

NAVAL AVIATION

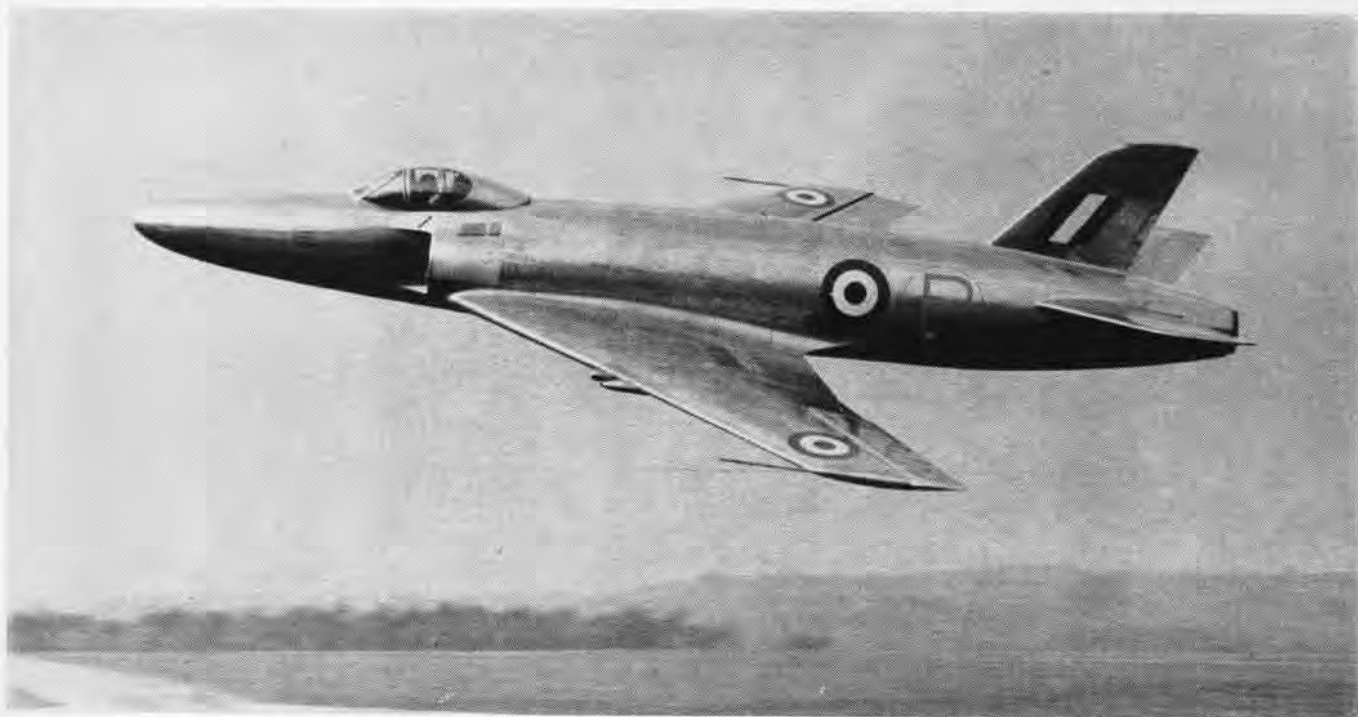
NEWS



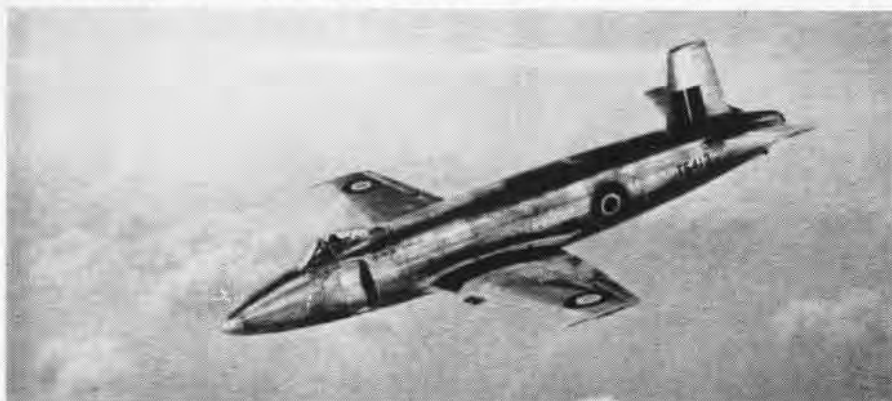
Night Fighters
Air War in Korea
NavAer 00-75-R3

JANUARY 1951





SWEPT WINGS ON NEW BRITISH FIGHTER



★
THE NEWEST British Navy fighter aircraft is illustrated here, the Vickers Supermarine 535, pictured above and below. This swept-wing carrier fighter is a descendant of the Supermarine Attacker (right). The 535's Nene has an afterburner, a longer nose, and metal inserts in cockpit canopy; an ejection seat was fitted. Air intakes of the Nene were increased in depth to provide more air. Note the retractable tail wheel which aids in landing in nose-high attitude. The nose wheel retracts forward. Four wing-mounted 20 mm cannon give this Royal Navy fighter plenty of firepower.





NOCTURNAL NAVIATORS

TAXIING FORWARD to the catapult in the picture above while the ship's rescue helicopter stands by is the Navy's first fully operational jet night fighter, the McDonnell F2H-2N *Banshee*.

It was in October that these high speed interceptors of the dusky hours first operated at night from an aircraft carrier. They chased imaginary "bogeys" in the skies adjacent to the USS *Franklin D. Roosevelt*. These twin-engined planes were flown by pilots of Composite Squadron Four while the ship operated near the Naval Operating Base, Guantanamo Bay, Cuba.

The advent of jet fighters in the postwar period make it inevitable that they would be adapted to after-dark operations. They follow in the steps of veteran *Corsairs* and *Hellcats* which first went aboard aircraft carriers in January 1943. With the *Banshee* proved in both day and night operations, it was the logical choice for the job of policing the night skies. With one of its two engines shut down, it can stay on station for a relatively long period of time. When contact is established, it can go to top speed at a moment's notice because the axial flow turbo-jets are easy to restart.

Another Navy twin-engined night fighter, not yet operational, is the Douglas F3D *Skynight*, which carries a pilot and a radar operator.

For some years the term "hottest pilots" was applied to the specialists in night operations. That appellation has been thrown into discard, however, for the Navy has found that the average graduate of Pensacola and Corpus Christi is completely capable of doing the job of instrument flying required.

After-dark operations make a thorough training program mandatory. When he gets his wings, the embryo night fighter jockey is just beginning a long journey. He'll be in the program for a total of three years. In the next two pages, we will take a short look at his travels through the Fleet All Weather Training Units at Key West, Fla. and Barber's Point, Oahu, to fleet squadrons VC-4 at Atlantic City and VC-3 at San Diego, where he will be qualified, and then go to sea with a fighter unit.

This highly specialized phase of seagoing aviation involves a tremendous amount of teamwork. It not only means getting the planes in the air and keeping them there. Behind every flight is the "brain" of the ship, the Combat Information Center, where the All Weather Air Controller directs his airborne "teammates" like a quarterback whose playing field covers miles of night sky. The no-visibility factor requires the ultimate in precision on board ship and in the air.



WORK DONE, F2H-2N'S ARE SPOTTED FORWARD



WITH OPEN shutter, camera records the approach of F2H-2N onto deck as moonlight illumines clouds and horizon in background.



PLANE CAPTAIN D. S. Golden, AD3, helps Ens. D. K. Smyth into his gear for flight off U.S.S. *Franklin D. Roosevelt* in F2H-2N *Banshee*.



WAITING FOR the word "Pilots man your planes" are Jennings, Smyth, Winter, Hepburn and Spargo who is landing signal officer.

WHEN THE HANDFUL of British fighters early in World War II made the German daytime bombing effort too costly, night raids began. The hard-pressed Englishmen turned to with vigor and perfected night fighter direction. From a chain of coastal radar control stations the defenses of London were directed. It was in those days of 1942-43 that the fundamentals of night fighter tactics were laid down. The *Beaufighters* and *Mosquitos* led the way to U. S. Navy developments. Any night operations today must give credit to the British.

After some trials in the Solomons in 1942 by the Army and Marines to knock down intruders, the first VF(N) squadron was formed at NAS QUONSET POINT, under Cdr. W. J. "Gus" Widhelm. The work of this group led to formation of units composed of *Corsairs* and *Hellcats* which went aboard two carriers in January 1944.

The first "splash" by a ship directed plane came in November of 1943 by, oddly enough, a land-based PV *Ventura* twin-engined bomber. The following spring a *Corsair* splashed another Jap *Betty*. By summer 1944, an entire night group went aboard a carrier, the *Independence*, under the leadership of Cdr. Turner F. Caldwell. Before the end of the war, other night groups and carriers had proved the need for this specialization in relieving day carriers of night alerts.

Without the CIC, night operations would be impossible. The wartime controllers developed seagoing tactics which utilized the basic British principle that a night fighter should be vectored behind an intruder until he was able to pick up the target on his own radar, then come in from below for the kill. This method is still the one used today with variations to suit the type aircraft operated. When today's pilot answers "affirmative" to the query from his ship, "Do you have joy?", it still means he has spotted his quarry.

With a limited number of aircraft carriers available today, a specialized air group and ship is out of the question. Practice is to furnish units to each carrier from a fleet squadron which specializes in this night work. Fighters come from VC-3 for the west coast and VC-4 for the east coast. Other squadrons furnish other types of all weather carrier aircraft.

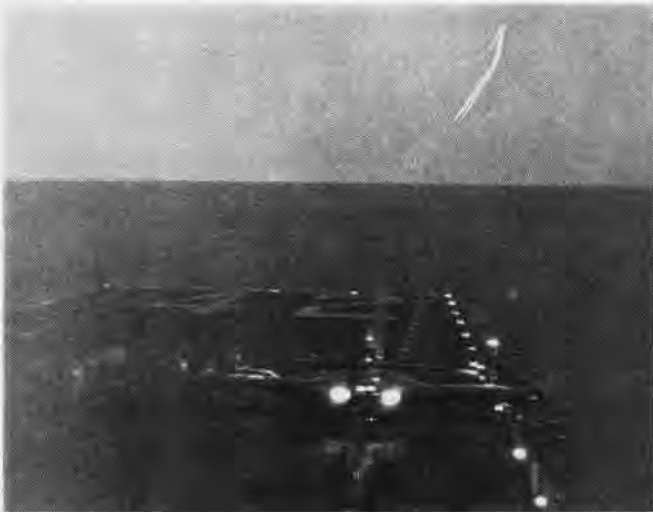
MOST PILOTS go to these squadrons from basic training in night work at the Fleet All Weather Training Unit at NAS KEY WEST, Fla. and NAS BARBER'S POINT, Oahu. Some Reserves, already qualified, go direct to the operational squadrons. Until recently most of the input to FAWTULant and FAWTUPac were pilots on their second tour of fleet duty. Now, however, fresh caught wearers of gold wings go there. This is the trend away from the "hotshot."

It is the lot of these pilots to miss a lot of southern Florida scenery. They have their heads in the cockpit most of the time watching the instruments. In F4U-5N's and F6F-5N's, they take a rigorous course which leads to a white instrument card. Some time is also flown in JRB and SNB *Beechcrafts* to learn instrument procedures.

After becoming familiar with fighter-type instrument panels the pilots go into fighter tactics, including formation work, gunnery and bombing, similar to daylight squadron work. Field carrier landing practice prepares him for carrier flying. From there they go to night operations and get their first smattering of ground controlled flight.

Emphasis is placed on discipline. The boss is the man below who knows who and what is in the air. It's a game of blind man's bluff, with the "eyes" on the surface calling the tune. This is the beginning of a three-year stay in this specialization.

If a pilot is destined for jet aircraft, he gets a checkout course in the Lockheed T-1, the familiar Air Force F-80.



WITH TWO jet engines screaming, Banshee is set for catapulting into moonlight night; light streak was made by first plane off.

On reporting to his operational squadron, the pilot finds that he is far from qualified. He immediately digs into a course designed to make him a member of the teams which furnish night protection to every aircraft carrier.

Typical is the syllabus of VC-4. The squadron operates F4U-5N's and F2H-2N's. The jets are a recent addition.

The entire VF(N) training syllabus includes 80 hours in daylight flying and 55 at night. Both day and night phases are divided into familiarization, navigation, tactics, instruments, gunnery and bombing, and field carrier landing practice. There's plenty of ground school included too.

PILOTS WHO REPORT aboard with a valid white instrument card and prove their proficiency in the first stage have fewer number of periods in the instrument stage.

The day syllabus is standard for carrier squadrons. For night stages, however, the resemblance ends.

Familiarization, for example, not only includes acquaintanceship with the area by sight and radio aids, but mapping the coastline and recognizing inlets and other landmarks by the APS-19 radar now installed in VF(N) planes. Vessels are spotted at sea and other planes are intercepted to complete the stage. From there the real work begins. Interceptions galore, controlled from the ground, are run. Along with the pilots, air controllers are qualified as all weather air controllers. Landing signal officers are also qualified at night, learning the attitude characteristics of the *Banshees* and *Corsairs* from their indicator lights.

Whenever a ship with CIC aboard is available intercept-



FIRST JOB for night fighter unit aboard *Roosevelt* to do was to qualify pilots in day operations; here *Banshee* leaves catapult.



CALLING THE SIGNALS is the "quarterback"—night air controller—who works in the ship's CIC; he is "eyes" for the night pilot.

tions are run off the coast, controlled by any available ship.

Cross country flights at night are made under instrument flight rules. Flights go out regardless of the weather, unless even the seagulls are grounded. In fact, some flights are held for instrument weather to develop. Typical cross countries are from Atlantic City to Quonset and back. Weekend flights can be made to the 1200 mile limit. (What can be better than a trip to Key West in the wintertime?)

Night bombing, gunnery and rocket firing round out the training. Targets in marked danger areas are used.

THE FIRST unit to go aboard with the jet *Banshees* is typical of the groups furnished the carriers. LCdr. R. H. Jennings was assigned the job of getting a group together.

Pilots were Lt. (jg) H. A. Winter, Ens. R. K. Smyth, Ens. W. J. Hepburn. The LSO was Lt. (jg) J. Spargo.

With a small group of men they joined an air group and cruised to Guantanamo aboard the *Roosevelt* for seven weeks shakedown. There they qualified in the night interceptions. This VC-4 unit is like an entire squadron, handling its own administrative work and taking care of its own planes.

These pilots like their *Banshees*. They like the one-engine operation to stay on station, the takeoff power available and the landing characteristics. This unit is now operating in the Mediterranean.

As more F2H-2N's are made available, more units will be equipped with them and eventually they will be joined by F3D's. In the meantime, any intruder who decides to violate the air over an aircraft carrier better watch his hide.



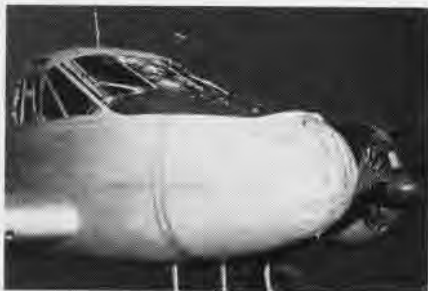
PILOTS LIKE takeoff power available and the landing characteristics of the night *Banshee*; LSO must be qualified for night.

GRAMPAW PETTIBONE

Egg-Size Hailstones


This SNB looks like an irate pilot had just gone after it with a baseball bat. Actually the damage occurred during a cross country flight in the All Weather Flight School syllabus.

The syllabus, however, didn't call for weather quite as unusual as that actually encountered. The instructor and two students were on a routine instrument



flight from Dallas to Denver, when they found a thunderstorm extending across their flight path near Clayton, New Mexico. They attempted to go around the thunderstorm and changed course 30 degrees to the left. After holding this heading for a few minutes, they spotted a light spor and started through at 10,000 feet. Immediately after entering the clouds an up draft lifted the SNB to 12,000 feet, although a level flight attitude was maintained. At this altitude light hailstones were encountered. Within a few seconds these increased in size, and the windshield began to give way under the impact of hailstones about the size of hen's eggs.

The pilots made a descending left turn and emerged in the clear about one minute later. The SNB appeared flight worthy and after another radio check on the weather the flight continued to Denver.

 *Grampaw Pettibone Says:*

This sort of thing shouldn't happen to a fellow even if he is in the All Weather Flight School.

The accident board checked the hourly weather sequences relative to this flight and their review showed that the pilot was justified in attempting to penetrate the lighter part of the thunderstorm activity. It is interesting to note that their examination of the fabric covered control surfaces showed no outwardly apparent damage from the large hailstones. However, the nose section, both wings, and all of its stabilizers will require replacement.



"THE BARBER!"

Dear Grampaw Pettibone,

I'm afraid that I have set some sort of record for getting in trouble with jets. In my work at the Grumman factory I have tried to be careful, but the fates seem to be against me.

About two months ago I was working behind the rail pipe of a jet that was turning up and burnt off almost all the hair on my head.

The hair failed to grow again and so I was fitted for a wig before returning to work.

On my first day back I got too close to the intake of an F9F and my wig was sucked into the engine.

Name withheld by request.



Grampaw Pettibone Says:

Brother, you've had it.

Maybe you ought to get into some other line of work.

P. S. I'll bet your wig didn't do the inside of that engine any good.

Famous Last Words

The pilot submitted a flight clearance form at the operating desk at NAS GLENVIEW. During the course of his weather briefing, he said:

"You aren't going to make me go all the way around the lake just to avoid a little fog are you?"

The answer was, "Yes," and the aerologist took the additional precaution of writing on the clearance, "Overland Flight—Around Lake Shore."

Apparently the pilot attempted a slight short cut.

Several small pleasure boats proceeding out from Michigan City in a dense fog heard the impact of a crash. They proceeded to the scene, but found only scattered pieces of debris, where the TBM had hit the water. The bodies of the pilot and his two passengers had not been recovered at the latest report.

Dismal Swamp Bail Out

A flight of five F9F's was proceeding from NAS QUONSET POINT to NAS JACKSONVILLE, when the flight leader had a flame out at 37,500 ft. This occurred shortly after he had increased power from 93 to 96% to take the flight above a high overcast. Portions of the flight leader's statement are quoted below:

I immediately called my flight, as follows: "Allegheny Flight, this is 117 Allegheny. I have a 'flame-out'. I am on a heading of 200 degrees and will continue to hold this course." I made this transmission twice and then turned off my battery switch. I later learned that no one on the flight heard this transmission. As soon as my "flame-out" occurred, the other four planes overran me and immediately lost me in the overcast.

While I was making my May Day report to the flight, I turned off the high pressure fuel cock switch. After my last transmission I turned off the battery switch, shut off my radio, pulled the inverter circuit breaker and also turned off the master fuel switch. As I was letting down, I carefully reviewed the air-start procedure. My indicated air-speed to 21,000 feet was 180 knots.

During the descent most of my instruments were inoperative, except: the airspeed indicator, altimeter, rate of climb indicator, turn and bank indicator, and tachometer. During the descent, the tachometer indicated 30 to 35%. The canopy was completely frozen over. At 20,000 feet I slowed the aircraft to 150 knots in anticipation of making an airstart at 16,000 feet. At 16,000 feet indicating 130 knots, the tachometer read about 15%. Although I knew the proper starting RPM is 5-7% I did attempt an airstart.

At 12,000 feet I attempted another air-start. This time I was indicating between 110 to 115 knots. The RPM hovered between 10 and 12%. Both attempts were unsuccessful. At 10,000 feet I slowed the aircraft to 105 knots hoping to get the RPM within the air-start range. As I did so, I stalled, and apparently went into a graveyard spiral. The last air-speed indication before whipping into a stall was 50 knots.

USES EJECTION SEAT

At approximately 9000 feet, I hit the pre-ejection lever. The canopy opened only three inches. Extreme difficulty was encountered in attempting to reach the emergency canopy lever. The canopy was thrown off immediately upon actuation of the emergency lever. It was 1625 when I left the plane. No difficulty was encountered in actuating the ejection seat curtain.



I estimate that I bailed out at approximately 8000 feet and would guess that my air-speed was in the neighborhood of 400 knots. The seat tumbled 4 or 5 times. When the drogue chute finally stabilized the seat, I found myself hanging in a head-down position. I unbuckled my safety belt, fell clear of the seat, counted five and then pulled the rip cord. Sometime between the moment I left the aircraft and before I pulled the rip cord, my buffet helmet and oxygen mask were torn off.

The 28-foot chute canopy provided a smooth slow descent with very little oscillation. The canopy caught in two pine trees just as my feet hit the ground. I landed about 3 miles to the N.W. of Alligator lake.

After I discovered I had nothing worse than a few scratches and bruises, I decided to head for a cabin that I had spotted. After removing the rain cape, water kit, signalling mirror, and flares from the pararaft, I decided to abandon my parachute. I did not believe that I would be found within the Dismal Swamp.

The entire area where I landed is swamp land. Heavy briars and bushes make travelling next to impossible. Within two or three hours after I left the chute I realized that I was lost, and decided to head for Alligator lake to the south. It took about five hours to travel two or three miles to the lake.

I estimate that I came out of the overcast at 5000 feet. The ceiling lowered during the afternoon and it began to rain. Heavy showers fell between 1800 and 0600 the following morning. That night I slept on swamp timber on the edge of Alligator lake. The rain cape helped to keep me dry and kept away some of the many mosquitoes.

The next morning I decided to skirt the lake in hopes that I might find a house or at least better shelter. The going was extremely difficult. To the east, small bushes and briars made the area almost impassable. Therefore I kept going in a west S.W. direction. The sky remained cloudy until about 1000. The few aircraft that did fly over were in the overcast, so I had no means of signalling to them.

Alligator lake is quite wide so that I was unable to distinguish objects on the other side with any degree of clarity. However, I thought I could make out two small houses, and decided to continue on around the lake in hopes of finding shelter and food that night. I spent some time flashing the signalling mirror across the lake, but received no answer.

RESCUE PLANES SIGHT CHUTE

An F4U approached from the S.W. about 1030. Suddenly he dived down and made passes over an area where I presumed my parachute must have been. I again resorted to the signalling mirror, but the pilot was apparently too intent on looking over the area around the parachute.

Soon another Corsair approached



and flew almost directly overhead. He too failed to see my frantic signalling and the pink lining of the rain cape which I stretched over a bush. I started a small fire just before another F4U joined the other two. He quickly spotted the smoke from the fire and the rain cape which I was wearing. The other Corsairs flew overhead and soon another Marine division of Corsairs joined the group. One of them dropped a message or food, but it landed too far out in the water for me to reach.

A Coast Guard helicopter picked me up, then attempted to retrieve the parachute, but could not do so because of the terrain. At Elizabeth City, I visited the dispensary where the cuts on my ears (injured when my helmet was torn off) were attended to by a corpsman. Later I was transferred to Quonset Point aboard an Air Force B-17.

I would like to offer these suggestions as a result of this experience:

1. In difficult terrain, never leave your parachute. It offers your best chance to be spotted from the air. Do the best you can to keep a fire going. Have all signalling devices ready for immediate use; then rest and conserve your energy.

2. When operating in areas similar to the eastern part of North Carolina, carry some type of insect repellent. You can sleep regardless of the weather but you cannot rest when attacked by swarms of mosquitoes.

3. Always carry a knife. An adequate sleeping bag, bandages, etc., can be cut from your parachute.



4. Always carry a compass. Nothing is more discouraging than to walk for miles through swampland, and not know for certain whether or not you are making definite progress in one direction.

5. Some type of first aid kit should be provided with the life raft equipment.



Grampaw Pettibone Says:

There are a number of lessons to be learned from this chap's experience. First, it seems probable that he was not getting an accurate airspeed reading during his power-off glide. When he cut his battery switch to conserve power for an air-start he cut off his pitot heat.

Inasmuch as he reports that the windshield was frosted over, it is likely that he was picking up ice in his pitot tube and getting an erroneous airspeed indication. This would account for the high RPM indication on his tachometer, and would explain his inability to accomplish a successful air start. It may also explain why his airspeed indicator showed only 50 knots just before he went into a spin.

A fully-charged battery in an F9F should provide plenty of power for 20 minutes of operation with the engine off.

The pilot's remarks about staying near his parachute are extremely well taken. Many a pilot owes his life to the fact that he stayed close to a chute or to the aircraft wreckage which is much easier to spot from the air than an individual.

In a situation of this sort, your best bet is to spread your chute out so that it covers as large an area as possible and then start collecting wood to keep a signal fire going.

Some changes in the design of the anti-buffet helmet are being made which will allow the oxygen mask to remain in place even though the hard portion of the helmet is blown or knocked off. This will be accomplished by having the mask attached to an inner helmet similar to the aviator's flight helmet issued for summer wear.



ELY POSES BESIDE HIS CURTISS BEFORE TAKEOFF FROM PENNSYLVANIA: NOTE LIFE PRESERVER

FIRST LANDING ON A SHIP

JANUARY 18 is a red letter day in naval aviation, being the 40th anniversary of the first aircraft landing aboard a ship.

On that date back in 1911, Eugene Ely landed his Curtiss biplane aboard the battleship *Pennsylvania* anchored in San Francisco bay. An hour later he took off from the same improvised plank platform and flew back to Tanforan airfield.

Ely, holder of aviation's license #17, had made the first flight from a ship when he took off the cruiser *Birmingham* in Hampton Roads on 14 November 1910. The nation got around to recognizing his pioneer aviation efforts by awarding him the DFC in 1933.

Ely modified his Curtis biplane so he could land aboard the *Pennsylvania* by installing four hooks on the landing gear. Hooks can be seen near his feet in the accompanying photo. These hooks caught sandbags attached to cables across the "flight deck". In case the plane went into the water, cans were installed under each wing to give buoyancy. Ely wore a bicycle inner tube wrapped around himself for a life preserver and had on a football helmet.

Twenty-two pairs of sandbags, each filled with 50 pounds of sand, were strung down the 119' landing platform, the forward end being five feet higher than the after. Two-by-fours were laid lengthwise to guide the plane. Canvas was stretched on both sides of the platform to catch Ely in case he was thrown out of the plane.

Ely brought his 1,000-pound plane down on the deck at 40 mph. He missed the first 11 lines but caught the next 11, stopping within 30 feet with 50

feet to spare. When he took off to return to shore his plane went off the end of the "flight deck" and dipped to within 10 feet of the water before it "took hold" and flew back to San Francisco.

Two Minute Rescue in 'Med' Helicopter Picks Up Coral Sea's Pilot

VF-173, ATLANTIC—Quick rescues by helicopters are becoming the rule with the fleet. When Lt. (jg) John J. Sigafos had a complete engine failure while taking off the *Coral Sea* in the Mediterranean, he was rescued in two minutes.

The engine quit when he was 200' up. He jettisoned his belly tank and ordnance and made a water landing. The fuselage broke in two parts at the cockpit, enabling the pilot to release his safety belt and step directly into the water. The pinwheel had him out before he hardly got wet.

Attention, Naval Aviation Officers!

If you are a naval aviation officer (Code 1300), Regular or Reserve, on active duty, you are requested to forward immediately to the office of the Chief of Naval Operations (Att: Op-54), Navy Department, Washington 25, D. C., one 2½" by 3½" photograph of yourself. The picture will be attached to your Officer's Data Card. Please write your name and file number on the back of the photograph.

Gas Saving Measures Taken Corsairs Eat More Gas Than The Jets

VF-174, ATLANTIC—This squadron has started a gas-usage checkup to determine why its old workhorses, the *Corsairs*, have been eating up so much fuel the jets can give them a run for their money in endurance.

On a couple of occasions, *Corsairs* returned to the ship so low on gas that immediate landing was required, disrupting the recovery sequence and loading the communications circuits.

Fuel conservation on long flights has become a major target. Reasons are being sought why some planes would have sufficient gasoline while others in the same flight ran short. Corrective action was taken on gas-eating planes and pilots.

Gasoline consumption by pilots and planes was tabulated under various loadings and maneuvers so that consistent tendencies to consume gas at above-average rates could be discovered. As a preliminary measure toward fuel economy, all aircraft were checked for correct carburetion and all pilots briefed on fuel economy methods.

GCA BOX SCORE

October Approaches	13,080
October IFR Approaches	694
Grand Total Approaches	423,880
Grand Total IFR	18,236



HAPPY TO BE home after a tour of duty in the Korean theater, crewmen of the carrier *Boxer* line the rail and spell out the name of their ship as it pulls up to the dock at NAS Alameda. Like the carrier *Leyte* on our cover, the *Boxer* is helping revive a lost art which hasn't been used much in recent years. We want to see the *Valley Forge* try it next.

AND THERE I WAS



Plumb Worn Out

WHEN THE USS *Leyte* first joined forces with the USS *Valley Forge* in the war zone one of the first visual messages exchanged was as follows:

FROM: USS VALLEY FORGE CV-45
ACTION: USS LEYTE CV-32
INFO: COMCARDIV 3 /-1 CTF 77

THEY BUILT ME LIKE THE ONE HOSS SHAY X
TO RUN UNTIL THAT FATEFUL DAY X
BUT MONTHS LIKE THIS IS DEVILS PAY X
I AM NOT THE SAME AS I WAS IN MAY X

NOW MY ENGINES GROAN AT THIRTY TWO X
MY CATS DON'T PULT LIKE THEY USED
TO DO X
MY WIND IS GONE AND MY TRIM'S ASKEW X
I AM ALL WORN OUT JUST LIKE MY CREW X

I LOVE YOU LEYTE I SURELY DO X
YOU'RE MEANT FOR ME AND I FOR YOU X
MY HOPES ARE HIGH THAT YOU'RE IN
VIEW X
MAY VALLEY FORGE NOW SAY ADIEU? X

A later message:
FROM: USS BOXER CV-21
TO: USS VALLEY FORGE CV-45
JUST THROW A WRENCH INTO YOUR
GEARS X
THEN YOU'LL BE HOME MIDST LOTS OF
CHEERS X

Star-ry Eyed Navigator

THIS COULD have turned out to be a new flying saucer story if an experi-



enced pilot were not along to check out a junior navigator.

One of VP-1's planes took off on a routine navigation check for a new squadron member. All went well on this night nav hop until first signs of dawn appeared in the eastern sky.

The novice was scanning the heavens for the last time in the hope of obtaining one more celestial fix before the heavens became too light when off to the northeast there appeared a bright point of light.

The navigator knew that he couldn't be so close to shore for that to be a beacon and yet it seemed to remain in a semi-stationary position. Thoughts going through his mind ran from a jet aircraft to a flying saucer.

In desperation he requested the pilot to look toward the bright object. There was a flaming red face in the navigation compartment when the pilot informed him that the morning star was exceptionally bright.

There's a somewhat wiser navigator in the crew now.

A Wildcat Runs Wild

It happened at North Island in 1944. An engineering officer was giving one of his fighters a four-hour engine run-in so that it could be hoisted aboard when the carrier shoved off for the war zone next day.

The crew worked until it was nearly dark installing the engine. It was well into the shank of the evening, to turn a phrase, when the pilot finished his four hours of circling and set the FM-2 down on the strip.

It was a long landing run, a *Wildcat* not



being too reliable for alighting even in daylight. The pilot taxied away from the end of the strip in the general direction of the docks, expecting a jeep to meet him.

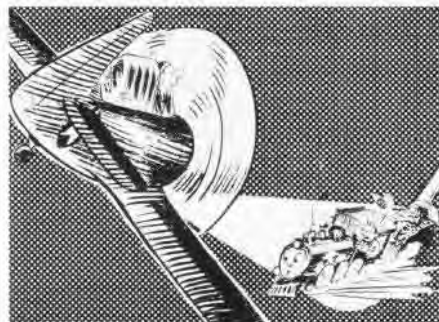
However, he got confused in the blacked-out vastness of North Island and ended up trundling down a road.

A car carrying several officers' wives headed for the O club approached from the opposite direction (also lost). They saw the apparition straddling the white line, and screeched to a halt off the road.

The pilot braked slightly as he passed the car, long enough to cast a withering glance at the female faces peering out of the windows.

"Women drivers!" he shouted; then taxied off into the darkness.

LT. BOB REILLY
WARNER BROTHERS PICTURES
BURBANK, CALIF.



Casey Didn't Whistle

A WARTIME Naval Aviator who later made a name for himself as a racing pilot was noted for his screwball antics while he instructed at NAAS KINGSVILLE, Tex.

One night, after shepherding safely home three students he had been chasing cross country in SNJ's, he noticed that a passenger train had just headed south from Kingsville. It had reached its speed and was chugging bumpily along the single track.

Ahead several miles was a gentle curve. He flew beyond the curve some distance, turned and dropped down to about 15 feet above the track and slowed to 90 mph.

As he approached the curve, he switched on one landing light and rounded the bend. The next morning the train was still standing there with flat wheels broken and frozen brake shoes.

Fresh Out of Ammo

THIS STORY is sworn to by an officer who now toils at NATTU PENSACOLA. In the South Pacific during the early part of the war, a photographer's mate of a plane crew flying photo missions over a Jap-held airfield of Kahili on Bougainville decided that photo planes should not only take pictures but should drop some damage on the enemy.

Before the take-off he would go to the beach and gather a bucket of fist-sized rocks and load them alongside the cameras. As the plane passed over the enemy field he would switch on the electrically-driven cameras and turn his attention to dumping the rocks.

Sometime later Tokyo Rose was heard to announce on the radio: "The Americans are now out of bombs and are dropping rocks on the Kahili airfield."





CARRIER PHILIPPINES SEA'S RESCUE HELICOPTER STANDS BY WHILE PLANES STRIKE KOREA

cockpit with every other wave, the squadron evacuated its planes to Buckner Bay, Okinawa.

The squadron flew its designated day and night patrols in the immediate vicinity of the typhoon without cancellation, despite high winds and periods of zero visibility. As the typhoon blew itself out, the planes returned to the tender.

We Close the Vise

Naval aviation helped trap thousands of North Korean troops during the wipe-up operations between Seoul and Taejon. The Reds, caught between the giant vise of the Eighth Army shoving north and the Tenth Army, had managed to hold open a gap, one mile in width, through which their troops were escaping the onrushing United Nations forces.

Under direction of an army tactical air coordinator, LCDr. D. K. English, skipper of VF-54, led a flight consisting of Lt. C. R. Jennings, Lt. (jg) W. A.

NAVY AIR POWER IN KOREA

Landing the Hard Way

Pilots know the AD is a rugged airplane and another proof of that comes from VA-65 over in Korea. On 17 September, Ens. R. R. Sanders received a small arms shell in the oil system of his AD-4 and lost all oil pressure. He began climbing for altitude. The engine failed at 3,000 feet about 5 miles southeast of Seoul.

Terrain was rugged, the only flat places being rice paddies, definitely taboo for forced landings. Sanders decided to try to land on a dirt road. Dropping his nose, he opened the dive brakes and aimed for a point short of his desired landing spot. Banking his plane, he lined up with the road.

Suddenly a tree loomed up ahead. With still plenty of air speed, Sanders could have pulled up over it but felt he would miss the road, which turned off to the right. He decided to go through the tree at a point where the trunk was a foot thick.

The plane struck the tree at the wing root and went right on through. The plane touched the ground at 135 knots.

The lower dive brake hit first, forcing the nose down onto the ground before shearing off. The plane skidded for 100 feet, nosed up to 45° and dropped back down.

As Sanders got out of the plane and walked off, he could still hear the radio transmissions blaring in the cockpit.

Business as Usual

Fighting the enemy is not the only worry for squadrons based in the Far East area. VP-46 reports some rugged flying experiences coping with typhoon Ossia.

Trying to stay on station as long as possible, its PBM's continued to operate against 45-knot winds and swells five to seven feet high. As it was impossible to bring a boat alongside the *Mariners* in the rough water, planes were taxied into a slight lee aft of their tender, the USS *Suisun*. Crews boarded the aircraft by dropping into the pitching cockpit from a fantail refueling boom.

Heavy passenger loads necessitated by long patrols and lack of JATO made takeoffs increasingly difficult. On 2 October, green water breaking over the

Bryant, and Ens. J. B. Godfrey, E. B. Hale and J. B. Parse in a series of coordinated attacks on a strategically located T-34 tank, enemy troops and mortar positions defending that "last mile".

Under the furious onslaught of the diving *Corsairs*, firing their 20 mm cannon, 5" rockets and dropping 500-lb bombs, the enemy tank and mortar positions were wiped out and the pincers closed, trapping thousands of Reds.

Mariners Blast Mines

Assigned to fly reconnaissance missions over Inchon harbor looking for floating mines, PBM's assigned to the seaplane tender *Gardiners Bay* thought they had an ineffectual assignment. And then somebody sighted one.

Within three days, three were sighted and destroyed. Later another *Mariner* sighted two more and exploded them, followed by various other sightings. All this acted like a tonic on the squadron. *Mariners* operating from the USS *Curtis* destroyed 38 mines up to 8 November. (See photo, pg. 10.)

Besides shooting up mines, the *Gardiners Bay* seaplanes did many other odd



AIRCREW MECHANICS BACK OFF VACUUM ON PHILIPPINE SEA'S PINWHEEL



BOMB-LOADED SKYRAIDERS POISED ON PHILIPPINE SEA DECK OFF KOREA

jobs, such as transporting 7,000 pounds of much-needed blood plasma and medical supplies from Yokosuka to the hospital ship *Consolation* at Inchon.

In mid-October the ship established a seadrome at another Korean port amidst a lot of local native curiosity—it was the first U. S. naval vessel to enter the harbor, a principal base for the Korean Navy.

At invitation of Capt. F. G. Raysbrook, 300 Korean midshipmen and naval ratings inspected the ship. In groups of 10, they were given a real "Cook's tour". In return they gave the ship's crew a showing of native Korean dances.

Bags First Enemy Jet

USS PHILIPPINE SEA—First Navy pilot to shoot down a Russian-type jet aircraft is LCDr. W. T. (Tom) Amen, skipper of VF-111, who bagged himself a new swept-wing MIG-15 jet on 9 November over North Korea.

Amen and his mates were flying cover

for *Skyraiders* and *Corsairs* which were knocking out the important rail and highway bridge over the Yalu river at Sinuiji. Six or more MIG-15's, newest and fastest Soviet jet patterned after the F-86 *Sabre*, attacked the prop-driven planes and the *Panthers* of VF-111 screamed in to protect them.

The fight raged from just above ground level to 18,000 feet in the air. Turning inside of a tight loop on the rail of a Red jet fighter, Amen closed the gap and opened fire, knocking down the enemy plane. The other Reds fled north across the Manchurian border. All of the U. S. planes returned from the successful assault on the bridges.

"I was coming head on at one of them and he didn't even try to get in a shot," Amen reported after the fight. "When I got on his tail he tried to evade but he wasn't very sharp."

Before joining VF-111, Amen was head of the section of DCNO (Air) in Washington, D. C. which publishes NAVAL

AVIATION NEWS.

Amen missed by one day being the first U. S. pilot to down an enemy jet plane, an Air Force F-80 pilot shooting one down near Sinuiji on 8 November, in a battle featuring four F-80's and four Soviet-type planes.

Target Shortage

Marine fighter squadrons beat up the Korean opposition's transportation so thoroughly in some areas that the pilots were hard up for targets.

In 11 days they knocked out three locomotives, 49 boxcars, 44 trucks, 27 smaller motor vehicles and 80 animal-drawn vehicles, their official communique said.

As the enemy motor power was depleted by air attacks, ox-drawn carts became "fair game" targets.

"I dived on three ox carts one day that looked perfectly innocent," Capt. Ernest A. Buford related. "But when my tracers hit them, it looked as though the whole hillside had exploded."

DECK CREWMEN ON PHILIPPINE SEA READ MAIL



LCDR. AMEN, FIRST NAVY PILOT TO BAG JET



TENDER CURTISS HOISTS FAW-6 PBM ABOARD





NORTH KOREAN SNOWSTORM FAILS TO HALT NAPALM-LOADED CORSAIR



CHOGEL, RAU, WHITNEY, REPCIK REARM 20 MM. CANNON ON PANTHER

Cold Reception

Hiding in tall wet grass near his downed fighter plane in deep North Korean territory while patrols of Reds searched for him was the unpleasant experience of Capt. Wilbur D. Wilcox.

Wilcox and another Marine, Major Charles McClain, had flown in during the day to give aerial cover to a downed Air Force pilot north of Pyongyang. They stayed too long and ran out of gas. McClain landed inside friendly lines but Wilcox landed in a dry river bed behind the Red lines.

As soon as he landed, he climbed out of *Corsair* and hid in tall grass 200 yards away. Soon 10 Communist soldiers appeared, piled tree branches over his plane to hide it from search planes, then fanned out to find Wilcox.

After dark, unable to find him, the Communists huddled up to spend the cold night. They left the next morning and Wilcox signaled to villagers carrying South Korean flags. Two planes flew overhead, one piloted by McClain. Wilcox set off some smoke flares and used

TENDER CURTISS' PBM SANK 38 RED MINES

his pistol to hold off the Koreans until one of them said: "Say, American soldier, I want to talk to you."

It turned out the man had lived in Los Angeles years ago. He refused a gift of Wilcox's wristwatch, but brought him some boiled water, chestnuts and three apples. Overhead, McClain pointed out his buddy's position to a Marine helicopter which came down and rescued him after 26 hours in enemy territory. Pilot of the pinwheel was Lt. Lloyd J. Englehardt.

Saved by the Bang-Dang

Two Marine pilots today are thanking their luck stars all Marine fliers are carrier-qualified. If they hadn't been, Capt. Irving J. Barney and T/Sgt. Charles L. Radford would have had to ditch in the snow-swept peaks of North Korea or the icy Sea of Japan.

Heading back to their field after hitting Reds near Apungsan the two ran into heavy weather among 6,000-foot peaks. Radford's gyros were out and his pitot tube frozen. He had two hung rockets that wouldn't shake off.

HELICOPTER HOISTS VADM. JOY UP FROM DD

The pair let down through the clouds until they sighted the *Badoeng Strait*. Emergency alarm brought Marine pilots aboard to the flight deck to taxi the planes forward so the two could land before their gas gave out.

With only one minute's gas left, Capt. Barney landed aboard after Radford had to take a waveoff. Coming in a second time, Radford ran out of gas before he landed, but he made it by catching one of the last wires and nicking one barrier with his prop. It was his first carrier landing accident in 120 tries.

Part Night Owl

Marine pilot Lt. Herb Groff has more aerial combat hours after sundown than he has compiled during daylight.

A former Missouri highway patrolman, Gross has been with a Marine night fighter outfit at Wonsan, Korea, after his St. Louis Reserve outfit was called up for duty.

He has made a dozen night flights since arriving in the Korean theater, bagging about 60 enemy troops and a couple of enemy supply trucks. He flew

KOREA SNOW HAMPER'S COWL WORK BY MECH



all-night air cover to a unit of Leatherneck ground troops surrounded at Kojo, helping them escape to safety. Groff flew night fighters in the Marshalls, Carolines and Okinawa campaigns, getting in 100 hours in the latter fight alone.

Two Sitting Ducks

Something like the guy who paints a room and finds himself marooned in one corner with no door to get out, two Marines in the First Marine Air Wing in Korea fixed themselves up in a tight spot.

Their fighter squadron's headquarters building had a shrapnel hole in the roof, so Capt. Frank Presley and Lt. Don Houge climbed through the hole to the roof. They did a fine job of patching the hole, but when the time came to get down they found there wasn't a ladder high enough to reach their perch.

Not only that, but they were fine targets for snipers who still picked off targets in the area. LCol. J. Frank Cole, the squadron commander, solved the problem. He ordered a helicopter from the nearby airstrip to take off and "air lift" the pair from their marooned spot on the rooftop, amid cheers from on-lookers.

Quick-Change to Death

North Korean Communists often have escaped pursuing United Nations forces by dressing in white clothing of refugees. But several companies made the fatal mistake of trying their quick-change act before the sharp eyes of a Marine forward air controller, who called in *Corsairs* to kill the Koreans.

Pilots of the Death Rattler and Black Sheep squadrons poured fire into the village of Yongdun Po, a Seoul suburb, until the Communist troops had to evacuate. Slipping into scrubby river bottoms near the airport they began changing their uniforms for the white garb of the Korean peasant.

They were spotted by a radio-equipped Marine ground unit. Nearby *Corsairs* from the *Badoeng Strait* were advised of the switch. Minutes later the carrier-based fighters blasted the Koreans with 20 mm cannon. U. S. troops moved into the area unopposed.



NAVY SKYRAIDER PULLS OUT OF DIVE AFTER PLANTING 2000-LB. BOMB ON A YALU BRIDGE

No Merger Trouble Here

The Marines and Air Force teamed up to knock out a Korean tank in near darkness not far from Wonsan, Korea.

Marine *Corsairs* under Maj. Daniel H. Davis went out in the evening to attack Yangdock and hit a tank ambushing advancing ROK troops. Failing light made the tank hard to spot.

An Air Force aerial spotter plane led the *Corsairs* over the clump of trees which partially concealed the tank. Four of them gave it the rocket treatment and three others dropped napalm.

As a final gesture the Air Force *Grasshopper* dropped its spare gas tank beside the tank and the Marine set it afire with machine gun tracers.

Back to Work Again

Nine MATS Navy pilots who served as navigators for Air Force crews flying the Korean airlift have gone back to their old jobs again with commendations from an air base official at Haneda, Japan.

Navy pilots who stepped into the breach were Lts. Bergon F. Brokaw, Herbert C. Francisco, Robert C. Olive, Clayton A. Paulding, Edward R. Roberts, Ben R. Tate, Jr.; Lt. (jg) William Dunseath, Jr., Ens. James E. Corbett and Robert C. Thompson. They were from VR-6, Westover AFB, Mass.

Quick Switch

A Marine sergeant, W. P. Scott, radio technician stationed at Wonsan, Korea, airfield, got orders to return home and be discharged from the Marine Corps, something unusual for that war area.

Before his Minneapolis Marine Air Reserve squadron was mobilized in August he had applied for an Air Force commission. It came through while he was fighting in Korea.

Pass the Ammunition

Chaplains do not carry guns in wartime but LCdr. George W. Cummins, a Navy chaplain with the First Marine Aircraft Wing at Wonsan, did not want to rile international relations so he kept one given him by a Korean.

He was in a party looking for several hundred bodies left by retreating Korean Reds, political prisoners who had been massacred by them. In attempting to explain to a ROK captain what they were seeking, the chaplain held up his hands as if holding a machine gun and made vocal noises of rapid fire.

The Korean captain ran back to the command post, came back with a Red "burp gun" and pressed it into the hands of the bewildered chaplain. The jeepload of searchers drove off with the chaplain still clutching his prize and wondering what to do next.

BRITISH SUNDERLAND SEAPLANES ACTIVE WITH U. S. FORCES IN KOREA



FLIGHT DECK TAXI SIGNALMAN DIRECTS CORSAIR ENROUTE TO KOREA





WINNER OF the National Aeronautic Association's 1950 award for leadership in air youth education is Lt. John H. Burton. His work is planning and carrying out the model airplane program of the Navy. Pictured with him here is Dick, aviation enthusiast son of Lt. W. B. Stannard.

Viking Sets Altitude Mark Rocket Soars 107 Miles in Ionosphere

A new altitude record for American-built single-stage rockets was set on 21 November when a Navy *Viking* rocket soared 107 miles up from White Sands Proving Grounds, New Mexico.

When its liquid oxygen and ethyl alcohol fuel supply gave out, the 50-foot research rocket was going more than a mile a second. It was the fifth of 10 *Viking* rockets being built by Glenn L. Martin Co., to be launched.

The previous record holder was the fourth *Viking* fired from the deck of the USS *Norton Sound* in mid-Pacific on 11 May. This went up 106 miles.

By telemetering, data on the density and nature of the ionosphere, which lies

far above the stratosphere, was sent back to the earth. Such data have a bearing on the propagation of radio waves and will benefit radio communications. In addition, atmospheric pressures were measured up to the peak altitude of the rocket and solar X-radiations were measured by various techniques, including photography.

The *Viking* is the largest American-built rocket for upper air research. It can carry a maximum payload of 1500 pounds, although *Viking* #5 carried less than 700 pounds. Its engine develops 20,000 lbs. thrust for over a minute.

A German V-2 rocket fired in 1946 reached 114 miles, while a two-stage missile, a combination of the German V-2 and the Army's small *WAC Corporal*, went up 250 miles in 1949.

Planes Aid Barrow Supply Alaska Ice Survey Tells of Conditions

VP-2, ALASKA—Planes from this patrol squadron furnished ice reconnaissance and navigational guidance to ships of BAREX-50, the Point Barrow Resupply Expedition which has to operate fast when ice opens up in July and August.

Two P2V's and two PBV-6A's from NAS KODIAK were assigned the job, operating from the Air Force base at Ladd Field, Fairbanks. Ice recon was needed to facilitate a safe and speedy passage through the huge ice flows along the Alaskan north coast. To expedite flow information from air to

ship, an aviator was assigned to the ship involved and Cdr. John Backland was assigned TAD with VP-2.



ENS. MCCUE GREET'S MRS. COOPER ON ARRIVAL

Becomes 'Ace' in 6 Months Helicopter Pilot on Midway is Busy

U.S.S. MIDWAY—The Navy's newest "ace" is Frederick W. Hudson, ACC, aviation pilot, who recently pulled his fifth pilot from the water, using his trusty helicopter UR-49.

Hudson has piloted windmills for only six months. His five rescues in that short period is believed to be an Atlantic Fleet record.

His most dramatic rescue, performed during the *Midway's* Mediterranean cruise, saw him picking up a pilot from a burning ditched fighter plane. The pilot, flying from the *Leyte*, suffered second degree burns. Capt. Frederick N. Kivette, commanding officer of the *Midway*, commended Hudson before the carrier's 3,000-plus personnel.

Airborne Baby Arrives Here VR-6's Flying Doc Greet's War Bride

VR-6, WESTOVER—This is the sequel to the baby-born-in-mid-Atlantic article aboard a MATS plane which appeared in December NAVAL AVIATION NEWS.

Mrs. Irene Cooper, a German war bride married to a former Air Force sergeant, gave birth to a baby boy aboard the R5D when it was 8,000 feet up over the Atlantic an hour and a half out of England. The plane turned back and landed her at Burtonwood.

As the picture shows, Mrs. Cooper has, after three weeks delay, arrived in the United States aboard a MATS plane. She was greeted by Ens. W. W. McCue, the navigator, who assisted in the baby's delivery. Boy-child Cooper is registered as an American citizen, but due to his arrival off the English coast and his return to Burtonwood, he will have the right of choosing English citizenship at the age of 21 if he so desires. His pop is a civilian working at Indianapolis.



HOW ABOUT A little recognition not involving aircraft? Recognize the three men seated in this car? Left to right, Pres. Harry S. Truman, Admiral Arthur W. Radford, Commander-In-Chief, Pacific, and Ingram M. Stainback, Governor of the territory of Hawaii, as they left MATS headquarters at Hickam AFB for Admiral Radford's headquarters at Pearl Harbor. The occasion was the President's trip to the Pacific to confer with Gen. Douglas MacArthur.



POSITION OF BODY AND BULKINESS OF FLIGHT CLOTHING WILL AFFECT PILOT'S RATE OF FALL

HOW FAST DO YOU FALL?

NAVY PILOTS flying *Banshees* and *Panthers* at 40,000 feet know two things:

1. If they have to bail out in the sub-zero temperature at that altitude, they probably will freeze to death on the way down via parachute.

2. If they don't freeze to death, they will die from lack of oxygen if they don't have their mask and auxiliary bottle along.

One of the preventive steps a pilot can take if he is unable to ride his plane to safer altitudes is to free fall as far as possible before opening his parachute. The opening shock is far less at lower altitudes, and there is less danger from anoxia or freezing.

A falling body's terminal velocity can vary all the way from 125 to 250 mph according to the position of the body and the clothing the person has on.

To find out more facts about this situation, Bureau of Medicine and Surgery had Lt. A. L. Hall, MC, conduct a survey at NATC PATUXENT on profile areas of airmen as a factor in free fall descent. It was desired to find out how much effect his clothing and bodily position had on how fast he would fall.

Three men were used as models for the investigation, one of them weighing 118 pounds, the second 163 and the third 204 pounds. Photographs were taken of their "profiles" from various positions wearing various combinations of flight clothing—summer gear, electrically-heated suits and bulky winter flight

clothing. They wore parachutes and Mae Wests.

The study checked them in standing position, arms folded, arms and legs spread, stooping, squatting and in sitting position. A total of 490 photographs were taken of each of the first two subjects and 250 of the heavier man.

The average areas of the three men were found to be 4.79 square feet for the smallest man, 4.97 for the medium and 5.7 for the largest. This area influ-

ences the wind resistance his body would make during free fall, slowing the rate of descent.

Since free fall depends in part on the profile area of the jumper, the following general conclusions about the three men were found:

1. The maximum profile area which can be achieved by a jumper, regardless of the type of suit or pack worn, will occur with arms and legs outstretched and the body prone or within 30° of prone with respect to the relative wind. Rolling of the body within one of these combinations will not have a significant influence.

2. The minimum profile area which can be achieved by a jumper regardless of type or suit or parachute worn, will occur in a feet first, arms folded, and legs together attitude of fall. The next most rapid falls are achieved with the body in a stooping or sitting position and the longitudinal axis of the body not deviating more than 30° from the vertical path of fall. Rolling of the body has little effect.

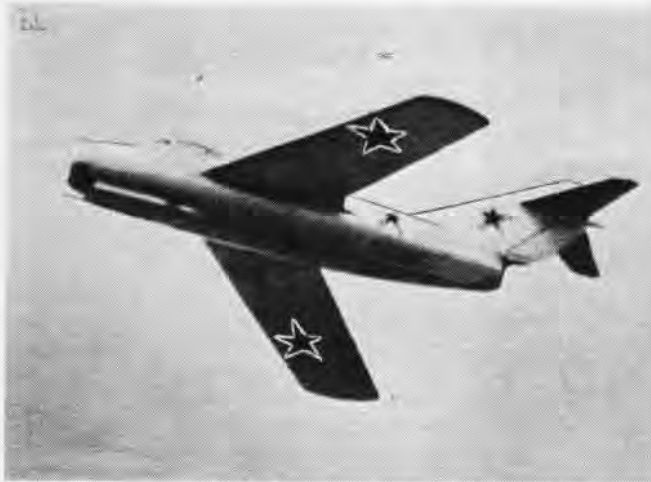
The type of suit worn was found to have a significant effect on the profile area, indicating that a pilot with winter flying suit would fall slower than one in lighter, less wind-resisting, gear. All differences due to body tilt were found to be highly significant.

Having their pictures taken so many times during the course of the experiment must have been grueling work, because the three men lost between 1.03 and 9.07 pounds during the period.

• VR-31—What with a war to help, this squadron and VR-32 turned in a big month of ferrying aircraft during August. They ferried 765 new and used planes from helicopters to new jets. Each pilot averaged 4.6 aircraft on ferry flights averaging 1500 miles.



FIGHTING A WAR leaves little time for building snowmen, so flight deck crews of the CVE Badoeng Strait "turn to" on the ice and snow-covered flight deck after an icy storm swept out of Manchuria and hit this ship operating off Korea. Soon after this photo was taken Corsairs flown by Marine pilots were taking off to continue their attacks on Korea.



MIG-15

First Jet to oppose another as this swept-wing Soviet-built plane over northern Korea



F-86

Compare lines of U. S.'s first swept-wing jet, holder of world speed record, with the MIG-15

Swept-Wing MIG-15 in Korea

DIVING and dodging across the Yalu river, Soviet-made MIG-15's since the first of November have plagued Navy dive bombers and Air Force B-29's with their hit and run tactics. Enjoying immunity from nearby Manchuria, the Communist jets take off and land within sight of our aircraft.

Attempting to knock out vital rail and highway bridges over the Yalu river, United Nations aircraft to avoid violating the international boundary must carry out their bombing runs along a straight and narrow corridor. This is the only course, irrespective of wind direction, anti-aircraft fire or enemy fighters, for across the river lies Chinese Communist soil.

Flying cover for these bombers are the Navy's carrier-based F9F jet and F4U prop fighters and the air force's Korean based F-80 jet and F-51 prop fighters. In spite of the Communist's elusive Yo-Yo tactics designed to draw our aircraft into Manchuria, United Nations fighters have been engaged in combat by some of the sweptback wing fighters. The ensuing encounters resulted in a number of MIG-15's being destroyed before they could retreat North to their sanctuary. First Navy pilot to bag a MIG-15 was LCdr. W. T. Amen, skipper of VF-111 (see pg. 9). The day before an F-80 pilot shot down a MIG in the first aerial combat between jets in history.

counts for the derivation of the designation MIG, while the number 15 represents the series number of the aircraft. Odd numbers are generally applied to fighters or fighter trainers.

The leader of the team is A. I. Mikoyan, a Russian-Armenian who carries the rank of Major General in Soviet Engineering Service. A slight setback was experienced by Mikoyan during the early stages of World War II, owing to the unsatisfactory performance of the MIG-1 and MIG-3 prop fighters. As punishment he was removed from his position and assigned to a streetcar garage in Moscow where he continued his work. At the end of the war, he gathered and exploited German jet-propelled data

FOR THE first time in the history of aerial warfare jet pilots in Korea are fighting enemy jet-propelled aircraft. Since pilots close at terrific flying speeds, these engagement often last no longer than a few seconds. During the last stages of World War II prop and jet aircraft tangled over battle-torn Germany, but never jet against jet.

In the air encounters south of the Yalu river, interesting information has been gleaned concerning the enemy's Soviet-built MIG-15. It is worth considering at this time, with what information is at hand, just what the MIG-15 is, who designed it, where it came from and how it compares with other U. S. jet aircraft.

First publicly displayed over Moscow in the July 1948 Air Show, the swept-wing MIG-15 jet was seen in considerable numbers the following year in the Soviet May Day parade. The design of this aircraft is attributed to the engineering team Mikoyan and Gurevich. A contraction of these two names ac-



MIG-15 HAS MID-WING, DROOPY TAIL SURFACE



F-86 SABER IS LOW-WING, SQUARE WING TIPS

and came up with the MIG-9, his first successful jet fighter. This interim design, straight wing aircraft placed him once again in the good graces of the Soviet hierarchy.

M. I. Gurevich, number two man of the team, is a Lieutenant General in the Soviet Engineering Service. He enjoys the same good and bad fortune that befalls his boss. In 1947, 1948 and 1949 the duo received Stalin awards for their efforts in the field of aircraft design.

THE MIG-15 is described as having a single centrifugal-flow type turbojet engine installed in the after half of its fuselage. It is known that the Soviets have exploited both German and British turbojet engines. Shortly after World War II, some British *Nenes* and *Derwents* were sold to the U.S.S.R.

Air intake for the jet unit is located in the nose while the exhaust is in the tail end of the fuselage. Narrow wings, horizontal and vertical tail surfaces—all have pronounced sweepback and squared tips. The angle of sweepback in the wings, around 35°, is approximately the same as that of the *F-86 Saber*. When airborne and viewed from certain angles, the sweptback wings of these fighters appear to have negative dihedral. In general layout, the MIG-15 resembles the *F-86*, America's first jet fighter designed with sweptback wings and tail surfaces. The wings of the MIG-15, however, are mid-mounted on the fuselage while the *Saber* has low mounted wings.

Still another difference is the MIG-15's high mounted horizontal stabilizer on its broad fin and rudder. This compared to the *F-86*'s smaller fin and rudder, and stabilizer with dihedral presents a marked recognition feature.

A further comparison would include the low mid-wing *F-84 Thunderjet*. The experimental *F-84F*, a sweptback wing



F-80 SHOT DOWN A MIG DAY BEFORE THE NAVY

and tail version, is even more similar in appearance to the MIG-15 than the *F-86*. A tricycle landing gear is standard equipment on the MIG-15 and the U. S. jet fighters.

A bubble-type canopy with a good range of vision encloses the pilot well forward on the fuselage in a similar position to that of the *F-86*. Downward vision is provided in both aircraft just forward of the wing root's leading edge fairing.

Armament of the new MIG fighter is located in the under side of the nose. Photographs have revealed as many as three guns in the nose position.

Soviet fighters with few exceptions are small. Comparison of the MIG-15's estimated 33-foot wing span with the *F-86*'s span of 37 feet or the *F9F*'s span of 35 feet reveals the Soviet plane to be definitely smaller.

SPEEDS estimated at more than 520 knots in dives have been reported by U. N. pilots who have engaged the MIG-15 in combat. What the actual maximum straight and level speed of the Communist fighter is remains to be determined, for speeds in erratic maneuvers are not conclusive. On the other

hand it is known that the *F-86*, which weighs around 17,000 pounds loaded was designed for speeds in excess of 580 knots.

As a matter of record, in September 1948, a standard *F-86A* complete with armament and normal combat equipment established a new world's speed record of 671 m.p.h. (approx. 584 knots). Earlier, a prototype of the *Saber* fitted with an Allison J-35 turbojet engine exceeded the speed of sound in a dive.

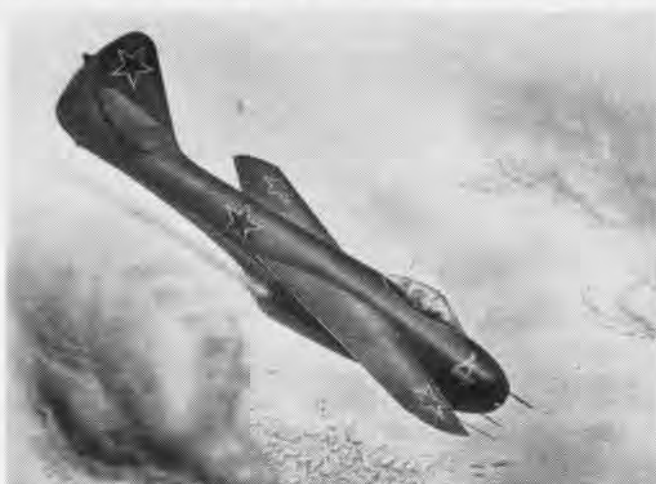
In general, this comparison of simi-



FIRST NAVY PILOT TO BAG MIG FLEW AN F9F

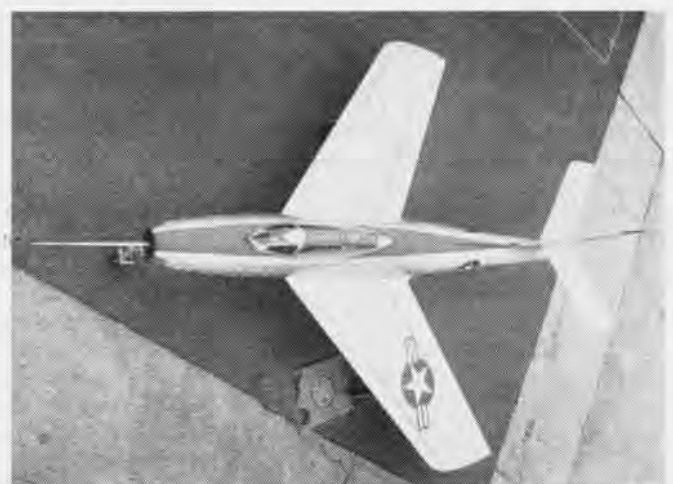
larly configured aircraft serves merely as a point of departure. How well the MIG-15 will prove itself and what the caliber of the Communist pilot will be in future aerial engagements are factors to be decided. We know from recent encounters that the modern designed Soviet fighter has not revealed any startling capabilities nor has it been at all successful against the older designed straight winged *F9F* and *F-80* jet fighters.

Since none of the MIG-15's has been shot down over United Nation's territory in early days of the war, nationality of the pilots flying from their Manchurian bases has not been determined as yet.



MIG-9

Earlier Soviet jet built by same team of designers, has not been reported in action yet



F-84F

Swept-wing version of *Thunderjet* resembles MIG-15 in many respects, may be heavier plane

AIR VET REJOINS NAVY

HE HAD been a squadron leader in the RAF and a colonel in the Bolivian Air Force, he had learned flying at Pensacola when today's vice admirals were ensigns. With five hash marks and an aviation boatswain mate first class insignia on his sleeve, Ralph Westley Ritchie recently came out of retirement to answer the Navy's call for men during the present emergency.

Enlisting in 1914, Ritchie served on the *Minnesota* and *Nebraska* during World War I. He fought in the All-Navy boxing championships in 1921, graduated from photo school and then went to flight training in Pensacola in 1923.

At that time VAdm. C. P. Mason, present mayor of Pensacola, was a lieutenant junior grade doing flight instructing. When he graduated he joined vs-1,



BACK IN HARNESS AGAIN, RITCHIE AT GLENVIEW

flying F5L's with the seaplane tender U.S.S. *Wright*. RAdm. A. K. Doyle, present chief of Naval Air Reserve Training, was a jg. with the squadron. Ritchie was a flight instructor at Annapolis and at Pensacola in 1926, then served aboard the *Lexington*, leaving the Navy in 1929.

His experiences then became even more varied. He piloted passenger planes up and down the East Coast and eventually along air routes between Miami, Havana, San Salvador and Honduras. He flew for the Bolivian Air Force in 1932 as a colonel, as well as for mining companies in South America in planes ranging from the Sikorsky s-38 to the Curtiss F6. In 1941 he joined the Royal Air Force by seeing the British consul in Panama. He flew *Spitfires*, *Hurricanes*, *Blenheims* and wound up with a photo recon squadron in Africa.

When the U. S. entered the war, Ritchie went to the London headquar-



RITCHIE DURING WAR AS RAF SQUADRON HEAD

ters of the Navy in his squadron leader's uniform and joined up as a boatswain's mate first. He was assigned as a bodyguard for VAdm. Allan C. Kirk on Eisenhower's staff in Paris.

After the war he served at naval air stations at San Diego, Pensacola, Kaneohe and Memphis, retiring in 1948. He was ordered back on active duty on 20 September and went to NAS GLENVIEW for duty. Nobody can say Ritchie's career has been uneventful!

Boatswains Get New School Catapult, Arresting Techniques Taught

NATTU PHILADELPHIA—What was a big concrete hangar six weeks ago is today a new home for the Aviation Boatswain's Mate school, complete with classrooms, offices and shops.

To aid in realistic training of AB's, the school provides a partial flight deck with an actual Mk 4 and Mk 5 arresting gear unit, complete with cross deck pendants and barriers. Adjacent to this is an H-2 and H-4 catapult installation, complete in all respects. With this the student learns nomenclature, operating procedure and maintenance practices required for shipboard catapults. Here AB trainees can acquaint themselves with the uses of both hand and power tools.

Nearby stands an imposing structure, the aircraft carrier gasoline and inert gas system mockup, which is an operational model built to scale and complete with pumps, valves, tanks and engines. Here the trainee can carry out the many operations involving the carrier's gasoline system.

Then there are beaching and launching operations, using a PBY, as well as

handling small boats around the seaplane on the Delaware river.

Tailhook planes are not neglected. Painted on a blacktop surface is a flight deck layout where such operations as bringing them out of the gear, respotting the deck, making deck load launches, spotting and directing are simulated, using live models.

VF-14 Pilots Smash Marks Gunnery Records Fall in Competition

NAS JACKSONVILLE—Pilots and ordnance crew members of VF-14 recently shared the limelight as the squadron set new records for this area in bombing and rocket competition.

Of the 18 pilots participating, seven earned the coveted Navy "E" and one of them, Lt. Dale W. Fisher, set a new record for this area in rockets. Fisher scored four consecutive bullseyes in four attempts on a raked target.

Excelling both in rockets and bombs, Ens. Berkley W. Hall qualified for two Navy "E's". He has yet to fire his gunnery runs, and if he can notch another "E" he will be one of the very few naval pilots who achieve excellence in the three phases of the competition.

When it came to bombing, Ens. Donald M. Hegrat turned in an outstanding score when he dropped six bombs, scoring three direct hits for an overall pattern average of only 18 1/3 feet.

Both Lt. (jg) Emmet Brown and Ens. Richard S. Kapp rated outstanding in rockets to win their Navy "E's" and Ens. Charles P. Moore and Ens. Randy Moore rounded out the high-scoring seven with similar bombing marks.

The efficiency of the ordnance crew was demonstrated as the pilots fired 72



SEVEN PILOTS FROM VF-14 WHO WON THEIR E'S

rockets and dropped 108 bombs during the competitive firing without a dud or misfire. In addition, the ordnance crew supplied a near-record total of 1186 bombs and 1048 rockets during the five days preceding the official firing.

In the accompanying photo are Hall, Hegrat, Kapp, Randy Moore, Charles P. Moore, Brown and Fisher.

• NAS WHIDDEY ISLAND—Canadian pilots of the RCAF will use GCA facilities here to check out in instrument approach training.



WHAT TO DO? PANTHER LIES IN FIELD OFF RUNWAY OF OAKES FIELD



FUSELAGE IN WOODEN FRAME IS INCHED FROM FLAT BED TRUCK TO R4Q

F9F Flown from Boondocks Jet Ran out of Gas Short of Runway

As Ens. Guy T. Thrower of VF-61 dropped into the landing pattern around the battle carrier *Franklin D. Roosevelt*, he flipped the switch to lower the tail hook of his F9F Panther jet fighter. Nothing happened.

After a few tries he made known his plight to flight control. Some quick slip stick calculations showed that the Panther could make it to Nassau, New Providence Island, Bahamas.

On the way, Thrower encountered several buildups and had to skirt them, eating up precious fuel. Soon Oakes Field at Nassau was in sight, and he lowered his gear and flaps. Suddenly the engine died—out of gas. With nothing but boondocks leading to the runway ahead of him, Thrower pulled up the gear and slid to a stop on his belly, 500 yards short of the field.

Soon the wheels of diplomacy were grinding away and a message assigned the salvage job to NAS JACKSONVILLE. ChMach. H. E. Smalling, LCdr. A. W. Elliott and a salvage crew were flown to Nassau. After a lot of head scratching, some primitive hoisting equipment was rounded up and the plane taken from its brush-growing-on-coral resting place.

Then came the problem of getting the plane back to Uncle Sugar.

Smalling and Lt. J. F. Todd flew to MCAS CHERRY POINT. By dint of much measuring, they determined that an F9F fuselage could fit into the spacious hold of an R4Q Fairchild packet. An R4Q was dispatched to Nassau from VMR-252.

There the empennage and wings were removed from the Panther. A wooden frame was constructed to fit the R4Q's cargo space. With a chain fall, the fuselage was hoisted into the frame at a 42° angle which permitted it to be contained completely within the cargo space.

The fuselage in one plane and the odds and ends in another plane were flown to NAS NORFOLK for overhaul.

First Admiral Flies Over Pole

WHEN THE 375th Reconnaissance Squadron based at Eielson AFB, Alaska, made its 375th flight over the North Pole November 12, honorary plane commander was RAdm. C. A. F. Sprague, Com., Alaska Sea Frontier.

Admiral Sprague is the first naval officer of his rank to make such a flight. Adm. Richard Byrd was a lieutenant commander when he made his historic flight over the North Pole in 1927.

On his return from the flight, Adm. Sprague said it was the greatest thrill he had experienced since he became a naval aviator in 1920. He was surprised to see open water, through breaks in the overcast, about 90 miles north of Point Barrow. He then saw drift ice, followed by the ice cap which appeared to be 100 to 150 feet high.

The Air Force B-29, *Lonesome Polecat*, flew at 18,300 feet. The smooth flight was made in completely clear air but the turn around the pole was made in total darkness. During the flight, Adm. Sprague wore several layers of clothing, including an electrically-heated flight suit to plug in when necessary.

His flight over the pole was more trouble free than the 26-mile auto trip from Ladd Field to Eielson the following morning. The Air Force car in which he was riding ran off the highway in a blinding blizzard and got stuck in a snowdrift.

A passing station wagon picked him up, but suffered the same fate a few miles down the road. A pickup truck finally delivered the Admiral to the Eielson base theater where the 375th squadron presented him with a special *Pole Vault* certificate. Attending the formal ceremonies were Thomas K. Finletter, Secretary of the Air Force; Asst. Army Secretary Earl D. Johnson, Col. Bernt Balchen, famous Arctic expert, and other service notables.



ADM. SPRAGUE ATTENDS NORTH POLE BRIEFING

Fighter Pilot is Railroader Marine Builds Models in Spare Time

U.S.S. SICILY—Railroading aboard an aircraft carrier sounds strange, but Maj. W. Lundin, exec of the *Blacksheep Marine* fighter squadron, finds time for a little hobby work even in Korea.

Maj. Lundin acquired his model railroad hobby in 1947 when he was on recruiting duty in Chicago. He had to alibi away his lateness for work caused by poor railroad service so often he built a working model to explain it.

He has 30 cars and three locomotives at present, but his ultimate goal is a complete room layout with 1,000 feet of track and everything automatic, a far cry from his tabletop layout at present. Two other members of his squadron are also railroad enthusiasts.



LUNDIN DISPLAYS TRAIN MODEL IN BUNKROOM

TOP GIANT-KILLERS



HERE ARE SOME OF PILOTS WHO BROUGHT GLORY AND SUCCESS TO ANTI-SUBMARINE CAMPAIGN

TIME: a September day in 1942; place: Iceland; *dramatis personae*: VP-84; opening action: North Atlantic patrols—so might a scenarist put down the first stage directions for the drama of the battle of the North Atlantic in which as one of the greatest squadrons of the Navy, VP-84 was to play a leading role in vanquishing the Nazi U-boat raids on Allied shipping.

The prelude to action had included the commissioning of VP-84 October 1, 1941, the gathering of planes and equipment, the months of training, the tragic loss of two planes and crews—including the commanding officer, LCdr. James Morris, USN—eastbound over the Rockies, the anti-submarine patrols from Argentina during the summer of '42, and the order to Reykjavik to relieve VP-73. All the training and early patrol experience were to pay off in success as VP-84, ready and alert under the command of LCdr. J. J. Underhill, USN, threw its strength into anti-submarine warfare.

The winter of 1942-43 was said to be one of the worst in Iceland in 30 years, a claim that will be spiritedly affirmed by any member of the squadron who stood the long patrols in snow, fog, wind and darkness. In midwinter, there were only four hours of weak daylight available each day.

To prevent duplication of effort, U. S. naval aircraft came under the operational control of the RAF Coastal Command. VP-84, with an average of 11 aircraft in commission, consistently maintained one-third of the air effort from Iceland, with two RAF squadrons of *Hudsons* and *Liberators* maintaining

the other two-thirds.

In addition to the operational flying done by VP-84 in Iceland, special flights were made for the Army, the Navy and the RAF. Occasionally ice reconnaissance flights were flown to enable the base to chart the edge of the ice barrier.

During the winter of 1942, VP-84's PBV-5A's had torpedo racks attached as a defense against German warships which might slip into the area. A bill, called the "*Tirpitz* Bill" was drawn up, outlining the plan of action against this ship if she were discovered on the loose. In that extraordinary event, the PBV's were to deliver the *coup de grace*. But the *Tirpitz* never came their way.

Because the tactics of the German submarines had changed, and it became their plan of action to stay on the surface and fight it out unless they could safely submerge to the point where a depth charge would do them little or no harm, the firepower of the U-boats had been tremendously increased. In turn, VP-84 increased its armament.

In the Iceland tour, the squadron made 31 attacks and had an additional 54 sightings. Even when there were no attacks or sightings, the presence of a plane over a convoy offered protection and prevented many attacks.

Out of one routine flight developed a successful attack on a German U-boat early in November 1942. Lt. R. C. Millard sighted the enemy submarine on the surface. He at once maneuvered his plane into position, dived for a head-on attack and dropped four depth charges before the enemy could even fire a shot.

The submarine had started to crash-dive when the four depth charges exploded aft of the conning tower while it was still awash. Immediately the submarine disappeared, but men swimming in the water, oil, wooden splinters and other objects were undeniable evidence that the enemy had been probably sunk. For this achievement Lt. Millard received the DFC and his crew members the Air Medal.

A little over a month later, on 10 December 1942, Lt. (jg) Lowell L. Davis and his crew scored a similar success. Ens. Earle B. Abrams sighted the U-boat at a considerable distance. Taking advantage of the clouds to conceal his approach, Lt. Davis brought his plane to bear on the target while his gunners countered the AA fire from the submarine. At exactly the right second, the



SHELVIN ATTACKED THIS SUB 28 APRIL 1943

PBV dropped a large depth charge. Shortly after, men were struggling in the water, and sufficient debris to assure our forces that the U-boat was probably sunk.

Four other days were red letter occasions for VP-84. On 14 May 1943, Lt. (jg) E. T. Allen and his crew sent another U-boat to the bottom; and five days later Lt. Millard got his second kill. On 20 June, Lt. E. W. Wood and his men made VP-84's fifth kill, and Lt. (jg) J. W. Beach brought the score to a straight half dozen with his sinking of an enemy submarine four days later.

In reporting the tour in Iceland, VP-84 paid tribute to Capt. D. V. Gallery, Commander Fleet Air Base, to the RAF which consistently cooperated with the squadron, and to Headquarters Squadron SEVEN Unit which maintained the planes. Although these men were handicapped by having only a four-plane, unheated hangar in which to work, they kept at it 24 hours a day so that VP-84 planes could maintain their schedules and accomplish their missions.

In the Coastal Command Review of

August 1943, the British praised the squadron in these words: "No. 84 has been cooperating with us from Reykjavik for 11 months in which time it has made 31 attacks and killed 5 U-Boats, a really magnificent record for one squadron in Iceland. We see them and their old PBY's go with real regret."

Later assessments credited VP-84 with six kills which made them #1 squadron in submarine sinkings in World War II.

The squadron left Iceland for the United States the first part of September 1943, and was assigned to Fleet Air Wing NINE at NAS BEAUFORT, S. C. After a tour of duty there, the squadron left on 12 December for Quonset Point to take up their anti-submarine duties. The squadron by that time had 15 new planes, the largest number yet.

From Quonset the squadron covered convoys to the 500-mile mark. Weather did not faze the Iceland-hardened veterans even though it was often worse than any they had experienced the year before. VP-84 felt the weather would have challenged even a native Icelander.

THEY WERE therefore pleased to go to a warm spot when the squadron left on 11 May 1944 for NAS COCO SOLO, Canal Zone. Since the Navy had no field there for landbased aircraft, VP-84 landed, courtesy of the Army, on New France Field nearby.

At Coco Solo, VP-84 flew anti-submarine sweeps, patrols and escort missions. On 24 May, a detachment of three to four planes was sent to the Soledad Airport at Barranquilla, Columbia, to conduct operations. Sweeps of the tanker lanes were flown, and all ships were identified and their positions sent to the Panama Sea Frontier each day.

It was at Coco Solo that the squadron received its new designation—VPB-84. It was also from there that hops were flown to the Galapagos Islands in the Pacific, thereby making 18 officers and 30 men aerial shellbacks.

The new radar equipment which the squadron had received at Quonset enabled the planes to pick up ships at greater distances than ever before.

Then VPB-84 was ordered to return to the United States for operational duty under FAW-9 at NAS QUONSET POINT, but a detachment of four planes was to remain at Coco Solo to continue duty under FAW-3. Training and operational flights continued throughout the winter months, but there were no sightings.

It was never actually determined which unit, the one at Quonset or the one at Coco Solo, enjoyed itself most, but those in the Zone became convinced that they were forgotten and would never rejoin the parent squadron. Scuttlebutt was thick, and on 1 April 1945, the entire squadron was ordered to NAS ALAMEDA.

VPB-84 reported to the Western Sea Frontier in connection with operations designed to patrol the seaward approaches to San Francisco during the United Nations conference. VPB-32 was also ordered from ComAirlant for this purpose. Patrols were established under the control of FAW-8, and operations commenced on 20 April. Each squadron flew four anti-submarine patrols approximately eight hours long each day.

TRAGEDY struck on 4 May when Lt. (jg) Robert Moment's airplane crashed shortly after take-off on a hillside about two miles north of the Golden Gate bridge. Four officers, including the squadron's exec, LCdr. Norman White, and five enlisted men were killed; two enlisted men survived with burns. The fatal crash occurred after the plane encountered instrument conditions and was seeking an exit to sea. Tragically the plane had lacked only a few feet of clearing the top of the hill entirely.

On 27 June 1945, the United Nations conference ended, and the patrols were over. Decommissioning of the squadron

which had been delayed until the conference was over immediately took place on 28 June.

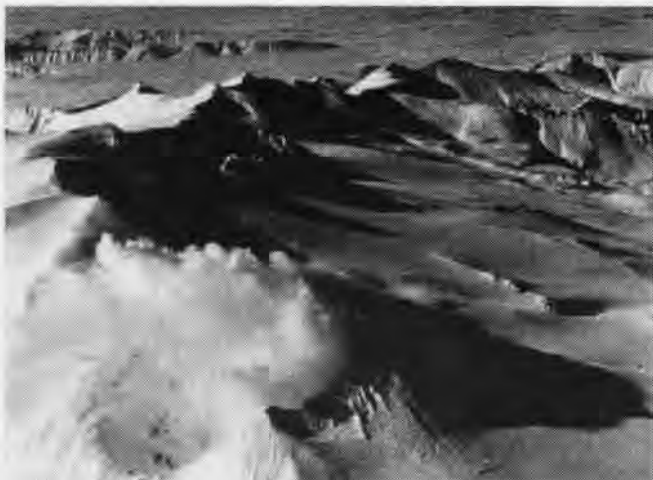
Thus the history of Patrol Bombing Squadron 84 came to an end, the squadron having faithfully served for a period of 45 months. During its career, the squadron had served in all but the Asiatic Theater. It had patrolled the North and Middle Atlantic. It had served in the Caribbean and covered the approaches to the Panama Canal. It had served in the Pacific from the Galapagos Islands to northern California and twice made the trip across continental United States. While its personnel had turned over completely from commissioning to decommissioning, VPB-84 had retained throughout its service a spirit consistent with the best traditions of the United States Navy.

Five years later, the Presidential Unit was officially awarded Patrol Squadron 84 "for extraordinary heroism in action against enemy forces in Atlantic Waters from November 1, 1942 to June 30, 1943. Operating PBY Amphibious Aircraft over North Atlantic and Arctic waters off Iceland, Patrol Squadron EIGHTY FOUR provided wide coverage of assigned areas and succeeded in sinking six enemy German submarines.

"With only rudimentary navigational facilities available, this squadron operated effectively over icy waters and under the extremely hazardous conditions difficult terrain and severe weather, including snow, ice, sleet and freezing rain prevalent in the area."

THE CITATION praised the courage, determination and outstanding performance of duty, pointing out that the enemy had suffered severe losses at the hands of VPB-84 and that the Allied success in crushing German submarine activities owed much to this squadron.

It is a squadron of which the Navy is proud, well deserving the recognition a Presidential Citation Unit confers.



PUC STATED SQUADRON VP-84 OPERATED UNDER HAZARDOUS CONDITIONS



MILLARD AND CREW WERE RESPONSIBLE FOR SINKING OF TWO U-BOATS



NOTICE THOSE four tanks on the side of this Corsair fighter of the Blacksheep Marine fighter squadron on the CVE Sicily off Korea? Of the 31 tanks destroyed by the squadron, this plane shot up four of them in its 50 strike missions. Other insignia on the fuselage include the Battle Efficiency pennant, the Presidential Unit Citation, the squadron's own insignia and the big E that goes with the pennant. Surveying the array are Sgt. Charles Walters and Corp. Albert E. Toler. Corsairs have been providing ground troop air support.

Radio Lead Pierces Blimp Hits Propeller, Rockets Out of The Top

ZP-1, WEEKSVILLE—A "Believe It Or Not" accident occurred recently which resulted in damage to a blimp which might have been serious.

While returning from an operational flight, the trailing wire antenna hanging beneath the car of the airship became entangled in the starboard propeller.

Turbulent air caused the antenna to oscillate wildly while being reeled in, and the weighted end struck one of the prop blades, creating a deep gash. The 3½-pound lead weight on the end of the antenna was hurled with such force that it went through the side of the airship car, struck and bent a fuel transfer line inside the car, passed through the manifold air system, back out the car fairing, in the bottom of the airship envelope, and out the top!

The weight traveled a distance of some 40' before passing out the top of the envelope. A careful check of records revealed no such accident had been reported in the past. During World War II alone, nearly 56,000 operational flights and thousands of hours were flown without a similar mishap.

The airship landed safely, experiencing no greater inconvenience than landing with one engine and a slight loss of lift because helium escaped through the holes in the envelope. It could have meant serious injury or death for the man who stood at the fuel transfer



PHOTOS SHOW DAMAGE TO PROP AND FUEL LINE

pump, had he been there when the weight passed through the car.



ARE THOSE KOREAN farmhouses on the deck of that carrier above? No, it's just workmen's sheds on the deck of the famous old flattop Essex as she came out of mothballs at the Puget Sound Naval Shipyard, Bremerton. Leader of that famous line of Essex-class carriers which dealt such crippling blows at the Japanese Navy during the last war, the Essex is finished with reconditioning work and soon will be joining the conflict in the Pacific.

Fuel Tanks Fill in Flight Pilots Report Gas Usage Pretty Heavy

VR-2, ALAMEDA—Flight control has come up with some interesting phenomenon on consumption of fuel by R5D's as reported by pilots hourly POMAR's.

According to these reports, some aircraft have indicated their fuel on board as increasing each hour while others have been burning more than 800 gallons an hour.

One of the following three reasons is suspected with the emphasis being heavily on the third. 1. Aircraft have devised a system to transfer fuel to each other en route. 2. The ocean station vessel has perfected a pick up and drop system, whereby planes either drop off or pick up a few hundred gallons as desired. 3. Pilots making out POMAR reports sometimes have their minds on other figures which in no way resemble those required for fuel reports.

Bug Sprayers Busy in Korea Reserve 'Grads' from Jax in Action

NAS JACKSONVILLE—Training received by Reservists in the Navy's malaria and mosquito control unit has been paying dividends in Korea, according to reports received by LCdr. John M. Hirst, head of the unit here.

At least two personnel formerly with the unit are now in Korea where the equipment and procedure are ridding the vicinity of annoying oriental insects. Since the unit started in March, 1949, a dozen Reserve entomologists from all parts of the country took two weeks active duty training every quarter under Hirst's guidance. One of them was a WAVE, Lt. Lorraine Friedman from Duke University.



EIGHT SURVIVORS OF FREIGHTER AFTER RESCUE

Navy Helps Find Survivors Eight Rescued, 11 Drown off Argentinia

Navy and Coast Guard planes teamed up to find and rescue eight survivors of a Honduras tanker, the S.S. *North Voyager* in the icy Atlantic off Newfoundland.

An SOS was received on 22 October saying the ship's cargo of coal had shifted so badly it was sinking with 19 men aboard. For two and a half days, Coast Guard ships and planes and P2V's from NAS ARGENTIA combed the area trying to find the survivors. A *Neptune* finally spotted eight men in a lifeboat and called the cutter *Sorrel* which picked up the men 40 minutes later.

The six aircraft, three Navy and three Coast Guard, continued to search for another lifeboat full of survivors, but was able to locate only an overturned boat. Rescued crewmen blamed the disaster on shifting cargo which permitted water to flood the boiler rooms when heavy weather hit the vessel.

After the survivors were landed at Argentinia, they were examined by physicians and found in satisfactory health. Later they returned to the United States.

Gas Tank Yields Odd Relic VR-8 Finds Helmet Inside Fuel Spaces

VR-8—Speaking of pulling the proverbial rabbit out of a hat or a doctor's sponge out of some recently-operated-on patient, this squadron did one better.

One of our inspectors reached into a gas tank and pulled out a face protector helmet the other day. This helmet apparently was left in the tank during overhaul of the aircraft. Who knows, maybe there was a man wearing it and the high octane gasoline dissolved him. However, after an exhaustive investigation, we can find no aircraft worker mysteriously missing at any of the over-

Memphis Sees BuAer Exhibit 75,000 Persons View Naval Display

NAS MEMPHIS—When the Bureau of Aeronautics traveling exhibit showed up here to bring its message of naval aviation to this mid-Mississippi area city, it received one of the most enthusiastic receptions of its national tour.

During three weeks of exhibit, an estimated 75,000 persons visited it, including 5,000 daily at the annual Mid-South Fair the last of September. It went then to the annual livestock show held at Little Rock, Ark., 3 to 10 October, where about 4,000 persons daily saw the Navy displays of cutaway jet aircraft and engines.

Cadet in Rough 1st Landing Photographs Show How Not to Land

U.S.S. WRIGHT—One aviation cadet here got a rather rough introduction to carrier flying, as can be seen by the accompanying pictures showing what hap-



TRAINING CARRIER PHOTOGRAPHS BAD LANDING

pened to him on his first attempted landing.

The student made a good approach and received a cut which he took. Just before hitting the deck, he became confused thinking the cut was a wave-off. He attempted to take off, applying full throttle and full left controls. The pictures show what happened.

The pilot was recovered uninjured, the emergency gear thrown over by the carrier picked up and landings resumed in 18 minutes. In the third picture the plane guard is shown; it maintains a special position on the port quarter in the Training Command to facilitate the student adjusting his down wind leg. A good caption for the last picture might be "Did he make the pull-out?"



FIRST AIRCRAFT carrier to return from Korean waters during the present war is the *Boxer*, shown above being greeted by a bevy of bula dancers as she docked at Ford Island. When they arrived on 4 November, RAdm. Ernest W. Litch, ComFair Hawaii, presented a 30-foot carnation lei to the carrier and air group. Hoisted aboard by a dock crane, the lei was draped over the gangway. The 14th ND band added its music to the welcome given the carrier.

PLANES, PLANS AND PEOPLE



AT SEATTLE, CHIEF DE GAETANO GIVES WORD TO VP-72'S LOWEN, BALKE, LOWER, DAVIS, GODLEY

More Jets for Reserves

The future on new Fleet-type aircraft looks bright for the Naval Air Reserves. During fiscal 1952, they are slated to have more than 100 jets—a sharp jump over the 36 aboard today. Enroute are *Panthers* and *Banshees*.

Another newcomer, which is scheduled for delivery in 1951, will be the P2V *Neptune*.

Meanwhile, NAS LOS ALAMITOS and NAS OAKLAND are each slated to get immediately 7 PB4Y-2's and NARTU SEATTLE may also receive 7 PBM-5's.

By June 1951, the first of the F9F's and F2H's, earmarked for Organized Re-

serve training, will begin to filter into the program.

Meanwhile the Reserves are doing an expert put-and-take job, moving their current FJ's and FH-1's around the Reserve station and unit checkerboard—all this to give as many squadrons as possible a "chance to fly jets".

By 31 January, NAS GROSSE ILE, NAS ST. LOUIS and NAS MINNEAPOLIS will each have 6 FH's, getting those previously assigned to NAS NEW YORK, NAS WILLOW GROVE and NARTU NORFOLK. By 31 March, NAS OLATHE will get the 6 FJ's now being flown at NAS OAKLAND, and by 30 June NAS DALLAS will acquire NAS LOS ALAMITOS' stock of 6 FJ's.

Double Plays at New Orleans

Reserves at NAS NEW ORLEANS have taken a leaf from the ballplayers manual. Double plays between officers of the air wing staff (WS-82) and the wing squadrons, designed to strike out the enemy on the field of combat, are now a standard feature of training drills. Planning and carrying out simulated strafing and bombing strike problems involve full teamwork.

The ACI group picks a target and immediately puts all wing departments to work building a realistic problem.

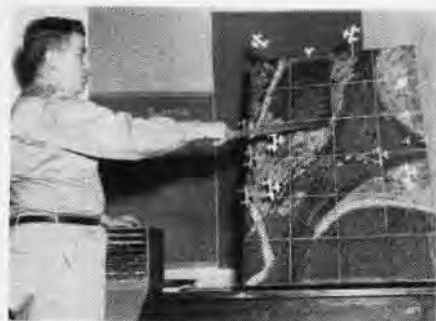
The photo officer gets vertical and oblique shots of the target and delivers necessary prints to the officer-in-charge of interpretation. Target area strips are

made and blown up for use at briefing. Assumed gun emplacements are marked on photos around the target area. Low obliques are made for each pilot on the strike and special charts on which all landmarks have assumed names are provided.

The staff communications officer prepares a communication plan for each strike and briefs squadrons on procedures to be used in the problem.

The aerology officer briefs the pilots on local and target area weather.

The ACI team then coordinates the work of all these officers and runs the final squadron briefing, which climaxes the training for staff officers and starts the squadron off, well-prepared for the operation of the day.



LT. (JG) PISTORIUS BRIEFS NAS NOLA PILOTS

Recognition Officers' Cruise

The first two-weeks seminar to be held for Naval Air Reserve recognition officers since World War II shed light on two questions of immediate concern in view of the events of Korea. First—is an intensive course in recognition problems more valuable to these officers than the general training they received at naval air stations during their previous cruises?

The Reservists answer to this question—a unanimous "yes." "If the international situation gets worse, we'll be called back to active duty to do a job. O. K., the sooner we get up to date on new developments in recognition the better" was the general opinion.

The second question to be resolved was "How long does it take to bring Reserve recognition officers back to their wartime proficiency?"

A bumpy first test revealed wide gaps in their ability to spot new type planes. But Reservists forged ahead to score an average of more than 3.4 on the final examination in which they had to identify new views of Navy, Air Force and foreign planes and ships.



RESERVIST WOOD GREETS DAUGHTER AND SON



VOLUNTEER RESERVE RECOGNITION OFFICERS VISIT SUBMARINE DRUM



AT NATIONAL AIR MUSEUM, DIRECTOR GARBER SHOWS THEM THE X-1

While this showed that Reservists could be pretty well refreshed in two-weeks, course heads were holding out for a minimum training period of at least a month in case of mobilization.

Seventeen officers from all over the country managed to get leave from civilian jobs to take the course, which was given at NARTU ANACOSTIA. Included in the group were college and high school instructors and administrators, technical editors, and one judge.

Naval Air Reservist, Lt. Thomas E. Bower, who as a civilian serves as training administrator in the Office of the Chief of Naval Operations, was in charge of the course and doubled as chief instructor.

Among the lecturers were representatives from various bureaus and offices in the Navy, including Cdr. E. P. Aurand and Lt. Bruce Dearing.

Highlighting the course were trips to the Smithsonian Institution's National Air Museum, the Naval Photographic Center, the Naval Gun Factory, (where the group toured the submarine *Drum*) and NATC PATUXENT. At Patuxent, Reservists got a look at new Navy developments in aircraft and witnessed a special demonstration of Navy armament, arranged for their benefit.

The seminar also featured the use of the latest recognition equipment and pointed up new techniques of instruction in the recognition field.

Shown in the picture taken aboard the *Drum* are: Lt. Bower; LCdr. W. H. Neal; Cdr. R. B. Winslow; Lt. N. D. Rogers; Lt. J. D. O'Regan; Lt. Dearing; LCdr. C. J. Quillen; LCdr. J. K. Hicks; LCdr. J. P. Maloney; LCdr. J. R. Gammill; *back row*, LCdr. S. G. Warner and R. D. Russell. Some of these Reserves also appear in the air museum picture along with Lt. W. H. Ivers, LCdr. G. Mennich, LCdr. P. V. Gardner and LCdr. C. C. Johnson who are 1, 3, 7 and 11 from the left respectively. The other three members of the course were: Lt. E. J. Opsut; LCdr. F. A. Porter and LCdr. C. J. Murphy.

Triple-Wood Reunion

Naval Air Reservists in the Wood family made it three-all, when airman apprentice Leo and WAVE Patricia paid their father, Byron Wood Y2C, a flying visit at NAS SEATTLE, where he is now on active duty. They hitch-hiked their way from their home in Long Beach, California, to Seattle via Navy and Air Force aircraft.

A member of VP-772, yeoman Wood was recalled to duty in September, when his squadron was activated at NAS LOS ALAMITOS. The squadron is now in training at Seattle. A former insurance executive, Wood served with the Navy in the South Pacific during the war. After his discharge, he joined the Organized Reserve at Los Alamitos.

His son followed his lead and signed up in May of 1948, when he became 17 years of age. Leo is now attached to WS-77 at Los Alamitos.

In December of 1948, Wave Patricia entered the Reserve program. She is

now assigned to VS-774 and is training to be an aircraft control tower operator.

Both of the young Woods are full-time music students at Long Beach City College. Leo is scheduled to play his first concert this winter with the Pasadena Civic Orchestra, as guest pianist.

Station Round-Up

• NARTU JAX—During their cruise, 16 pilots of VF-742 and 14 from VS-741 made 208 carrier landings aboard the *Wright* without a single barrier accident and completed their carrier requalifications. In addition, four CIC intercepts, two simulated torpedo attacks and one group recovery launch were crammed into the two short days the *Wright* was available. Preliminary field carrier landing practice at NAAS SAUFLEY FIELD had been cut to two days because of the Reservists' participation in a hurricane evacuation flight.

• NAS AKRON—The instrument training officer has set up a new instrument flight progress system. A complete instrument folder has been made up for each pilot.



NARTU JAX RESERVES FAY, BAXTER, HAYNES, INGLE, REILEY PLAN REQUALS ABOARD WRIGHT

THREE WRECKS IN 21 DAYS

FAWTUPAC—This all weather flying outfit has a newly-commissioned ensign who has had three plane accidents in 21 days, none of them blamed on pilot error.

On 11 September, Ens. Metzger was flying a GCI hop when the engine on his F4U-5N failed for no apparent reason. All engine instruments read normal, and there was a good reserve of fuel. Fuel pressure was normal. Metzger ditched the plane in the Pacific 19 miles south of Barber's Point, Oahu.

Five rescue aircraft went out to get him—a Navy helicopter, two AF helicopters, one Coast Guard B-17 and an F4U-5N which orbited his downed plane. The Navy pinwheel pilot by Lt. F. F. Mathewson rescued him, landing him 30 minutes after he hit the drink.

Accident #2 came four days later. Returning from a night GCI flight he discovered his starboard landing gear would not extend. Normal and emergency procedures to get it down failed. He tried a bounce landing on one wheel but that failed to dislodge the stubborn wheel, so he came in on one wheel. Only slight damage to the plane was sustained.

The Accident Board found malfunctioning was caused by arms of the static down lock link assembly having been spread 11/32" more than the average

of other F4U-5N aircraft of this activity. It is believed the additional spread caused the down lock assembly to bind on the clevis pin on the bottom arm of the retracting lock link assembly when the gear was up. Ens. Metzger was commended for his skill in handling the landing.

Accident #3 came 16 days (15 flight hours) later. He lost power on take-off and landed his F6F-5N wheels-up in a semi-populated area. The aircraft narrowly missed houses and trees before finally stopping in a sugar cane field.

The Accident Board reported loss of power seemed to result from temporary restrictions in the carburetor fuel passages. Metzger suffered only shock in his three accidents. The Board found none was caused by pilot error.

Helicopter Crewman Is Hero Swims in Ocean To Aid Pilot Rescue

Because he jumped into the ocean and swam around 10 minutes while the rescue helicopter flew an injured pilot back to his carrier off Korea, Daniel C. Cherry, Airman, has been recommended for the Bronze Star medal.

Cherry, crew member of the CV *Leyte's* guard helicopter, had helped haul Ens. Edward J. Tuma into the pinwheel. Tuma's *Panther* had ditched in the water



HU-2'S HERO, CHERRY, BACK ON LEYTE AGAIN

when it suffered an engine failure on takeoff. He was dazed and injured in the crash. After the helicopter flew Tuma back to the carrier, it returned and picked up Cherry from the icy water.

Because Tuma was unable to secure himself to the helicopter's rescue sling, Cherry had jumped in the water to save him. The pinwheel pilot then had no one to operate the rescue gear to hoist Cherry back aboard.

Plaques Honor Navy Airmen

Pensacola Leaders Hear Sec. Mathews

NAS PENSACOLA—Secretary of the Navy Francis P. Mathews unveiled plaques recently bearing names of pioneering aviators and renamed a thoroughfare between the city and the naval air station as "Navy Boulevard".

For Pensacola's history, the Secretary's visit set a precedent. He was the first Secretary of the Navy to come here as a guest of the city. More than 250 Pensacola civic club members honored him at a luncheon following the plaque unveiling at the city hall.

Speaking to the assemblage, Mr. Mathews said no danger ever existed that merging of the armed forces might bring about closure of naval aviation activities here. The plaques, one for the naval air station commanding officers since 1914, and the other for the chiefs of naval air training and naval air basic training, will be erected permanently at the city hall.

Iron Lung Airlift To Rescue Life Saved as Result of Mercy Flight

In Memphis during an epidemic of polio, the John Gaston hospital desperately needed an additional iron lung for a critical new case.

An iron lung was located at Chattanooga, but no commercial planes were available.

Two enlisted pilots, Jack Nobles and R. E. Moore volunteered to man an R4D belonging to the Naval Air Reserve. By 1014, they took off from NAS MEMPHIS.

At 1424, the R4D returned with the lung, having stopped only 30 minutes in Chattanooga. The lung was rushed to the hospital—and a life was saved.



WHEN THE XP5M-1, which has a long hull that rides in the water, first came out, onlookers wondered if it would be able to turn in the water. To speed up this process, the Glenn L. Martin company installed underwater rudders and brake near the tail which operate somewhat like the dive brakes on an AD. Operated hydraulically, the hydroflaps enabled the Marlin to turn easier by using one, or to slow down by using both. The above picture employed dye marker to show the turning circle radius and was taken from a helicopter. When the hydroflap is set at 65°, the turning radius is about one and a half times the wingspan, about a third of the radius required when turning with the plane's engines alone.

WINTER SAFETY HINTS



MARK TWAIN once said, "Everybody talks a lot about the weather, but nobody does anything about it." However, the successful rain and snow making experiments of the past few years have given the lie to this famous remark.

In fact, a couple of winters ago the operators of one large ski resort threatened to go to court to prevent a rival area from swiping all the snow out of the clouds as they passed overhead. It seems that the prevailing winds were such that one area consistently got first chance to seed the clouds with dry ice and thereby keep enough snow on its slopes to satisfy the skiers.

PLAN FOR WINTER HAZARDS

Although the average naval air station still can't do much about changing the weather, it can do a great deal towards reducing the accident hazards which follow on the heels of a heavy snowfall. Every station in areas where snow is likely to fall should have a "Snow Removal and Ice Treatment Plan."

The plan should establish the responsibilities, procedures, and priorities for snow removal and ice treatment for the entire installation and should include the following items:

(1) A layout of the installation, indicating routes and priorities established for snow removal and ice treatment of runways, taxi strips, parking aprons, roads, and streets.

(2) The amount and types of equipment and materials available for use.

(3) The number of personnel who will automatically report during and after regular work hours in the event of an emergency caused by a snowfall or icy condition.

(4) The number of additional personnel available on a stand-by status in case their services are required.

(5) A procedure which will insure that tower operators are thoroughly familiar with any hazardous conditions which exist on the field, such as snowbanks, slippery surfaces, etc., so that they can advise pilots accordingly.

A striking example of the sort of accidents that tower operators can prevent occurred two years ago when four PB4Y-2s were returning to an air station after a general

recall. A fog bank was closing in on the field. Melting snow and ice had covered the duty runway with about three-quarters of an inch of water. The snow had not been completely removed from the turn-around apron at the far end of the runway.

Incidentally on this very morning the squadron to which the PB4Y-2s were attached had been awarded a safety trophy for its excellent record during the preceding year.

The first *Privateer* was slightly fast on the final approach and touched down a little long. The pilot soon discovered that he had no effective braking action and the PB4Y-2 slid off the end of the runway, down the embankment, and into the river.

The number two plane managed to stop just before the end of the runway and was told by the tower operator to hold clear of the runway as another plane was approaching. This was a physical impossibility due to the snow piled on the parking apron. The pilot again requested permission to taxi back down the runway, but was told to hold at the far end.

The number three *Privateer* experienced the same difficulty in stopping his aircraft and attempted a groundloop to avoid a collision. He was unable to do this and collided causing major damage to both planes.

All hands immediately abandoned both planes and just as they were clear of the aircraft, they saw the fourth *Privateer* bearing down on the interlocked planes. The crews ran clear, but the pilot of the fourth plane was able to swing his plane off the left side of the runway and come to a stop without further damage.

In this instance, the tower operator was no doubt influenced by his anxiety to get the planes on the ground before the fog bank rolled in. Also he was not aware of the condition of the parking apron. The pilots were handicapped by terrain features which made a wave-off on that particular runway very undesirable. The tower operator was not held to have been at fault in the first accident, but shared the blame in the next two for not giving the pilots accurate information on the condition of the runway and parking apron.

'Tayloring' Navy Planes to Fly



DAVID TAYLOR Model Basin engineering aides Simms, Rosenberg and Cottrill (kneeling) install tufts on R5D model for special air-flow tests in one of the 8' by 10' tunnels

ALL GOOD Navy men know that every ship of the Navy is pre-tested at the famous David Taylor Model Basin at Carderock, Maryland. But what is known only to a few is that practically every Navy plane now gets tested in one way or another in the same establishment's wind tunnels.

These wind tunnels are part of the facilities of the aerodynamics laboratory, which, with the hydromechanics and structural mechanics laboratories, make up the Model Basin technical divisions.

The aerodynamics laboratory has been a going concern at the Basin since 1944, when testing facilities, replacing the obsolete wind tunnels at the Washington, D. C. Navy Yard, were set up there. It is under the technical control of the Bureau of Aeronautics and undertakes research and development wind tunnel projects primarily for BUAER.

Tests on aircraft vary from those designed to give data about particular parts to those giving a complete picture of a proposed plane's performance.

During World War II, when landing fields in the South Pacific were at a minimum, exhaustive tests were undertaken to determine if floats could be safely added to the F4U. These tests showed that the *Corsairs* could be so equipped. Fortunately, however, our island-hopping soon paid off and we did not have to try to operate the fighters

from the water to meet the emergency.

Tests on the F7U were directed to determine the best place to locate the external wing tanks. These tanks were tried out on the model in all possible locations from directly next to the fuselage to far out on each wing tip.

Another recent series of tests were run to determine where to locate a new type of rocket launcher so that the rocket would not damage the plane during launching. A model wing of an F4U was used for this test, but the results were applicable to fighter planes in general. Reports on this test were forwarded to NATC PATUXENT for guidance in a larger project they had underway.

Preliminary tests on the P5Y helped to speed up production of that plane by showing that the original design appeared satisfactory.

Object of all tests is to give the engineers at BUAER sufficient data so that they may accurately predict the handling and performance characteristics of proposed aircraft or proposed changes in design of existing aircraft. In this connection, the aerodynamics laboratory makes various recommendations concerning modifications of proposed designs which ultimately result in the saving of both lives and money.

Take the F9F, for example. Tests at the lab showed that rudder effectiveness in the original model was insufficient

and that the horizontal tail was too small. The DTMB engineers therefore recommended that both the rudder and the tail be made larger. The F9F you fly today has this larger rudder and tail.

When the Navy decided to make an experimental modification to its PB-1W (B-17) plane by placing a large radome on top of the fuselage, DTMB wind tunnel tests were run to determine what fairing shape would give the least interference. Various configurations were tried and the one that worked best during the tests was the one used in modifying the plane itself.

Helicopters have also been tested at the Basin for stability and control. Models used to date have not had rotors, but plans call for simulating power in the near future. Tests on the HRP-1 and the HRP-2 indicated that additional vertical fin area was needed to insure sufficient control. The production models now have this additional fin area.

TO SEE how a particular project is worked out at the aerodynamics laboratory, consider one involving a proposal for a new plane that is underway right now. This plane features a very wide tail section, which almost forms a second wing (see picture on pg. 27). It is of a type which has been developed and flown in France. Its designer claims that the wing-tail configuration gives high values of lift coupled with low values of drag.

BUAER was interested in the design, but before taking any action, it wished to obtain performance data on a model of a configuration of this type which might eventually be usable as a Navy plane. It therefore turned the preliminary design (submitted by the company which wants to build the plane for the Navy) over to the aerodynamics laboratory and asked them to work on the project.

The laboratory then had a model built in the DTMB shop and ran it through tests in one of the low-speed wind tunnels. These tests showed that, while the general characteristics of the proposed plane did appear good, further development was needed to bring the ratio of maximum speed to landing speed into more practical balance.

The DTMB engineers, therefore, proposed that a leading edge slot be devised to delay the stall and thus decrease the landing speed. This slot was made in the shop and incorporated in the model. At the same time, a slotted flap was also designed and incorporated in the model



LOW-SPEED WIND tunnel control room—C. L. Benedum checks data with E. Muller (note balance ring above and scales rear)



AERONAUTICAL ENGINEER Fresh watches L. Money make final adjustments on R5D model already rigged on struts for testing

to replace the unslotted one used in the first test.

The first test had shown that there was turbulence around the canopy, for which a specific design had not been submitted. To remedy this, the canopy on the model was modified by building it up with plasticine to the exact point where tests showed the turbulence was eliminated.

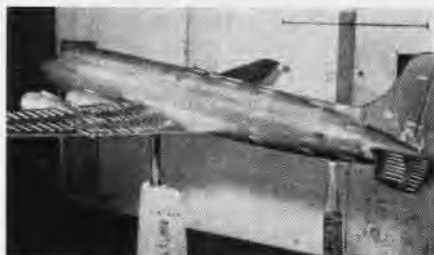
Turbulence was also present at the juncture of the tail and the fuselage, so a large and a small fillet, again of plasticine, were tried out. The small one reduced the turbulence as well as the large one, so it is being used in the final tests.

NOW THE model is ready for these final tests, and when they are completed, the laboratory will make a full report to BUAER.

Not only aircraft, but other objects



MODEL OF proposed 'wide-tail' plane—plasticine modifications show up in white



R5D UNDER WIND tunnel test—the blurred tufts indicate various points of turbulence

that wind affects are grist for the testing tunnels at the Basin. For example, scale models of groups of ships moored together have been tested to determine the effect of wind forces under storm conditions. The drag of radar antennas for both ships and aircraft has been measured in the low speed tunnels.

The behavior of bombs and tow targets, when suspended in a wind stream or dropped under various conditions, has been determined. Even the electronics hangar, now at NAS PATUXENT RIVER, was pre-tested via the model method for the effect wind might have on it—this for the Bureau of Yards and Docks.

In all of this testing, the aerodynamics laboratory is in a strategic position to do the job in a minimum amount of time. This is because the wind tunnels at the Basin are the only ones of this type owned, operated and directly administered by the Navy. Consequently tests can be conducted without the usual delay involved in letting out bids and granting contracts.

Beyond this, the whole set-up at the lab is geared for speed. Just as soon as a test is performed, the data is rushed to computers at the lab and the significance of final results is determined by the engineer in charge of the project. Informal reports on tests run in the morning are often telephoned down to BUAER, or to the manufacturer concerned, that same afternoon.

Formal reports, of course, are submitted later and make up part of the permanent record of a particular plane's performance characteristics.

AT PRESENT there are two low-speed wind tunnels and one intermittent, supersonic wind tunnel with three testing channels at the Basin.

Under construction is a fourth wind

tunnel for testing in the important region near the speed of sound. This tunnel will cover almost a square block. Its test section and measuring equipment—like that of the two low-speed tunnels—will be housed in a main building with the rest of the tunnel circuit projecting into the open. Some parts salvaged from a German tunnel will be used in the structure.

Designs for this tunnel are carefully pretested in a working model 1/12th the full-scale size. This model will later be used as a pilot-tunnel for experimental set-ups.

When this new tunnel is completed in 1952, the laboratory will have full facilities for testing the different characteristics of the aircraft of tomorrow at all speeds from those at takeoff to the supersonic.

The low-speed tunnels each are 8' by 10'—which is to say that the test section measures that. They are built on



DTMB ENGINEERS found that this radome configuration worked best on PB-1W model



AND TODAY this Navy PB-1W (B-17) has DTMB-recommended radome configuration



STUDYING A PROJECT at the DTMB aerodynamics laboratory—Cdr. Stirling (center) reviews drawings with LCdr. Sollenberger, aero-engineers Barnett and Long, and LCdr. Griffing

the conventional pattern oblong in shape with the test section in one of the long legs. The whole design is aimed towards providing a smooth flow of air at the point it hits the model.

MAXIMUM wind speed obtainable in the working section is 180 mph. Air flow can be reduced to give the whole range of speeds below that maximum which may be required for a specific test.

As in most wind tunnel testing, the model does not float about—as the layman often fancies—but is rigidly supported in the test section by one or more vertical struts. These struts are connected through a hole in the test section floor to the balance ring. This balance ring is a tubular structure, which circles the test section in a vertical plane. It is connected through a complicated set of linkages to six scales, located in the control room under the test section.

The six forces and moments, produced on the model by the wind during a particular test, are transmitted via the struts to the balance ring (which in some ways might be likened to the platform of a weighing machine) where they are weighed and then the weight of each force or moment is sorted out and registered on its own scale. The readings are automatically printed on paper tape—the three forces (lift, side-force and drag) shown in pounds and the three moments (pitching, yawing and rolling) in foot-pounds.

Controlling the test is definitely a push-button affair. The operators sit at the control desk—regulating the wind speed, changing the attitude of the model and pressing buttons to have the meas-

urement readings recorded during various phases of the test underway.

Models for use in the low-speed wind tunnels are made of wood with a steel framework. Small electric variable frequency induction motors are used to drive scale model propellers and thus simulate propeller-driven aircraft being tested. Jet effects are simulated by piping air from a large compressed-air source, located outside the tunnel, in through the model itself. The tunnel, of course, must be rigged differently for each test series to provide for the particular conditions involved.

Beside the fixed measuring devices, the technicians make use of many special devices to measure particular characteristics of the body being tested. Small strain gauges, for example, may be attached to the model to determine stress on a particular section. Similarly, "tufts", which are made of short lengths of yarn, may be attached to the surface of the model to enable engineers to observe the actual directional air flow over the model and photograph it.

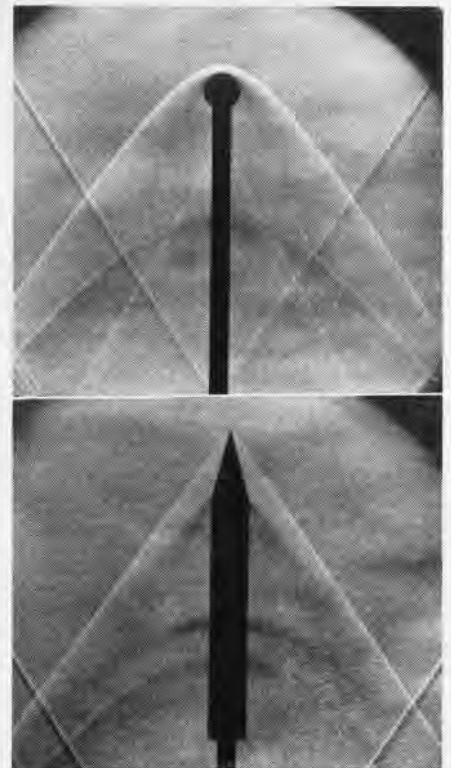
In addition to measuring forces, it is sometimes necessary to obtain the pressures which exist around a model. Tiny holes are drilled at multiple locations along the surface of the model and the pressures at those points are transmitted through hollow tubes to manometers (pressure indicating devices).

You can get an idea of the size of these pressure taps when you consider that standard hypodermic tubing is used to transmit the pressures and that to test one horizontal stabilizer on a model, 30 holes were drilled on an area of about three inches by one foot and 30 tubes were used.

While the low speed tunnel follows

the conventional pattern, a different method of producing high speed wind is utilized for the supersonic tests. You don't have to look far for the reason—it's good old economy. By running the supersonic tunnel on an intermittent basis, a motor 1/20th the size that would be required to operate it on a continuous basis can be utilized.

The intermittent supersonic wind tunnel has three testing channels, each connected on one end with a large, ball-shaped reservoir (about two stories



SCHLIEN PHOTOS of a blunt-nosed and a sharp-nosed object, each being tested in the supersonic tunnel at a mach number of 1.88 (or 1440 mph at sea level)

high) and on the other end with an outlet into the open air. Each channel is operated independently, depending upon which one is being used for a given test, and has an automatic cut-off valve which shuts it off from the tank except when a test is underway.

Before a test is run, the motor sucks all of the air out of the ball-tank, thus setting up a powerful vacuum. Then the valve connecting the particular test-run channel is opened and the air from the outside atmosphere rushes through the channel with the noise of a minor tornado to fill the vacuum. Going by the model, the wind can attain a speed three times that of sound.

The suction is so great that each test lasts only from 10 to 40 seconds—which is the time it takes for the ball to fill up. Because of this, each channel is



AERO-ENGINEER Patterson examines model before the 18" by 18" supersonic tunnel test section (note spherical Schlieren mirror)



AT WORK IN THE model-making shop—Supervisor Hansen watches H. W. Klotz fit a template to the nose of a helicopter model

highly instrumented to measure very rapidly the effects of the air on the model under test. Recording of results is practically automatic. Recording devices are more compact than those used in the low-speed tunnels, and the force and moment measuring device, itself, is inserted directly into the model.

SINCE THE speed of wind in these channels cannot be controlled by a motor, channels are rigged for specific tests with differently shaped linings—called nozzles—to give different speeds for different tests. (The narrower the opening at the intake and the sharper the slope leading to the level test area, the higher the wind speed.)

This type of tunnel also requires an auxiliary set-up to dry the incoming air, before it goes into the channel, to a dew point of 20° below zero. This prevents moisture from condensing in mid-air in the working section of the channel and thus forming a "condensation shock wave" which would make test results unreliable.

The test section of the largest of the three supersonic channels measures 18" by 18"; the other test sections measure 9½" by 9½" and 3" by 5" respectively. The channels, themselves, look like large beams or ventilating shafts running through the operations room. On the side of each test section is a glass observation window shaped like a porthole, through which the model may be observed during the tests.

All three supersonic channels have Schlieren systems as auxiliary equipment. Through this system, changes in air density, such as is produced by the air rushing around the model, may be observed and photographed. In some tests, hundreds of photographs are taken to provide the needed data.

Models for use in these channels must be scaled to a very small size and

they must be accurate to at least 1/1000th of an inch. They are made entirely of steel and given a final polishing by hand to attain necessary precision. They are generally hollow to allow for insertion of the measuring device. During a test, the operator can change their attitude by remote control.

These models, as well as those used in the low-speed wind tunnels, are usually made in the well-equipped DTMB model-making shop. In a few cases, they are supplied by outside sources—for example when a particular company furnishes its own model for a test. Since many of the models require modifications or changes for different tests, they



FINAL MODEL of the XTD2D pilotless plane developed in typical DTMB stability test

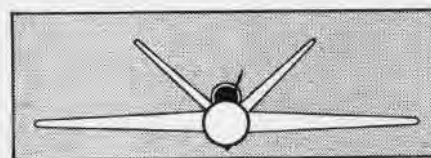
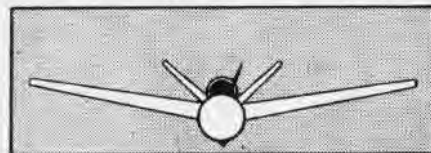


FIG. A SHOWS the original airplane and its flight pattern; Fig. B shows the modified airplane, redesigned on basis of DTMB wind tunnel test data, and its flight pattern

are built so that these changes can be easily made.

Cdr. Cedric W. Stirling is head of the aerodynamics laboratory at the Model Basin. During the war he served on the staff of ComAirPac and ComAirPac Subordinate Command Forward Area based on Guam, and later he was director of the Design Elements Division in BUAER. LCdr. R. L. Sollenberger serves as his assistant and also is in charge of the services division which provides the general services required for all the wind tunnels—such as model design work, library services and wind tunnel electrical instrumentation.

Head of the "new wind tunnels" branch is LCdr. C. W. Griffing. He is responsible particularly for the design and liaison involved in building the new high speed tunnel and other smaller building projects at various stages of planning.

ALL THREE officers are naval aviators with previous experience in operating Fleet squadrons. Graduates of the Navy's post-graduate course in aeronautical engineering, they are now designated for aeronautical engineering duty.

Making up the rest of the DTMB aerodynamics laboratory team are some 100 civilian engineers, tunnel operators, mathematicians and draftsmen—all highly skilled in their individual fields.

Just how many lives and how much money this relatively small group at the aerodynamics laboratory has saved the Navy through their testing and research cannot be accurately determined, for the work they perform is only part of the long series of tests and evaluations to which the Bureau of Aeronautics submits its projects. But the fact that the facilities at the DTMB aerodynamics laboratory are being increased each year certainly shows that the Navy values their work and their accomplishments.

TWIN ENGINES ON CARRIER

WHEN THE huge AJ-1 attack bomber landed aboard the CVB *Carol Sea* in September, was it the first twin-engine plane to come down on a U. S. flattop?

Investigation of the question by NAVAL AVIATION NEWS revealed that at least two—not counting jets—had performed the feat before the AJ, although both were about half as heavy. It also was found that at least three other twin-engine Navy planes were equipped with landing hooks, but whether any had made carrier qualification landings could not be determined.

First record of any twin-engine plane landing aboard a carrier is the F7F-1 *Tigercat*. It landed on the *Randolph* in the fall of 1944. Later models of the same plane went to the Marines without tail hooks and those operating today in Korea are land-based. The only other multi-engine plane on which data could be secured was the B-25C, a hook-equipped Army Air Force plane (see photo).

Three other aircraft were equipped with hooks, but whether they ever landed aboard was doubtful. Probably the first carrier plane in the two-engine field was the T2D-1 biplane, built by Douglas in 1927 and later called the P2D when the Army objected to the Navy having land-based torpedo bombers. It came out with Wright P-2 engines and later changed to R-1750's with 525 hp each. The T2D weighed 10,500 pounds gross, had a three-man crew, cruised at 126 mph and had a wingspan of 57'.

Two squadrons were equipped with the T2D's but whether landings were made aboard the Navy's lone carrier, the *Langley*, could not be established.

T. E. (Eric) Springer, manager of the Douglas El Segundo plant, who is the company's first test pilot, tested the T2D. He said he was certain it was "aboard" a carrier, probably the *Langley*, but was not sure whether it actually flew off or



AJ-1 FLYING OFF CORAL SEA'S DECK IS HEAVIEST PLANE DESIGNED TO OPERATE FROM FLATTOP

not. The plane was aboard at Quantico, he believed.

Probably the second carrier plane with two engines was the XJO-3 (see photo). Looking something like today's Beechcraft, with tricycle, fixed landing gear and a tail wheel, the two-man Lockheed utility plane did make carrier qualification landings on a platform at the Naval Aircraft Factory, Philadelphia, before the war. It was involved in a crash there in May, 1940, and was finally stricken at NAS BANANA RIVER in May, 1943, according to BUAER records.

The XJO-3 had two R-985 engines of 800 hp, weighed 9,200 pounds, had a 49' wingspan and cruised at 105 mph.

The third hook-equipped plane on which no record of carrier landings was found was the XF5F-1 Grumman fighter, of which only one was built. It failed to prove out because of poor handling characteristics at low speeds.

A one-man plane, the XF5F *Skyrocket* had two Wright 1200 hp engines and propellers that rotated in opposite direction, an anti-torque idea favored by

German fighters but not used by multi-engine planes in this country. Despite its two engines, the Grumman fighter weighed only 9,000 pounds, the same as the F6F which replaced it when it failed to prove out. The one and only XF5F-1 was stricken at NAS NEW YORK in October, 1944, after being tested on the NAF PHILADELPHIA landing platform.

Although twin-engine aircraft are unusual sights aboard Navy carriers, the British have used them for some time, including the DeHavilland *Mosquito* and *Sea Hornet* and the Short *Sturgeon* recco plane. They also have flown the twin-jet *Meteors* off carriers and the Fairey JR-17, an ASW plane with twin jets hooked to one propeller, like the Navy's A2D. The Navy, of course, has operated its twin-jet McDonnell F2H *Banshees* extensively from carriers with excellent success.

Twin engine planes which have taken off from carrier decks but made no landings to date are the P2V *Neptune* and the R3D transports launched from the CV *Philippine Sea* near the South Pole. A



STUBBY LITTLE XF5F-1 SKYROCKET HAD HOOK BUT NEVER WAS ON A CV



F7F-1 TIGERCAT WAS FIRST NAVY TWIN-ENGINE PLANE TO LAND ABOARD

ORDNANCE IDEAS PAY OFF



LOCKHEED'S XJO-3 LOOKS LIKE A BEECHCRAFT hook was installed on the P2V-3C airplane and numerous successful field carrier landings and arrested landings made with it at Patuxent River. It has not landed aboard a flattop yet, however, since the AJ was selected as the Navy's heavy carrier-based bomber. Twin engine B-25's took off the *Hornet* to strike Tokyo early in the war.



BIPLANE T2D FIRST MULTI-ENGINE CV AIRCRAFT

The AJ is certainly the largest and heaviest aircraft to land aboard any carrier to date. Weighing 50,000 pounds, almost twice that of the 27,000 pound B-25 that came aboard the *Shangri-La*, in September, 1944, it has a wingspan of 71 feet. The P2V with 100 feet span does not have much clearance when passing the island on takeoff.



AIR FORCE B-25C LANDED ON THE SHANGRI-LA

Anyone knowing of any other twin-engine aircraft which have landed on carriers or having any information as to whether the T2D, XJO-3 or XF5F-1 did so is invited to communicate with NAVAL AVIATION NEWS.

• NAS MINNEAPOLIS—Lt. J. C. Wilkins, a Reservist recently on cruise prepared an excellent training syllabus for Reserve Supply Corps officers on cruises and for S and F department personnel of the Organized Reserve. In civilian life Lt. Wilkins is a training specialist in private industry.

VF-113, KOREA — Four time-saving ideas have been developed by this squadron during combat operations against the Communist Koreans, thanks to the ingenuity of the chief ordnanceman and his aircraft structural crew.

1. As a result of loading 20 mm cannon with wings folded, there were many cases of gun stoppages. It was determined that two rounds were being fed out of the ammunition can simultaneously, subsequently causing a belt ten-



METAL STEPS HOOK INTO WING EJECTION CHUTE

sion stoppage to occur.

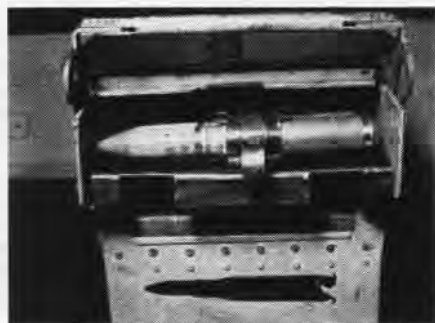
A curved metal fairing which was riveted to the exit side of the ammunition can was designed by the ordnanceman. This modification allows only enough clearance for one round of 20 mm ammunition to be fed into the feed mechanism. It also holds the ammunition in place when the wings are folded. Consequently, the weight of the ammunition belt is removed from the ordnanceman while he is loading the gun with the wings folded.

In addition to making the loading operation easier, the gun stoppages due to rounds jamming in the feed mechanism have been entirely eliminated.

2. The distance from the deck to the outboard rocket station of the F4U-4B when the wings are folded, is about 12'. It has been necessary to load by hand 5" rockets weighing about 140 pounds or 260-pound bombs on these outboard stations when the wings are up.

To help the ordnanceman do this job, a pair of metal steps, with hooks on the top to be placed in the brass ejection chutes on the undersides of the wing, were designed.

3. With accelerated combat operations, it has been impossible to keep



METAL FAIRING HOLDS 20 MM BULLET IN PLACE

clear the area on the hangar deck about #1 elevator, where the boresighting previously had been done. This problem was solved by painting the boresight template on the inboard side of the island. The aircraft now are placed near #2 elevator on the flight deck facing inboard. The squadron has been able to boresight guns any time there was a slack period.

4. Until a method was evolved to drop an external fuel tank while it was full, an unnecessary delay was involved in degassing and refilling the tanks. To hasten the process, the squadron now has a metal band which fits under the tank and is hooked at either end by a "D" shaped connection to a brace which fits on top of the tank.



TARGET ON ISLAND MAKES BORESIGHTING EASY

There is a screw type advantage on the brace to allow necessary tightening of the band. Shaped wooden blocks are placed on either side of the tank, on the lip where the two halves are connected to prevent their being bent. This device holds the tank rigid, and it can be dropped and replaced while filled.



CALLING OLD P-BOAT MEN

All officers and men of old VP-14 (1938-39), VP-52 (1939-1941) and VP-72 (1941-1943) are requested to contact Lt. C. P. Sonneborn, Staff, Commander Utility Wing, Atlantic Fleet, Bldg. SP-2, Naval Air Station, Norfolk 11, Virginia. Mission: Squadron get-together in the Norfolk area in July or August. Let's hear from you if you think the idea's good.

LETTERS

SIRS:

Since the November issue of NAVAL AVIATION NEWS has reached its readers, I have received many compliments on the story "Accent On Airships." These compliments, of course, belong to you and I gladly pass them along and add my own.

There have been a number of feature articles written on this particular program since its inception that have appeared in Metropolitan newspapers. Your article is, by far, the best in clarity and in informative and intelligent writing. I am sure it will do more than any other one thing to inform the Navy of the purpose and progress of this program here.

We are grateful to you for the swell job. With all good regards,

CAPT. GEORGE WATSON
CHIEF OF NAVAL AIRSHIP
TRAINING AND EXPERI-
MENTAL COMMAND

NAS LAKEHURST



SIRS:

The officers of the U.S.S. SICILY (CVE-118) have made a plaque commemorating each 1,000th landing made aboard the ship.

Prior to and during the Korean campaign the ship recorded her sixth and seventh thousandth landings made by Lt. Soule of VS-21 and 1st Lt. Heilman of VMF-214 respectively.

Records of the ship do not contain the names of pilots who made the first, second, third, fourth and fifth thousandth landings. These landings were made on the following respective dates: 25 November 1946, 25 April 1947, 7 July 1947, 12 September 1947, 8 February 1949.

Any information regarding the names of these aviators would be greatly appreciated.

J. S. THACH, CAPT.

† Anyone knowing who these five "honor roll" aviators are should communicate with the Sicily, which is doing a slam-bang job of fighting the war in Korean waters.



SIRS:

In the year VR-6 has been with the Atlantic division of MATS, the squadron's various athletic teams have been fortunate in their fields. The *Budgers* won the base champion-



ship in basketball, bowling and track, plus the Western Massachusetts state softball championship and cup. In addition, they won numerous base awards for place and individual honors in golf, bowling, softball, basketball and track.

Posted behind the display of a year's athletic winnings are four of the squadron's muscle mainstays; left to right, Chief M. B. Choat, athletic chief and coach of the softball, basketball and track teams; Robert E. Peterson, AN, co-captain of the basketball team; Jack Renn, Chief M. T. Woodcock, VR-6 leading chief and captain of the bowling team; S. D. Stilwell, ADAN, captain of the softball team.

PUBLIC INFORMATION OFFICER
VR-6, WESTOVER



SIRS:

Please advise the city pictured on the back cover of the November 1950 NAVAL AVIATION NEWS.

PUBLIC WORKS DEPARTMENT
NAS MIAMI

SIRS:

A very heated discussion has developed within the folds of Squadron VC-11 as to the identity of the city pictured on the back cover of the NAVAL AVIATION NEWS for November 1950.

Would you enlighten us? This I am sure will put some weary minds at rest. Thank you.

COMPOSITE SQUADRON 11

† The two *Constitutions* are flying over San Francisco. Coits Tower and Telegraph Hill in the lower left hand corner of the picture are the chief clues.



SIRS:

Evidently few people are aware that there are some naval aviation personnel located at this out-of-the-way corner of Alaska. We used to get NANEWS through NAS KODIAK, but we haven't seen an issue since July. We'd appreciate being put on your mailing list and seeing the back copies if possible.

Duty as Point Barrow is interesting to say the least. While we have no military aircraft based at Barrow, we have a half dozen bush planes and an R4D, all equipped with skis. They fly out of the strip here in support of the various drilling rigs scattered around the tundra of the Navy's petroleum reserve.

We also have several R5C's operating between Fairbanks and Point Barrow to provide air support for the petroleum contract. They haul freight, passengers, and mail to and from the contract. All of these planes are on contract to the Navy from Transocean Airlines.

We're gaining much invaluable cold weather experience. In a few months we'll have enough information for an article for NANEWS.

CDR. G. K. EBBE
AVIATION TECHNICAL ADVISOR

BOX 1510
FAIRBANKS, ALASKA

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● THE COVER

While their ship is anchored to a buoy in Sasebo harbor, Japan, the crew of the carrier *Leyte* took time out to spell out the name of their ship on the flight deck. Photo from a 7x7 inch aerial Kodacolor.

● SUBSCRIPTIONS

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

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SQUADRON INSIGNIA

FOUR animals feature this month's squadron insignia. Probably the most famous is the Red Rippers, VF-11, with boar's head, sausage and lightning flash in red and yellow. VC-3's bulldog has a scratch on his chin from previous encounters. The cloud background and bat on the shield indicate all-weather flying. The lance indicates attack and the shield defense. Two Reserve fighter squadrons are presented. VF-886 has a cat carrying a bomb and rocket, riding a Kansas-shaped barn door with guns. VF-915 from Squantum has a fighting beaver.



VF-886



VF-915



VC-3



VF-11

IT'S NEW!

AVIATION CIRCULAR LETTERS

NAVY DEPARTMENT
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
WASHINGTON 25, D.C.

Op-501/43
2153050

22 September 1950

AVIATION CIRCULAR LETTER NO. 59-50

From: Chief of Naval Operations
To: All Ships, Stations and Units Concerned with Naval Aircraft
Subj: NAVAL AVIATION NEWS; Submission of articles for
Ref: (a) ACL 128-45

1. Reference (a) is hereby cancelled.
2. Submission of newsworthy articles for publication in the NAVAL AVIATION NEWS in accordance with reference (a) is no longer an official requirement. It is requested, however, that commanding officers of all aircraft carriers and tenders, aircraft squadrons attached to Fleet Commands, Naval Air Stations, separate aviation units ashore and afloat, including Naval Reserve Air Stations and training units, Marine Corps Air Stations and squadrons, make future reports as described below to the Chief of Naval Operations (Op-501D) Washington 25, D. C.
3. The NAVAL AVIATION NEWS is a monthly magazine published by the Deputy Chief of Naval Operations (Air) in conjunction with the Chief of the Bureau of Aeronautics. A RESTRICTED edition is distributed to naval activities and an UNCLASSIFIED edition is available by subscription through the Superintendent of Documents, Government Printing Office.

ACL 59-50 So it happened to you! Write it down and send it in, so others can cash in on your experience. It may save dollars, and better yet, a life. Live wire squadrons, ships and stations not only get the word in but study *Naval Aviation News* to increase their own efficiency. Don't hide your light under a bushel. As a share-the-wealth plan, it's tops, and everyone benefits.

NAVAL AVIATION
NEWS