conversion under direct radio control, was demonstrated for the first time at NAS ANACOSTIA, D. C. In December of the same year the first NOLO flight was made at Cape May, N. J."

I assisted with the engineering of radio-controlled aircraft from 1922 to 1926 along with launching devices and arresting gears being tested at those times. I would like to quote from an official report, on radio-controlled aircraft, dated 17 October 1924, signed by Lt. J. J. Ballantine.

"The following report of the successful radio-controlled flight on 15 September 1924 is submitted herewith. Sandbags were loaded into the pilot's compartment, the plane headed into the wind, five minutes allowed for the gyros to come up to speed, on-throttle button was pressed and a 12-minute pilotless flight was made."

Lt. Ballantine, now Commander Air Force, Atlantic Fleet, who was at the control panel during the above flight, made all of the previous test flights and directed all of the project activities. For an excellent description of the flight and the spade work leading up to it, I would like to call attention to an article in the *Naval Institute Proceedings* of July 1946, "A Wild Goose Chase" by Carlos B. Mirick.

C. C. MIDDLEBROOK

NPG, DAHLGREN, VA.

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THE COVER

Two Marine HRS-1 helicopters hover over ground troops in Korea waiting to be flown to front lines to replace battle-weary Marines. More than 2,000 Leathernecks were "rotated" between front lines and rear areas by helicopter.

SUBSCRIPTIONS

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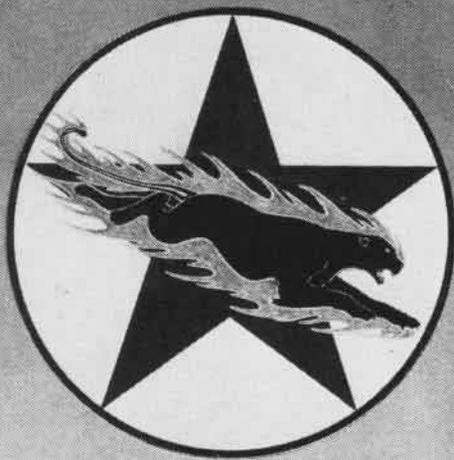
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SQUADRON INSIGNIA

TWO well-known Navy fighter squadrons, both flying *Panther* jets, are featured in this month's insignia. VF-781, a Reserve outfit from Los Alamitos, was one of the first in the Korean war. In the photo above, its *Panthers* fly a perfect V formation while operating off the CV *Bon Homme Richard*. VF-51, below, was the first Navy squadron to get jet fighters, receiving its FJ-1's in November, 1947. VF-51 was the first Navy outfit to fly in combat in Korea, launching strikes against Pyongyang airfields on 3 July 1950, a few days after the North Koreans invaded the South. It flew support at Pusan and Inchon, from the *Valley Forge* and *Essex*.



RESTRICTED



come on in!

Join the gang that reads the Naval Aviation News for information and pleasure. Admirals like the News. J.G.'s like the News. Boots like the News. And you will too. Whether you're a regular or a reservist, you'll like the News because it's written for you. It gives you the latest word in Naval Aviation, describes new equipment, keeps you in touch with other outfits, offering you many a life-saving, time-saving, money-saving technique. Come on in. We'll not give you a wave-off! We'll welcome you like headline news!

NAVAL AVIATION

NEWS

RESTRICTED SECURITY INFORMATION