NAVAL AVIATION NEWS

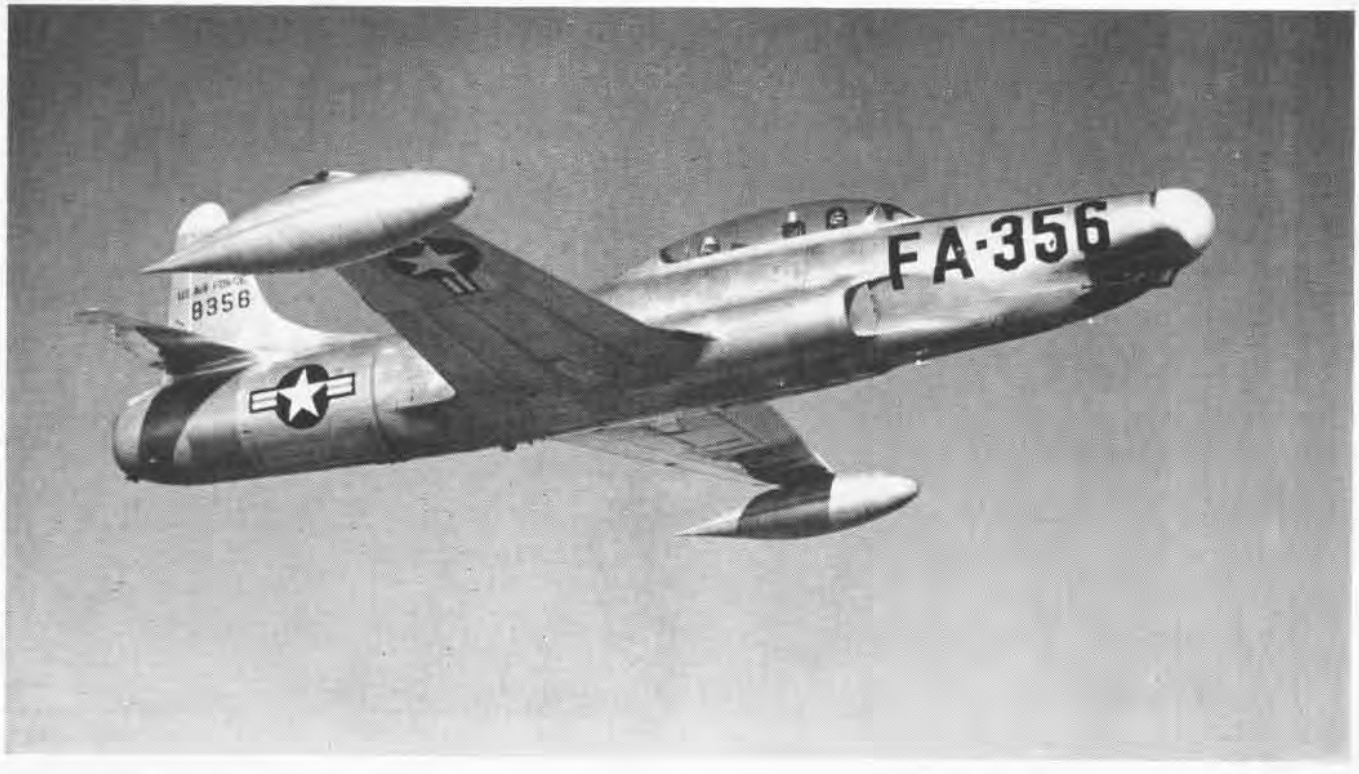
RESTRICTED

Weather Central
Ejection Seats
NavAer 00-75R-3

SEPT. 1949

RESTRICTED

LONG NOSES ON AF JETS



Both planes were made by the same company, one an interceptor and the other a night fighter that looks like a P-80 jet. Look for the answers on the last page.

STORMWATCHERS, INC.

TWO YEARS is almost ancient history when referring to unification in the National Military Establishment. Yet that is how long the Weather Bureau-Air Forces-Navy Analysis Center has been in successful operation.

WBAN—pronounced Wayban by those who work there is the nerve center for weather prognostication utilized in countless air and marine operations.

Located at 24th and M Sts., N.W. in Washington in an unimpressive building, this service combines the talents of civilian, airman and sailor meteorologists. Working side by side, these scientists operate a 24-hour-a-day unceasing watch on the forces of nature in relation to human activities in the northern hemisphere.

Into this Center from all parts of the globe, from sweltering tropical stations to blizzard-racked outposts near the North Pole, pour observations in a never-ending stream. Any one observation in itself is worthless in foretelling the future weather. But by taking thousands of these reports the Center comes up with a pressure map of the hemisphere. Forecasting has become such a science that it is now standard practice to look seven days into the future.

Services rendered to industry and transportation by the Center are so valuable that their worth approaches the realms of national debt finance. Not only are there military considerations regarding weather, but the entire field of air transportation and air warfare is dependent on accurate weather analysis. All marine operations must be based on weather, and agriculture has placed increasing emphasis on the statements of the weatherman. For example, a word from the weatherman brings out the smudge pots in the orange groves of southern California to ward off the frost.

A glance at the operation of the Analysis Center is unimpressive, but a closer scrutiny unfolds a fascinating tale of science practically applied. It is detective work of the highest order, as enthralling as a Sherlock Holmes whodunit projected on a world-wide scale.

HANCOCK AND NEW JERSEY WERE FOREWARNED OF HIGH WIND AND SEAS

HURRICANE SWEEPING OCRACOKE, N. C.; WARNING SAVED MANY LIVES

Pilots, Mariners, Farmers; All Wanted Box Score; Unity Was Natural Result

MANY TIMES in a summer, Washington sultry heat becomes so unbearable that those government workers who are located outside the cool caverns of the Pentagon are released early from their hot desks in the older buildings.

Believe-it-or-not, the laboratory that determines when to release them is the Weather Bureau itself. There the temperature and humidity are watched closely and other government agencies take their signal from 24th and M Sts. NW.

One section of rooms at the Weather Bureau, however, is air conditioned. Of necessity, the highly-skilled technicians who watch the weather for us must not be distracted by its vagaries as they maintain a 24-hour-a-day vigil.

With the growth of aviation from fledgling status to an adult transportation and military medium more and more of the Weather Bureau's attention has gone into analyzing nature's variations in relation to flying.

In fact, the demands of aviation led to accelerated research in high altitude actions of air masses and reporting of weather observations from all over the northern hemisphere.

It was inevitable that sooner or later the Air Force, the Navy and naval aviation with their demands on so great a portion of the end product of weather observation should be included in a combined setup.

For many years the Navy with its Weather Centrals, the Air Force with its Air Weather Service and the Weather Bureau operated independently in analyzing the weather and preparing maps, although they shared international information.

Long before unification became as widely discussed as it is nowadays the action was taken establishing the WBAN Analysis Center. The two military services and one civilian agency began joint operations 16 July 1947.

This operation wasn't all peaches and cream for the Navy. It had been determined long before that the existence of Fleet Weather Centrals was mandatory if safe conduct was to be assured Navy vessels on the seas. Navy Weather Central in Washington has been in existence since 1941. Other Fleet Centrals are located in Norfolk, San Francisco, Honolulu, Guam, Kodiak, Seattle, San Diego and Manila. A Navy Hurricane Weather Central is located in Miami.

FINDING TRAINED PERSONNEL IS PROBLEM

With these stations manned by highly-trained personnel it was a painful process, what with postwar demobilization, to pull enough aerographers and analysts together to help man the joint activity. This problem was solved by locating the Navy Weather Central in the same building as the Analysis Center. The Navy was assigned certain tasks outside its own needs. We will talk about those later.

Physically, the Center is unimpressive. It is in an ancient building behind a modern one where the Bureau administration is housed. Behind this 19th century exterior, however, is an amazing communications network whose fingers reach all over the world.

If it weren't for the radio and landline facilities installed, the weathermen might just as well hang up their suits. Lifeblood of the entire science of prognostication is the flow of observations from the steaming jungles of Brazil to the snowed-in huts of northern Greenland. Since it is an operation which involves the cooperation of many agencies within our own country and with every foreign nation, the administration of the Weather Bureau necessarily dwarfs the analysis section.

There is no iron curtain around weather observation.

DR. F. W. REICHELDERFER, BUREAU HEAD, CHECKS HURRICANE TRACKS

FOREWARNED IS FOREARMED; CARRIER BUCKS BIG SEAS OFF IWO JIMA

OBSERVATIONS FROM REMOTE POINTS VITAL; HERE IS ONE IN CHINA

JOHN BENSON, METEOROLOGICAL AID, MANS BATTERY OF TELETYPES

No nation can be independent where weather is concerned.

With every observation post sending in at least one report a day—most in the U. S. make hourly reports—the battery of teletypes at the Center maintain a constant clatter and turn out hieroglyphics by the roll. Landline circuits in the U. S. are Bureau-maintained. Radio reports come from Navy and civil communications facilities. Ships at sea are one important source of information.

PLOTTERS WORK UNDER PRESSURE TO MEET DEADLINE

From the teletypes the distinctive yellow paper takes a walk of 10 feet to the plotting room. Working side by side here are sailors, airmen and civilians. For every portion of the northern hemisphere the individual observations are recorded on maps four times a day, and for North America and surrounding ocean areas many additional times. Each station is represented by a "rose" which is a square of figures indicating temperature, dew point, wind velocity and direction, atmospheric pressure and changes since last report.

This plotting is no leisurely affair, for the analysts are waiting to pounce on the maps with their specialized knowledge and meet a deadline for the voracious teletypes and facsimile machines.

Brain waves emanating from the Analysis Center are akin to those of a newspaper office. Both work under pressure and both have to meet deadlines. With quiet efficiency these civilian and military meterologists turn out many different kinds of maps, some of which are reproduced as is by facsimile. Others are coded and sent out by teletype and radio.

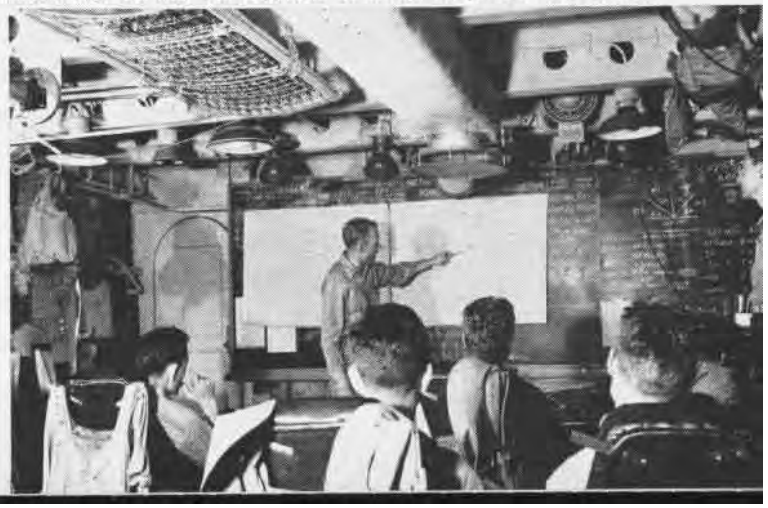
United States surface maps are prepared every three hours. Every six hours all of North America and nearby ocean areas are included. Such is the efficiency of the center that one hour and 30 minutes after the observations are made the maps are finished—plotted, analyzed and coded—and on the wire.

Since facsimile copies have to be lifted from the original by tracing they aren't on the wire until two hours and 20 minutes from observation time. Five hours and 20 minutes pass until the charts of the upper air are completed.

INTERSERVICE PLOTTERS: CPL. ELLIOTT, THOMAS, AULETA, BOWMAN MEETING MAP DEADLINE ARE LT. McCANN, AGC VOWELL, W. CHAPMAN

PILOTS ARE BRIEFED ON WEATHER IN READY ROOM BY CDR. WRIGHT

FACSIMILE GOES TO 185 STATIONS; BECK AG3, CPL. THOMAS SEND



C. L. MITCHELL MAKES SEVEN DAY FORECASTS

J. R. FULKS IS HEAD WBAN ANALYSIS CENTER

MAP FOR ATLANTIC STUDIED BY CAPT. BERRY

High Speed Is Feature in Preparing Maps for Transmission by Code & Fax

IN PLOTTING and analyzing the maps it is interesting to note some of the remote observation posts. Thule, Greenland, at 76 degrees N. on the west coast, is one of many joint Danish-U. S. Arctic posts. In the Canadian Northwest territory are posts at Eureka, Risolute, Cambridge Bay, Holman Island, Prince Patrick Island, Isachsen Island and Aklavik—all above 68 degrees N. and manned the year 'round. There are many stations in Siberia, and Spitzbergen is represented.

Often a series of observations leads to the North Pole and back—a B-29 making a flight from Alaska.

If all the Center had to do was make a surface map its task would be simple. But in addition maps are prepared for 850 millibar, 700 MB, 500 MB, 300 MB, 200 MB and 100 MB constant pressure levels. The center also prepares for transmission every 12 hours pseudo adiabatic charts of 32 points in North America. They appear 16 to a sheet.

The 32 adiabatic charts represent points where upper air soundings are made with radio-sonde balloons. These balloons, carrying small transmitters, measure temperature and humidity and send the information back to the station automatically. The upper air charts with the exception of the 100 MB are sent out by facsimile and the first four are coded.

Each day 30-hour and 54-hour prognostic charts are made on surface conditions while a 36-hour 700 MB prognostic chart is made twice a day.

These upper air charts are of prime importance in air operations. With planes flying on regular schedules from 14,000 to 24,000 feet for *Stratocruisers* and *Constellations* and 40,000 feet for B-50's, a surface map is of no value. The pilot planning his long range flight wants to see what is going on at his flight altitude. As made now these maps show upper level fronts and pressure patterns. In long flights the straightest line isn't always the shortest distance between two points. Pressure pattern flying is now in common practice wherein the plane seeks the portion of a high or low where a tail wind exists. Time and fuel are thus saved.

URIAS, AG1, LT. COYNE, FURNISH LATEST WEATHER TO LT. (JG) BOWEN

UPPER AIR MAPS ARE BASED ON PRESSURE ALTITUDE

Upper air maps, as can be seen, are based on pressure levels rather than definite altitudes. Isolines show the altitudes where a certain pressure is found instead of the pressure at a certain altitude. Approximate altitudes for each of the maps made are: 850 MB-5,000 ft.; 700 MB-10,000 ft.; 500 MB-18,000 ft.; 300 MB-32,000 ft.; 200 MB-40,000 ft.; 100 MB-54,000 ft.

Head of the WBAN Analysis Center is Joseph R. Fulks. On duty in each shift are seven analysts of the three organizations, one of whom is a supervisor. With so many different services being rendered, the jobs are split up and scattered over the big air-conditioned room.

A division of labor by services is also in effect. It is the Navy's job to prepare a map of the North Atlantic four times daily. This map extends from 100 degrees W. to 0 degrees. For the Pacific west of 100 degrees W. the Air Weather Service and Weather Bureau combine to cover that area.

These ocean area maps are of value principally to merchant shipping. As soon as the overall map is completed in the Analysis Center, Navy men code their section for broadcasting with the regular weather reports which contain storm advisories, flight reports, ship reports, sferics, gradient winds, automatic weather station reports, seismological reports and hurricane reconnaissance and reports.

Navy men also aid Weather Bureau personnel in plotting RAOBS (radio-sonde observations) on the pseudo-adiabatic charts. One highly specialized cross check concerns ship reports. One man each day keeps a record of observations made of every ship by name. By constant cross checking he can determine how accurate any one ship is in making its observations in comparison to nearby reports. Individual ship's instruments are then known for their error and a weight assigned. This detective work pays off in greater accuracy.

Coded maps, nicknamed "canned" maps, must be checked for accuracy. As the coding proceeds another man takes the code, breaks it down and makes the map from it. Thus any incipient error is nipped in the bud. Coded maps which

come from La Guardia and San Francisco are broken down for comparison.

Perhaps the most fascinating part of the Weather Bureau activity involves long range forecasting. Although not actually a part of the Analysis Center, the Bureau's Extended Forecast Section is just upstairs from the Center and works closely with it. Twice a week this section turns out a five-day forecast, the first such forecast to combine knowledge gained in the past decade.

Closely akin but working for the Navy Weather Central is Mr. C. L. Mitchell whose forecasts are seven days in advance when completed but are six days by the time they are transmitted on Tuesdays and Fridays. They cover the northern hemisphere.

NO CRYSTAL BALL FOR LONG RANGE FORECASTS

It may be presumptious to try to explain how Mr. Mitchell arrives at his conclusions, but his method is not too deep for the average pilot to understand.

He keeps a sort of scoreboard of the hemisphere. Working with maps with the North Pole as a center he tracks highs and lows around the world in their normal progression from west to east. Because weather changes are generated in the upper atmosphere he uses 500 MP maps only. It is in the higher regions where the flow of frigid air is from the tropical to polar regions that slight changes in pressure can mean big changes below. His maps are filled with tracks of various colors. Green lines trace the greatest fall in pressure. Greatest gain in pressure is purple. By taking into consideration what is the normal progression and applying what variations he has found he arrives at a long range map.

One interesting sidelight discovered by Mr. Mitchell is that some lows in polar regions are sometimes reported as having disappeared. In reality they simply have passed into regions where there are no stations to observe. The polar flights mentioned previously often dig them out again.

All of this activity touches intimately on the life of every naval aviator. He has studied aerology in ground school and has had weather drilled into him in flight operations.

His most obvious contact with the activity of the Wayban Center is the weather office at any Air Force or Navy field where he sees whirling drums roll out maps day and night. The facsimile machines are located in 58 naval air stations in this country, and 110 Air Force bases. Seventeen are

RADIO-SONDE TRANSMITTERS SOUND UPPER ATMOSPHERE ECONOMICALLY

leased by universities, laboratories and commercial airlines.

One new development which has been experimental so far but which will come into greater use is facsimile on board ship. Radio fax requires equipment similar to radio-teletype. With maps made available which are the product of expert analysis, carrier operations will be immeasurably improved and will increase the confidence of pilots.

The Navy's weather service is a function of the Chief of Naval Operations under the direction of Capt. H. T. Orville, while Capt. F. A. Berry, Jr., is head of Navy Weather Central.

Chief of the Air Force's Air Weather Service is Brigadier General D. N. Yates, while Major H. J. Avise is head of the AWS unit at the Center.

Chief of the entire Weather Bureau is a retired Navy officer, Dr. F. W. Reichelderfer, a World War I aviator.

Thousands of times a day pilots will ask, "How's the weather between here and Anyburg?"

The answer, thanks to WBAN Analysis Center, will be forthcoming in a very few minutes, accurate and up-to-date.

GRAMPAW PETTIBONE

A Word to the Wise

A flight of seven FG-1D aircraft took off from NAS SEATTLE for NAS WHIDBEY ISLAND to operate from that station for rocket firing at a nearby target. The flight time to Whidbey Island was 30 minutes and the planes then made two rocket firing flights from that station. The total flight time up to this point was 2.8 hours per plane.

Four of the seven planes were refueled at NAS WHIDBEY ISLAND prior to the fourth flight. Three pilots did not gas their planes because their gauges read approximately 115 gallons and it was expected that the fourth flight would only take about 45 minutes including the return to Seattle. Besides, after refueling the first four planes, the gas truck was empty and a delay would have been involved waiting for it to be refilled.

While rendezvousing in the vicinity of the target area after expending all rockets, one pilot called the flight leader to say that his engine had quit. His altitude was 2500 feet and he immediately turned toward an airstrip about 6 miles north of the target. He states that all gauges were normal when the engine quit except the fuel pressure, which had dropped to 8 lbs./sq. in. His fuel selector valve was on "Reserve" throughout the flight. He turned on his emergency fuel pump but it gave no increase in pressure.

Altitude was not sufficient to reach the airstrip, so the pilot chose a clear area and made a wheels-up landing. The plane was a strike but the pilot escaped without injury.

An inspection of the plane after the crash revealed:

1. The gas tank was empty.
2. The gas gauge read 60 gallons.
3. No mechanical difficulty was evident that would have caused the engine to fail.

Grampaw Pettibone says:

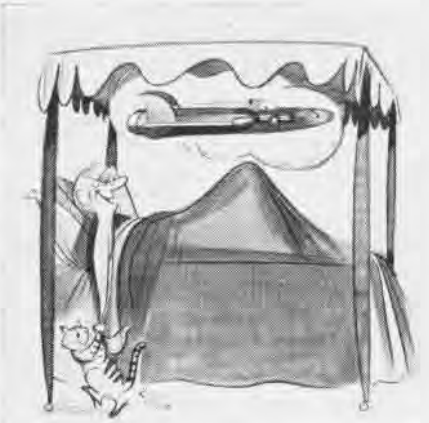
After flying 2.8 hours, during which they made three take-offs and a good many climbs to altitude prior to starting their rocket runs, it seems to me that these pilots might have been a little suspicious of gasoline gauges which showed 115 gallons of fuel remaining.

They could have asked the driver of the gasoline truck to tell them how much gasoline each of the other four planes required.

After take-off the pilot of the plane that crashed could have shifted to "Main" instead of flying on "Reserve" position. He would then have known when he was down to his last fifty gallons of gasoline and could have headed for a safe landing area.

Since this accident called attention to the faulty readings of the gasoline gauges, the instruments in each *Corsair* on this station have been checked by use of a calibrated dip stick. This will be done periodically to determine any future malfunctioning of the fuel gauges.

Looks to me like this might be a darn good idea for all outfits that use the FG/F4U type aircraft. It doesn't require much ingenuity to manufacture a calibrated dip stick, and the periodic checks can be made whenever a plane is being refueled after a fairly long flight.



Dear Grampaw Pettibone:

An argument has been raging among the pilots assigned this unit for sometime. Perhaps you can help settle it for once and for all.

With consideration for both supercharged and non-supercharged reciprocating engine-propeller powered aircraft, at what altitude (no-wind condition) will a given aircraft make:

(a) Its maximum speed?
(b) Its maximum range?
(c) Why?

Hope to see your answers soon.

Yours truly,
LT. U.S.C.G.

Grampaw Pettibone says:

I tugged on my beard for a couple of days trying to figure out satisfactory answers to these questions and then sent your letter down to the performance experts in BuAer.

I wish you could see some of the fancy formulas they sent me—lots of signs that stood for lift, drag, propeller efficiency, engine critical altitude, specific fuel consumption, maximum speed, ram effect, density altitude, etc.

For a couple of days I quit saying top speed, I was strictly a "Vmax" man.

When I finally got around to having these formulas explained to me things cleared up considerably.

For instance, I learned that the F6F-5 will make its top speed (Vmax that is) at 24,000 feet. Why? Because this is the highest altitude at which the engine will deliver maximum power in high blower, and up there the density of the air through which the plane is flying is less than at any lower altitude. For the AD-1 the corresponding altitude is approximately 16,000 feet, and for the F4U-4 it's 29,000 feet.

The relationship between altitude and range is a little more complicated. Up to a certain point range increases slightly with altitude, but actually the choice of the most desirable altitude is usually made on the basis of the prevailing winds. However, if we assume a no-wind condition as you suggest, here are some of the factors that determine the best altitude for maximum range.

First of all we've got to know just about everything about the plane including how much it weighs, and the specific fuel consumption at various power settings, to say nothing of having a little dope on the lift-drag ratio and the propeller efficiency at various altitudes and various power settings. Also we've got to know the temperature of the outside air at various levels. To top it all off you've got to figure out how much gasoline you're going to burn getting up to the most favorable altitude, because the fuel you expend in the climb is never fully regained in the glide at the end of the line.

Fortunately for most of us, the flight test experts at Patuxent have done all this long and tedious work. We can find most of the answers in the *Pilot's Handbook* or in *Supplementary Operating Instructions*. These charts and tables are figured out for standard operating conditions and a given weight, but correction tables are provided, so that you can correct for variations in temperature, airplane weight, and for such things as having the cowl flaps or oil cooler doors partially open.

There are surprising variations in planes with somewhat similar characteristics. For example, the best altitude for optimum range in the F6F-3 is between 1,000 and 2,000 feet, while for the F4U-1 it is very close to 10,000 feet.

While we are on the subject of maximum range, I'd like to put in a plug for a safety pamphlet that's fun to read and might save your life some day. It's called *Fuel Savings Sense* and I'll be glad to send a copy to any naval aviator who will send in the coupon on the opposite page.

Someday you may be in a spot where a

few extra gallons will make the difference between getting back to your base or carrier, or waiting it out in a life raft.

If you don't want the pamphlet you might cut this out and paste it on your windshield:

WHY WORRY?

"There's not much use worrying because I'll either get back to the carrier before my gas runs out or I won't. If I get back my worries are over. If not, then, I only have to worry about whether to bail-out or ditch. If I bail-out, the chute either opens or it doesn't open. If it doesn't open my worries are certainly over. If I ditch, it will either be a good one or a bad one. If it's a bad one I won't get out, and my worries will be over. But if I get out, I'll only have to worry about whether my Mae-West works or doesn't work. If it doesn't work my worries are over. If it does work then all I'll have to worry about is whether they find me or don't find me. If they don't find me my worries will soon be over, and if they do, I've only got two things to worry about. Either the Accident Board will call it "pilot error" or they won't. If they don't, I've got nothing to worry about. If they do—well they'll either send me before a Disposition Board or they won't. If they don't, I have nothing to worry about. If they do, then the Board will either jerk my wings or they won't. If they don't, I've got nothing to worry about. If they do? Well, there are a lot of jobs that are safer than this so, WHY WORRY?"

"Dear Grampaw Pettibone:

I noted with interest your story in a recent issue regarding the student who groundlooped twice and suddenly found himself airborne again on both attempts.

Not to go one better, but did you ever hear about the solo student in primary at NAS BUNKER HILL, Indiana in the spring of 1945 who groundlooped a wee bit further and became airborne? It seems that he was returning from a flight, entered traffic pattern normally, and since he had taken off in one direction, and was doing the opposite maneuver, he decided that the direction of his landing should also be opposite.

Thus the tower observed one N2S landing on the mat directly opposite to the landings of about 50 others. This student stated that he was not aware of anything peculiar until he was involved in a well developed groundloop. After turning *360 degrees* he decided that he was in an embarrassing position, groundlooping among all those other aircraft, and he had better get out of there quickly. He did—he took off immediately—downwind and still against opposite traffic. He finally extricated himself from that traffic, reentered and landed in the normal manner.

Summary of this student's experience indicated no previous flying prior to entering primary training, but, that at the time of this flight he was on one of the last solos prior to his "C" Stage check.

WHY PRIMARY INSTRUCTORS GOT GRAY!!

A Former Primary Flight Instructor"

Up—Over—Under

The pilot in the F4U-4 pictured here is obviously in serious trouble. A few seconds before he was given a fairly late wave-off by the LSO who had noticed that his hook was not down. (The hook spotter had previously given an "ALL DOWN.")

Apparently the pilot lost sight of the LSO as he rolled out of his turn at the ramp; he *anticipated* a cut, and had taken off some throttle by the time he saw the wave-off signal. The plane had started to settle. The pilot applied full throttle and started a left turn in a nose high attitude.

The left wing continued on down as the engine torque began to roll the plane. A second or two after the lower picture was taken the plane nosed down and hit the water at an angle of 70 degrees.

The pilot was strapped in snugly. His shoulder harness was locked. He cleared the wreckage in a few seconds and inflated his life jacket. Within a matter of minutes he was picked up by the search and rescue helicopter.

Dear Grampaw:

I hear via the grapevine that you once did some flying out of Newfoundland, so I thought you might enjoy this song:

SONG OF NEWFOUNDLAND
or
Where the Hell Shall I Land?

To the tune of "My Bonnie Lies Over the Ocean" or "My God How the Money Rolls In."

En route from Goose Bay to Argentia
A pilot is singing the blues,
As he circles the town of Placentia
He moans to the airwaves the news:

CHORUS:
ROLLS IN, ROLLS IN, MY GOD HOW THE FOGBANK ROLLS IN, ROLLS IN
ROLLS IN, ROLLS IN, MY GOD HOW THE FOGBANK ROLLS IN.

Argentia has zero and zero,
Torbay has forgotten the sun,
I wish to God I were a hero,
I'd try to make Bluie West One.

(CHORUS)

Goose Bay has a hole in its ceiling;
It claims it is 30 feet wide,
But I have an uncertain feeling
The whole thing is just local pride.

(CHORUS)

I asked for the weather at Torbay,
They say that they really don't know;
Their forecaster's lost on the runway,
They think that the ceiling is low.

(CHORUS)

Take care of my dear aging mother,
Take care of my young ball and chain,
And say a kind word for me, brother,
For soon I'll be feeling no pain.

(CHORUS)

(Author's note: This was written on the back of a page from HO 510, in the hope that someone would come upon these immortal verses in the wreckage and forward them to the Hook Committee.)

Lieut. (jg), USN.

Grampaw Pettibone says:

I know what you mean. The best life insurance any pilot can have in that area is plenty of instrument practice and lots of confidence in G.C.A.

Grampaw Pettibone
Naval Aviation News
Room 4D356
Pentagon Bldg.
Washington, D. C.

Dear Grampaw:

My neck is just as valuable as the next guy's. Please send a copy of "Fuel Saving Sense."

Rank Name Corps

Address

P.S.

Despite the hot dope that I'll get out of this booklet, I promise not to fly over water without my life jacket.

Changes in VHF Channels

Emergency Guard Channel Replaced

Effective 1 September 1949, the present emergency guard channel 140.58 Mcs is being replaced by the new International Aircraft Emergency VHF Channel 121.5 Mcs. Effective same date 140.58 Mcs replaces the Joint Military/CAA VHF calling channel 116.1 Mcs. The use of 116.1 Mcs by VOR omni ranges necessitates the discontinuance of this channel as a Joint Military/CAA air/ground frequency.

Beginning with the August "Airman's Guide" appropriate notices of the changeover are being carried for all concerned. The utilization of 140.58 Mcs as a Joint Military/CAA air/ground frequency will apply only to the continental United States until such time as arrangements are complete for the establishment of a guard outside the United States on 121.5 Mcs. The 140.58 Mcs channel remains available as an emergency frequency in task force operations outside the United States.

First Navy AP Reaches '30'

Blizzard Retires After Long Service

He was an Air Force pilot in 1919.

Two years later he was the only white-hat Naval Aviation Pilot in the Navy. He was NAP No. 1, first to qualify in seaplanes, ship and landplanes.

Today Lt. Winston A. Blizzard has retired after 30 years in active service,

BLIZZARD WAS FIRST NAVAL AVIATION PILOT

finishing up at NAS San Diego where he spent 10 years. Blizzard spent 18 months in the mud of France during World War I before he became an Air Corps cadet and was commissioned.

He was out two years, then enlisted in the Navy as a second class aviation rigger, quickly advancing to CPO. He won his Navy commission in 1943 with Fairwing 14 and served recently at North Island as indoctrination officer, senior patrol officer in Coronado and permanent OOD for the station. In the first of these capacities he set up the present efficient system of inducting new service personnel and supervised processing of more than 200 officers and 3,500 men the past three years.

When the *Navy's famous Truculent Turtle P2V-2 flew along the flight route of the NC-4 flying boat, first airplane to span the Atlantic Ocean, it carried along two men who made the original flight—RAdm. A. C. Read and Chief Eugene S. Rhodes. In this photo they are posed with Cdr. Thomas A. Davies, pilot of the Turtle; RAdm. Afonso de Cerqueira (Ret.) who was director of aviation for Portugal when Read landed in Lisbon in 1919; Cdr. Pedro Rosado, CO of the naval aviation center of Bom Sucesso in 1919, where plaque in picture commemorates flight. Portuguese widely entertained the Americans after the P2V flight.*

Key West Ready for 'Blow'

Hurricanes Presaged by Water Spout

NAS Key West—During June the station witnessed the formation of several sizeable water spouts. Most of these appeared in mid-morning and lasted from 15 minutes to half an hour.

They have been seen to form under heavy black cumulus clouds and usually start with a small surface circulating wind that builds up to the cloud base.

This station has conducted drills and material preparation to be ready for any hurricane that may start in this direction. After having been hit by two hurricanes in the 1948 season, everyone realizes the importance of proper hurrican-proof preparation.

1st Lt. *Leonard and Delores Paolini who was recently voted by Reservists in* VMF-321, *as the girl "most desirable to go on maneuvers with", are interviewed by WWDC man" at NAS Anacostia.*

Summer Pilots Need Booties

Berlin Supply Officer Loses His Sleep

VR-6, Berlin—You never know what they're going to want next on the Berlin airlift, says Lt. Russell I. Haag, watchdog of the squadron's flight gear, spare parts and pencils.

He had so much trouble getting his sleep recently that he established an emergency flight clothing locker from which issues can be made at any hour of the day or night.

He was dozing one night when he was awakened by a request for flight boots from one of the plane commanders. Such a request, at such an hour, in the good old summertime seemed a little unreasonable. Checking up, he found many aircraft were picking up ice at 6,500 over Braunschweig and pilots in unheated planes were having trouble keeping the dogs warm.

As a result, the new service was established. "Well," Haag remarked, "they say summer came on Wednesday last year."

GCA BOX SCORE

June GCA Approaches	12,784
IFR GCA Landings	272
Grand Total Approaches	234,294
Grand Total IFR GCA	9,660

PENSACOLA HELICOPTER IS BUSY

NAAS CORRY FIELD—Hardly a week goes by without the helicopter rescue unit stationed at Pensacola going out over the Gulf of Mexico or Florida's swamps to give medical aid to or save naval aviators in distress.

Take a typical month's operations for instance, in this case May. On the 3d, CAP Lieske investigated a crash near Choctaw field. Landing in the swamp 25 yards from the wreckage took some steady piloting as there was very little clearance between the trees and rotors during the descent. The injured pilot was given first aid by the Whiting field flight surgeon and removed by helicopter.

Chief Lieske returned to the crash scene and, deeming it inadvisable to descend through the trees a second time, attempted to hoist the remaining pilot and men from a hovering position above the trees. The pilot was reluctant to be hoisted 80 feet in the air from a "sky hook," so the pharmacist's mate made the ascent. To this man goes the honor of being the first person to be hoisted above the trees in Pensacola area.

Turbulence and lack of of wind made a second hoist impracticable, so the remaining personnel returned to Whiting Field with the ground party which had reached the wreckage.

A serious crash was reported on 4 May and Lt. (jg) R. C. Hamilton had his helicopter airborne two minutes after word was received. Thirteen minutes later he landed at the scene. There were no survivors of the crash.

First rescue at sea came on 25 May when two training planes collided in midair over the Gulf while on a gunnery hop. Mid'n R. M. Lynch had bailed out, released his dye marker and inflated his raft. The rescue PBY located the pilot, and the helicopter piloted by Lieske hovered over Lynch. Shouted instructions from Nicholas, MEA, guided the pilot into the harness.

The pickup met with difficulty when Lynch got tangled in his shrouds. When he was lifted from the water his chute billowed out, nearly touching the main rotors. Lieske immediately lowered the helicopter as near the water as practicable, letting the chute drag back in the water. This enabled the crewman to release Lynch, who was standing on the helicopter's step, from his chute.

On 27 May, Lt. Bill Shawcross became a modern Paul Revere. Instead of riding a horse up and down the byways shouting the "British are coming," this Revere rode up and down the byways shouting, "Have you seen a naval aviator around here?"

It all started when a Whiting Field

CORRY HELICOPTER SAVES MANY PILOTS' LIVES

student was catapulted from his SNJ while on his second flight. The instructor saw the student float down into a corn field and returned to the field to get aid. Shawcross was asked to pick up the student. On arriving at the cornfield, he could find no student, so he flew up and down the highways, hovering over passers-by while he shouted questions.

Landing near a country general store, he phoned in and found the student had hitch-hiked a ride with a motorist.

It may seem the helicopter is getting all the rescue business, but we must add that the PBY-5A also is sent on each mission. It is necessary to have it in the air to act as a relay for information received from the helicopter, as the VHF gear is inadequate because of the low operating level of the "windmill," and also to act as an escort.

The search and rescue helicopter continued to earn its bale of hay during June, figuring in the rescue of three pilots downed in the Gulf of Mexico, NAAS SAUFLEY reports.

When an SNJ in a gunnery demonstration flight landed in the water eight miles west of Pensacola bay, the pilot, Lt. E. R. Helm, and student, Mid'n. R. O. Antley were recovered by a helicopter piloted by Lt. Shawcross.

Later in the month Mid'n. Ted G. West was recovered after bailing out of his aircraft following a midair collision. The helicopter was piloted by Lt. (jg) Hamilton. He was airborne two minutes after the crash report was received. Half an hour later the student was back at Saufley field.

OKAY, SHOOT! BUPERS WANTS MY PICTURE

Flight In A Thunderstorm

You Can't Buy This Kind Of Time

VP-25—During a transpac ferry hop in a PB4Y-2B one of the pilots of this Squadron had an experience reminiscent of the Air Force report, "Operational Feasibility of Aircraft Through Thunderstorms."

The storm was entered several hours before daybreak at an altitude of 8000 feet, the entry being concealed by stratus clouds. During the initial period there was heavy rain, and St. Elmos fire was observed on prop tips. Turbulence became severe as the storm line was entered, lightning flashes increased, and several were quite close to the plane. St. Elmos fire settled on the nose turret which gave a prominent and eerie glare, but occasionally passed to other parts of the plane. Rain striking the cockpit appeared fluorescent.

Altitude changed radically, but attitude was maintained with reduced airspeed. Despite the use of auto-rich mixture and 2300 rpm the cylinder head temperature on two engines dropped to 100 degrees. Suddenly a blinding flash enveloped the plane and a loud crack was heard as a bolt of lightning struck the plane. To the pilot and co-pilot it appeared to strike the bow and they were blinded for some minutes. Other crew members reported that the bolt struck the portion of the plane which they were looking at. The smell of ozone remained in the plane for a half hour.

Visual inspection after the flight landed, revealed that the trailing-wire antenna, which was not reeled-in in time, burned off and the ball bearing clamp on the fair lead had been welded tight by the heat.

Old Yellow Sheet Dropped

Maintenance, Operations To Benefit

Since time immemorial in naval aviation the "Yellow Sheet" has been the magic pass to flight. A hastily scribbled signature and the pilot was on his way.

Now, in order to standardize procedures for all types of aircraft, new forms have been put into use, NavAer 2430 for VT, VA, VF, VFM, VO and VU aircraft and NavAer 2429 for VP and VR.

Aircraft Circular Letter 51-49 describes their use and provides samples. The change was made: to provide maintenance activities with complete engineering information; on occasion to provide clearance authority; for simplicity; and to eliminate use of local forms for recording flight data.

For VP and VR operations form 2429 will be issued for use in booklet form.

TURBOPROP ENGINES EXPECTED TO MAKE XP5Y-1 ALMOST AS FAST AS SOME PROPELLERED VF'S

XP5Y-1 Set to Test Wings

Engine Lack Keeps Plane Grounded

The Navy's fastest patrol plane is sitting on the ramp at Consolidated Vultee Aircraft Corp. plant in San Diego, waiting for the four propeller-turbine engines which will send it into the air.

The XP5Y-1 is a 60-ton flying boat, larger than the famed PBY and PB2Y turned out by Consolidated and considerably faster. It is scheduled to fly this fall, with a second plane expected to make its first hops next year.

The new-type flying boat incorporates a long, narrow hull which provides superior hydrodynamic characteristics over previous aircraft of its type. Its turboprop engines are designed to develop more horsepower per pound of airplane weight than some modern fighter planes. Delays in completion of the engines led to the plane being completed before its power plants.

Other features of the plane are a high wing and single-fin tail. Consolidated made a miniature flying model of the XP5Y-1, complete with operating engines (NANEWS, Nov. 1948), which it used to test flight, landing and take-off characteristics. Another non-powered catapult model also was used to get landing data.

Berlin GCA Technique Used

Corpus Weather School Tries System

NAS CORPUS CHRISTI—Impressed by the rapidity of landing approaches made at Berlin airlift terminals, the all-weather flight school here suggested that combination radio range-GCA stack and approach procedure be evaluated.

In this type of instrument approach procedure, aircraft are held on the local radio range and then when cleared for approach are picked up and brought in by GCA instead of conducting the standard instrument type of approach.

The first trial run was made on the night of 25 May. The stack was conducted from 1930 to 2330. Seven SNB aircraft were used to make up the stack. During the evening 32 approaches were made. Aircraft were stacked from 2,000 feet altitude upward at 1,000-foot intervals.

Departures were made from the range at five-minute intervals and this landing interval was maintained throughout the three-hour period without difficulty. The interval was cut to four minutes one night without trouble.

Middies Learn of Aviation

Pensacola Host to Many in Summer

NAS PENSACOLA—Midshipmen undergoing their annual summer indoctrination in naval aviation are swarming over Pensacola these days, 750 strong, riding in planes, inspecting training operations and finding out what it takes to become an aviator.

They are arriving in six separate groups between 8 June and 12 September, coming here in the R6O *Constitution*, R5D and JRM planes, in groups of 92 to 194 midshipmen.

After being welcomed aboard, the groups hear a talk about pre-flight school, take a guided tour of classrooms, the *Dilbert Dunker*, survival museum, cycloramic trainers and the physical training program.

MECHANIC AT PENSACOLA GIVES MEN THE WORD

The second and third days are spent at Corry and Saufley fields where they talk with ground and flight training officers and watch flight training operations. Other activities viewed by the middies include the low pressure chamber, school of aviation medicine, acceleration unit, O&R, yard craft, night vision, Link trainers, GCA, fire fighting and a flight exhibition by the *Blue Angels* of the Marine jet team. Capt. Louis M. Markham, Jr., is in charge of the midshipman training here.

This program is in addition to the six-weeks summer training aviation cruise for the 2100 NROTC midshipmen from 52 colleges and universities throughout the U. S. This also is conducted at Naval Air Basic Training Command this summer.

MIDDIES SEE A GROUND SCHOOL GUNNERY MOVIE

Seaplanes from VP-49 at Norfolk are based at Pensacola this summer to help in handling the midshipman programs. Nine PBM's with 32 officers and 226 enlisted men under LCdr. Jack L. Grayson are on hand. The CVL *Cabot* indoctrinates the visitors in carrier operations.

Mariner Uses Reverse Prop

Pacific Runways Complicate Work

VR-23, SAN DIEGO—This transport squadron maintains a detachment at NAS AGANA, Guam, which makes full use of its reversible pitch propellers to operate its PBM-5A's off short Pacific island runways.

Weekly scheduled flights go into trust territories serving the atolls and islands of Truk, Ponape, Yap and Palau, once Japanese strongholds. Non-skeds occasionally carry them into Japan, China or the Philippines.

Three amphibious *Mariners* are assigned to the unit and prove ideal for operating in and out of areas which are infested with coral reefs. The reverse pitch props are indispensable on landing on the few available runways in these areas.

Recently a flight was made to Rabaul on the island of New Britain. It is believed that this is the first time a PBM-5A had crossed the equator. At any rate, the full honors of a "shellback" were bestowed on the crew for the hop.

World Tour Lures Radarmen

Twice Around and Ready for a Third

VC-11, PACIFIC—This squadron's skipper, Cdr. Paul E. Emerick, claims two of the Navy's "tourin'ist tourists." Not content with one trip around the world, B. E. Williams, Jr., RD1, and J. W. Carlson, RD2, insisted on another.

Their first trip started in October 1947 when LCdr. James H. Stephens took AEW team #5 aboard the *Valley Forge*. The CV visited British Hong Kong, Tsingtao, Singapore; Trincomalee, Ceylon; Saudi Arabia, Suez canal, Gibraltar; Bergen, Norway, Portsmouth, England, New York, Panama Canal and back to Ream field in June 1948.

Not satisfied with one trip, the two wander-mad radarmen insisted on a second trip the same year. Perhaps they won't admit volunteering to make the second, but ComFairWestCoast orders accomplished the same end. When LCdr. Albert Miller, Jr., took AEW #9 aboard the *Tarawa*, the second "Travelers Delight" tour started—with Williams and Carlson along. They hit about the same ports as the first tour.

Home again from their trips, the pair are still game for another time around the world—in the other direction.

Mars Sets Cargo Records

Own Marks Eclipsed by Kodiak Trips

The *Caroline Mars* twice shattered her own world's record cargo flight on successive trips recently. Responding to calls for logistic support in connection with patrol squadron movements, the JRM-2, piloted by Cdr. James G. Lang, CO of VR-2, carried 45 passengers and 29,279 pounds of cargo on the 1440 mile flight from Seattle to Kodiak.

This flight, and a second over the same route by another *Mars* of Fleet Logistic Support Wings, VR 2, both eclipsed the *Caroline Mars'* 39,500-pound total load carried on the Cleveland to Alameda trip last summer.

In all, three round trips in support of the mission were flown from squadron headquarters at Alameda to San Diego to Seattle to Kodiak and return. The flights all took the planes through notoriously uncertain weather zones, and routine GCA letdowns and approaches were made in each instance.

Radar Catches IFF Signal

False Echo Gives Fleet an Exercise

TAC-1—An incident with a moral for aviators occurred during a trip when this tactical air control squadron was 500 miles northwest of Seattle.

During a long CIC watch on the Attack Force flagship, over a previously quiet combat information net, suddenly came the report, "Emergency IFF!" Only one ship in the force held the contact, but she reported faithfully.

During the next hour business picked up. Air controllers were called, nets were manned and CIC teams augmented. So realistic was the information supplied that the transport-type formation was ordered by the Admiral to form a scouting line and proceed to search for the ill-fated aviators.

It wasn't until an hour had passed that a weak voice over the net proclaimed, "False echo."

The moral? When in trouble, wherever you may be, don't forget your emergency IFF. Could be there's someone watching.

What the *well-dressed Marine aviator will wear in cold weather is illustrated in this group picture of VMF-323, taken last winter aboard the CVE Bairoko off Kodiak, Alaska. The men have on cold weather flying equipment, including the Mk 2 exposure suit. Left to right, standing: Lt. J. P. Vance, Lt. H. Ferguson, Jr., Lt. R. G. Patterson, Lt. W. O. Howle, Capt. D. W. McFarland, Maj. R. C. Armstead, TSgt. W. O. Poore, TSgt. H. W. Newell, TSgt. R. C. Holly, Capt. W. J. Wachsler, Maj. H. D. Raymond, Jr., Lt. N. Vining, TSgt. S. J. Cuczynski, Lt. A. J. Gillis, Jr., Lt. (jg) N. Cohen, MC. Kneeling: Lt. J. G. Folmar, Capt. R. J. Morrison, MSgt. D. E. Rupe, Lt. D. M. Molsberry, Lt. G. Muller, TSgt. R. T. Rodd, Lt. R. P. Ward, Capt. C. W. Boggs, Lt. R. J. Graham. Sitting: MSgt. W. J. Losleben, Capt. R. F. Foxworth, Maj. H. D. Dalton, CO; Lt. D. D. Petty, Lt. L. C. Ritter and Lt. J. L. McCollom. Anyone beat them for dapperness?*

Oranges *and airplanes do not always go together, but San Bernardino residents at their annual Orange Festival saw the above two floats in their parade, entries from Eleventh Naval District and the missile center at Pt. Mugu, California. Four hundred Navy planes flew an aerial parade as a feature of the civic event.*

100-Knot Wind Buffets VP-4

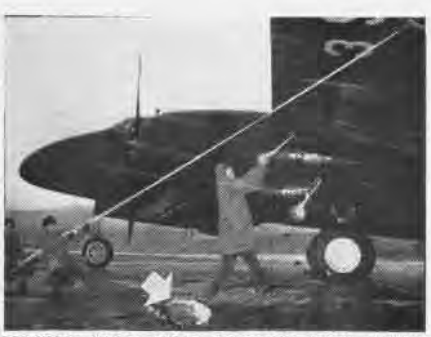
Sudden Adak Blow Tears Cables

VP-4 ALASKA—It is generally acknowledged that winds and weather in the Aleutians present a constant problem to flight and ground personnel. It takes resourcefulness and ingenuity to prevent damage to moored aircraft.

During March, VP-4 encountered winds in excess of 100 knots at Adak. In this instance, such winds were not expected and developed to high intensity in a matter of two hours. All hands were on or about the aircraft for 36 hours; 21-thread manila tie-down lines parted like string; 7/16" steel cables parted frequently. On nearly all cables the eye hooks straightened out.

In one case, the lines and eye hooks did prove adequate with the result that the tie-down on the block of cement was torn out of the mat. The steel tie-rod through the block was anchored in cement. This was broken at the base.

Blowing snow and rain accompanied this particular wind to add to the discomfort of the situation.



100-KNOT WIND PULLS TIE-DOWN FROM CEMENT

VADM. CALVIN T. DURGIN, DCNO (AIR)

D C N O (AIR)

BuAer builds Naval aircraft and DCNO (Air) flies them — that is the simplest explanation of how the Air Navy is organized. This article tells something of the men who control affairs of DCNO (Air).

A FORMER Navy lieutenant, an ACI officer aboard a carrier during the war reported to a Pentagon Navy office for two-weeks annual Reserve training duty. He was back in "harness" again to keep himself "in the swim" about the aviation Navy and learn what had developed since he was discharged in 1945.

Having spent most of his active duty at sea, he knew little about how the administrative end of aviation was handled in Washington, D. C.—the chairborne Navy, as some affectionately call it.

"What does Deputy Chief of Naval Operations (Air) mean?" was one of his first questions. "I always thought Bureau of Aeronautics was the Air Navy. I heard of DCNO (Air) when I was out there, but how does it fit in?"

To answer questions like that, which possibly are in the minds of NAVAL AVIATION NEWS readers, this article will outline briefly just what DCNO (Air) does and how it cooperates with BUAER. And it will give readers a little knowledge of the men who run it, battle-tried veterans of the Pacific war who have exchanged seats on the flying bridge of a carrier for a seat in a Pentagon office.

To state it in its simplest terms, Bureau of Aeronautic designs, develops, tests and buys the airplanes the Navy uses. When they roll off the factory production line, DCNO (Air) takes them over and flies them. Sounds easy, doesn't it, but it's not that simple, of course.

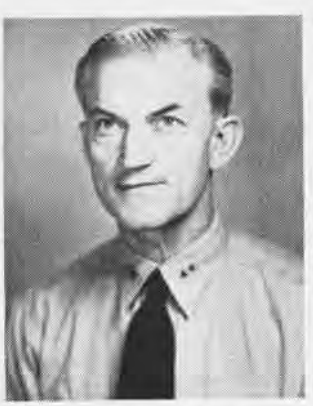
How BUAER operates will be the subject of a later article, but let's answer that Reservist's questions and talk about DCNO (Air). Top man who runs the show in this highly important branch of the Navy is VADM. CALVIN T. DURGIN. He is responsible, to use official language, "for correlating and coordinating all military aspects including policies, plans and logistics of naval aviation and development of guided missiles."

Adm. Durgin stepped into this spot when VADM. JOHN DALE PRICE was elevated to Vice Chief of Naval Operations, replacing VADM. ARTHUR W. RADFORD in the #2 Navy post. Durgin, a naval aviator since 1920, previously had been in command of fleet air at Jacksonville. His flying history dates back to piloting NC seaplanes at Pensacola. He was aboard the famous old USS *Aroostook,* flagship of air squadrons, Pacific, back in 1921, graduating up the naval aviation ladder in observation squadrons, aboard the *Saratoga,* exec. of NAS NORFOLK, navigator of the *Yorktown,* CO of the CV *Ranger* during the North African invasion and task group commander in the southern France invasion. Later he moved to the Pacific to command Carrier Division 29 and had support carrier groups at Lingayen, Iwo Jima and Okinawa.

Adm. Durgin's right hand man today is RADM. L. A. MOEBUS, Assistant Chief of Naval Operations (Air) and his main advisor on aeronautical policy. Adm. Moebus' naval record includes everything from commanding the Naval Reserve Aviation Base at Rockaway, L. I. to air officer of the *Lexington* and skipper of the *Saratoga* at Iwo Jima

ACNO (AIR)
RAdm. L. A. Moebus

AIR RESERVE
RAdm. I. J. McQuiston



AVIATION PLANS
RAdm. A. Soucek

PROGRESS REVIEW
Capt. P. L. Dudley

MARINE AVIATION
MGen. W. J. Walla

FLIGHT
Capt. W. B. Whaley

PERSONNEL
RAdm. F. W. McMahon

AIR WARFARE
RAdm. E. A. Cruise

AIR LOGISTICS
Capt. P. E. Pihl

GUIDED MISSILES
RAdm. D. V. Galler

when that famous carrier survived her worst attacks by Jap Kamikazes. Four of them hit the ship in one attack but she continued to operate under Moebus' command, landed her planes and even hunted for missing AAF Gen. Millard Harmon in mid-Pacific while en route to Pearl Harbor for repairs.

Another of Adm. Durgin's advisors, this one on Reserve matters, is RADM. I. M. MCQUISTON, whose interest in Reserves dates back to 1923 when he helped establish the first Naval Reserve Aviation Base at Squantum. In those days Reserve funds were scarce and he even served six months active duty in the fleet in 1929 without pay to keep up his flying skill. For 11 years he was Reserve advisor of Chief of BUAER where he organized and administered the aviation cadet program. During the war he helped build up naval aviation's tremendous shore establishment program.

DCNO (Air) is divided into eight divisions to do the planning and operating of the Navy's aircraft and handling the men who fly them. These will be described briefly, with a few words about the men heading the divisions:

Aviation Plans—RAdm. A. Soucek. Just a look at some of the sections will give an idea of what this division does: public information, publications such as NAVAL AVIATION NEWS and CONFIDENTIAL BULLETIN, mobilization programs, air reserve plans, shore establishments, and aviation ships. Adm. Soucek is one of the better-known air admirals, having held the world's altitude record in both land and seaplanes in 1929 and 1930. He was exec of the *Hornet* when she was lost in the Battle of Santa Cruz in 1942. His ship had launched Doolittle's Tokyo raiders and took part in the battle of Midway. Later he was first skipper of the new CVB *Franklin D. Roosevelt* and skipper of big NATC PATUXENT RIVER.

Progress Review—Capt. P. L. Dudley. This section handles the Integrated Aeronautical Program and coordinates naval aviation statistics. Capt. Dudley flew off the *Lexington, New Mexico, Maryland* and skippered the tender *Sandpiper*. Later he was CO of Ellyson field and exec of the CVE *Altamaha*, skipper of the CVE *Card* and Commander fleet air detachments, eastern Atlantic and Mediterranean.

Marine Aviation—MGen. W. J. Wallace. This section advises the Commandant of the Marine Corps on all aviation matters. It handles planning, equipment, training, development and promotions of fleet Marine fliers and Reserves. Gen. Wallace was exec of MAG-21 at Pearl Harbor and had MAG-23 at Guadalcanal during the hectic summer of 1942. Later he was commanding general of air defense command and fighter command in Okinawa. After the war, Gen. Wallace commanded Fleet Marine Forces Pacific and Atlantic.

Flight—Capt. W. B. Whaley. If you fly airplanes, this section is a good one to know about because it handles flight aids, like GCA flight operations, aerology and flight safety, whose main salesman is famous *Grampaw Pettibone*. Capt. Whaley flew about every kind of Navy plane, including VTB, VO, VF, VP, and VJ, during his earlier years. He was eating at the BOQ the day the Japs hit Pearl Harbor and was in the war from the start. He was skipper of the CVE *Makin Island* when it was Adm. Durgin's flagship in the Philippine Campaign and at Iwo and Okinawa invasions. After the war he skippered NAS MINNEAPOLIS and NOB ROOSEVELT ROADS, P.R.

Personnel—RAdm. F. W. McMahon. This is the section that shifts the aviators around and as such is highly popular or unpopular when transfer orders come out. It also supervises training of pilots and ground crewmen. Adm. McMahon is another *Aroostook* "graduate," following this up with flight duty on the *Pennsylvania*, and *Saratoga*, CO of NRAB LONG BEACH, CO of VS-2, air officer of the *Lex*. During the war he skippered the *Suwannee* when she was supporting the Solomons and Gilbert islands invasion and won the PUC off Leyte. He was chief of staff to ComAirPac in 1944 and later commanded Carrier Divisions 7 and 2.

D C N O (AIR)

1943-4	**VAdm. J. S. McCain**
1944-5	**VAdm. A. W. Fitch**
1945-6	**VAdm. M. A. Mitscher**
1946-7	**VAdm. A. W. Radford**
1947-8	**VAdm. D. B. Duncan**
1948-9	**VAdm. J. D. Price**
1949	**VAdm. C. T. Durgin**

An unusual duty on his list was Chief of Staff to the CNO representative, United Nations security council military committee.

Air Warfare—RAdm. E. A. Cruise. This division includes military requirements, tactics and combat training and naval photography branches, all of them self-explanatory from their titles. This division tells "how to fight" an airplane once BUAER gets it built. Adm. Cruise, a Naval Academy fullback on teams that thrice defeated West Point, saw a lot of combat during the war. He was air officer and exec of the *Saratoga* in the early months when that ship was one of the mainstays of the Navy in the Pacific. She fought at Guadalcanal where Adm. Cruise won the Navy Cross in the Battle of the Eastern Solomons. Later he was Chief of Staff to ComFair Seattle and Alameda and Commander of NAB Majuro and Eniwetok.

Air Logistics—Capt. P. E. Pihl. The job of logistics planning is to get the material where it is needed, to put it simply. In aerial warfare, this is a sizeable task. Capt. Phil had a wide variety of jobs in the Air Navy during his career. He was a lieutenant in the Construction Corps for a while, served four years at the naval aircraft factory, was A&R officer on the *Langley* and *Lex*, was BUAER officer in charge of Carriers and VP-VTB-VR design. He was assistant naval attache for air in Berlin and the Scandinavin countries, directed BUAER production division the first two years of the war, taking time out to accompany Wendell Willkie on his round-the-world tour in 1942.

Guided Missiles—RAdm. D. V. Gallery. Some say guided missiles will fight the next war rather than piloted aircraft. So the Navy has its guided missile research and planning division. This part of DCNO (Air) is officially charged with reviewing and formulating operational requirements for missiles, as well as coordinating and evaluating their development. BUAER builds the missiles, as it does the airplanes.

Adm. Gallery made a name for himself early as a member of two Olympic games wrestling teams. He invented and developed several aviation gunnery training devices and originated improvements in aviation ordnance and gunsights. During the war he was commander of the fleet air base in Iceland and commanded the CVE *Guadalcanal* which boarded and captured the Nazi submarine U-505. He later commanded the CV *Hancock* and Carrier Division 15 in the Pacific.

★ THIS IS the twentieth of a series of short sketches of squadrons in World War II. It is based on reports filed with Aviation History and Research in DCNO (Air).

VT 14

VT-14 PILOTS, SKIPPERED BY LCDR. HOWARD ROBERTS SCORED HEAVILY AGAINST THE JAPANESE

WHEN TORPEDO SQUADRON FOURTEEN came to Majuro 8 May 1944 aboard the USS *Wasp*, it was slated to participate in the great all-out Pacific offensive. The *Wasp*, true to its name, ready and barbed, was prepared to attack the Japanese with fury.

Led by Lt. Cdr. Howard Stowe Roberts, a veteran of 16 months duty in the Atlantic aboard the USS *Bogue*, the pilots in their TBF-1C's had gone through months of intensive training. Now they were eager for battle in the Pacific.

As prelude to heavier action, VT-14 warmed up in the raids on Marcus and Wake May 19-23. The torpeckers then moved into the Marianas to soften up the islands and support the landings on Saipan. One day as a flight of four planes was returning to the carrier after an antisubmarine patrol, they bombed and strafed a convoy of seven Japanese luggers and sampans until all of them were sunk or badly damaged. Lt. (jg) Julian Walker hit the bullseye when a depth charge he dropped blew one lugger out of the water and destroyed it.

On 19 June, the Japanese found the Task Force and, as they approached, the *Wasp* launched all planes then on flight deck including 11 torpedo planes, eight of which were loaded with bombs. Since our forces did not know the whereabouts of the enemy, they could not send a counterstrike against the Japanese carriers. But there was still something to do, and Lt. Cdr. Roberts—he was to receive the Air Medal for this strike—and other VT-14 planes did it. They went to Guam and bombed Orote Field, making it impossible for enemy planes to land and refuel after attacking our fleet.

Early the next morning, meager contact reports came in as to the position of the Japanese fleet, and in the afternoon a strike against these forces 300 miles to the west was ordered. At 1545, seven torpedo planes under the command of Lt. W. H. House, each loaded with four 500-lb. bombs, were launched in company with bombers and fighters. Luckily a large force of enemy fleet tankers and destroyers was sighted just before sundown.

It was "lights out" and the bottom of the sea for two tankers destroyed by Lt. W. T. Williams, Lt. (jg) G. D. Wright and Ens. J. C. Cockran. Two other tankers were heavily damaged by near misses. All three officers received the Navy Cross for this feat. After the trip back in total darkness, only four planes were able to make landings aboard carriers, each of them with only enough gas left to taxi out of the arresting gear. Three VT-14 pilots had to make water landings, but none was the worse for the dunking.

IT'S A HAPPY MOMENT AS ADDITIONS ARE MADE TO THE SCOREBOARD AFTER A RAID ON MANILA

AFTER participating in operations at Iwo Jima, the *Wasp* proceeded to Guam to take part in the softening up of that island. When the troops began landing on Guam, VT-14 was one of the units giving air support, work that was at once dangerous and meticulous.

After Guam, VT-14 offered a two-day program of destruction at Palau, making in all 58 sorties on the 26th and 27th of July.

Over a month later, after a rest from battle, the *Wasp* headed into action again, operating first against Palau on the 7th and 8th of September and beginning strikes on Mindanao on the 9th. Carrier attacks against the Philippines dramatically opened operations in that area after an absence of over two years.

Immediately after the strikes against Mindanao, VT-14 began a series of long, hazardous flights in the central Philippines—Cebu, Negros, Panay and Leyte

THE MEN WHO MAINTAINED THE PLANES AND FLEW WITH VT-14 PILOTS PROVED THEIR VALOR IN SCORES OF OPERATIONS LAUNCHED FROM THE WASP

—encountering a considerable number of Japanese fighters, sometimes as many as 30 on one hop.

On 21 September, all the squadron's planes were loaded with torpedoes and assigned shipping targets in Manila Bay. For the first time, VT-14 used torpedoes and the success of the strikes was sensational. The 17 "fish" dropped on the first two strikes levied a terrific toll on the enemy. Although the Japanese spewed forth heavy AA fire and sent scores of fighters aloft to counter the attack, it did them no good. VT-14 sank one large oiler, 6 cargo ships, 7 luggers, and damaged an additional 22 ships. VT-14 continued the attack for several days, and then on the evening of 24 September, the *Wasp* withdrew.

ON 10 OCTOBER, the squadron began its last and most difficult period of operations. The general plan called for an offensive sweep close to the Japanese mainland, and then the carriers were to work south to the Philippines, destroying aircraft and shore facilities to prevent the enemy from staging in planes to oppose the amphibious operations planned for Leyte on the 20th of the month. Because of the proximity of the Japanese mainland and the increase in both quantity and quality of enemy fighter planes, the losses suffered by the squadron increased rapidly.

First target was the Nansei Shoto Islands, and concentrated strikes were made against the airfields on Okinawa. The enemy responded with determined opposition, damaging five of the VT-14 planes, but still Japanese air opposition received stunning blows.

On 12 October, the scene of action shifted to Formosa. Lt. (jg) F. S. McKeever, with his two crewmen, was shot down by AA fire while making a glide-bombing run on an airfield. The plane caught fire and crashed out of control. The next day the aircraft piloted by Lt. W. A. Davidson, Jr., was last seen diving on an enemy airfield.

On the nights of both the 12th and 13th, the *Wasp* and other ships of the task force were subjected to repeated enemy air attacks, so that the ship was kept at "General Quarters" almost continuously. But despite the fatigue of battle and attack, the record from the 10th through the 14th shows that hundreds of Japanese aircraft were destroyed on the ground and in the air by Task Force 38.

By the 19th of October, our carrier forces had again reached Luzon and further strikes against Clark and Nielson Fields were made. The following day the amphibious landings on Leyte commenced and the buildup for the Battle for Leyte Gulf began. The Japanese were forced to bring their widely dispersed surface units together in an attempt to fight off invasion.

VT-14 took part in the initial landings on Leyte, but was withdrawn when the *Wasp* retired eastward for refueling. After a couple of days of inactivity, the task group to which the *Wasp* was attached was ordered to Ulithi to rearm. It had sailed about 400 miles eastward when reports of furious enemy resistance came in. On the morning of the 25th, the *Wasp*, was ordered back to the Philippines and preparations were made for another fleet action. An attack group was launched against an enemy force of four battleships, eight cruisers and 15 destroyers 330 miles away along the east coast of Samar. Lt. Cdr. Roberts led the flight of torpedo planes, and VT-14 damaged two battleships and a heavy cruiser. For this feat, Lt. Cdr. Roberts received the Navy Cross.

A PRE-DAWN strike of 12 VF, 12 VB and 8 VT was scheduled for the morning of the 26th, but because of other commitments, only 3 VB and 8 VT were launched. These planes joined up with flights from other carriers of the task group and began looking for the Japanese fleet which had retired through the San Bernardino Straits during the night. The flights from two of the carriers left the formation to attack isolated ships, and when a contact report was received from one of our search planes, only the *Wasp* group of 3 VB and 8 VT and the *Cowpens* group of 4 VF and 5 VT were available. These planes made a coordinated attack on the 3 battleships, 5 cruisers and 8-10 destroyers remaining of the enemy forces. VT-14 planes under the leadership of Lt. House succeeded in putting "fish" into two battleships—one of them the *Yamato*—and a CL.

After a short rest at Ulithi, the squadron undertook a two-day operation against central Luzon. VT-14 found enemy planes in rows on the airfields and placed their bombs where they would do the most good. Lt. A. W. Yarbrough destroyed at least five by one well-placed salvo of bombs.

On 10 November, VT-81 relieved VT-14 at Guam and the tour of combat duty was over. From 19 May 1944 to the end of the tour, VT-14 had taken part in 122 strikes against the enemy and rolled up formidable totals in destruction. The squadron had sunk 2 DD's, 2 large oilers, 7 cargo ships, 1 small oiler, and 15 luggers and sampans in addition to damaging 2 BB's, 2 CA's, 1 CL, 2 DD's, 1 DE, 3 large oilers, 7 cargo ships, 1 oiler and 18 luggers and sampans. More than 100 enemy aircraft were damaged or destroyed on the ground plus 11 damaged in the air. All this was in addition to heavy damage inflicted on enemy installations and troop concentrations. A great torpedo squadron had heavily diminished Japanese strength and added new glory to the annals of naval warfare in the Pacific.

WORLD'S AIR TRANSPORT

VICKERS VIKING WITH 2 ROLLS-ROYCE NENE ENGINES WORLD'S FIRST JET-POWERED TRANSPORT

FLYING routes, which before the war were undreamed of and carrying passengers and cargo farther and faster than man had ever hoped, the commercial and transport airlines are today spanning the world. Commercial aircraft which are seen along the airways of the world are of interest to those in the service, for it is a certainty that any commercial aircraft which can be used as a military transport will be pressed into service if necessary.

Currently the Berlin Airlift *Operation Vittles* is an illustration in point. There have been, in fact, nearly 20 different types of allied transport aircraft engaged, and if there are any aircraft recognition enthusiasts among the citizens of Berlin they are certainly having their fill of Western transport types, and a measure of Russian types also. The British in addition to their transport command have chartered various civilian commercial types. We, on the other hand, are using no civil aircraft, the operation being undertaken by the Military Air Transport Service, which employs similar types used by our civil airlines.

Behind the iron curtain and about its fringes occasional glimpses are to be had of recent Russian types which are flown by Aeroflot, the Air Transport Service of the Soviet Union, and other satellite airlines. Meanwhile in the north the Swedes have been actively engaged in the production of a new transport and orders are on hand from several European airlines. At the 18th Paris International Air Show the French aviation industry proved that it was not dormant by displaying a collection of transport types. Some of these aircraft are now in operation by international air lines.

In this and the following editions, Naval Aviation News is publishing a selection of the current and more promising experimental types of the world's aircraft. To facilitate the recognition of genealogical resemblances and differences between confusable types, the transports have been presented in two parts with the light types appearing in this issue and the heavy types later.

RUSSIAN YAK-16 TRANSPORT HAS NOSE LIKE R4D

Convair—The Convair-Liner is the first commercial transport to be designed by Consolidated Vultee and was evolved primarily to serve as a DC-3 (R4D) replacement. The prototype first flew at San Diego on March 16, 1947, and certification by the A.A.A. followed in November 1947. The Convair-Liner has been ordered by a number of airlines both at home and abroad. Initial deliveries began early in 1948.

It has been reported that the Air Force is considering a transport version of the Convair. Two 2,400-hp Pratt & Whitney R-2800 engines are fitted giving a cruising speed of 265 knots at 16,000 ft. A 74.8 foot fuselage can accommodate a crew of four and 40 passengers. The wing spread is 91.8 feet and a tricycle landing gear is employed. Possible source of confusion is the strong resemblance between the Convair and Martin 202. Two important differences are the engine cowls and the wings.

Of interest is the discussion between Consolidated Vultee and the Allison Division of General Motors Corp. concerning the possible use of the Allison T-38 propeller-turbine engines to power a version of the Convair-Liner. Thus the Convair-Liner would be the first U. S. commercial aircraft to be powered by prop-jets. The Allison T-38 engine is at present undergoing a 150-hour test mounted in the nose of a modified Boeing B-17 *Flying Fortress*.

Martin 2-0-2—The Martin 2-0-2 was the first twin-engined airliner of completely post-war design to be approved by the U. S. Civil Aeronautic Administration for airline use. The first prototype 2-0-2 flew on November 22, 1946, and it first took off at the full original designed gross weight of 38,000 lbs. on January 6, 1947. The 2-0-2 was awarded its C.A.A. license on August 13, 1947. It completed more than 500 hours in exhaustive test flights and was the first airplane to undergo the new C.A.A. accelerated service test intended to simulate 150 hours of airline operations.

RUSSIAN IL-12 RUDDER FAIRS UP ON FUSELAGE

In this test the 2-0-2 flew more than 17,000 miles and landed on and took off from 38 airports of all kinds all over the United States. Martin 2-0-2 airliners are now in service with or have been ordered by many domestic and foreign airlines. Two 2,400-hp P & W R-2800 engines are fitted to the center section of a 93.2 foot wing, and with 70% power a cruising speed of 235 knots is attained at 10,000 feet.

Viking-Valetta—Vickers design team got down to the design, a civil development of the Wellington, before the war ended. Intended as a medium range passenger transport, this was to use Wellington wings, tail and undercarriage, but to have a new fuselage. As plans for the *Viking* developed, however, this utilization of Wellington parts was found to be impracticable. The

prototype first flew on June 22, 1945 and shortly after went into production.

In 1946 the R.A.F. laid down specifications for a military version, so Vickers produced a transport version with modification named the *Valetta.*

Another version of the *Viking* now flying is the *Nene-Viking* developed for research flying. This turbojet *Viking* is the first transport to be so equipped. (See photo). The standard production model is equipped with two 1,690 hp Bristol *Hercules* 634 engines giving a cruising speed of 232 knots at 10,000 feet. The wing spread is 89.3 feet and the length at the fuselage is 65.1 feet with a normal capacity of 24 seats. A tricycle landing gear is fitted.

SO-30P Bretagne—Air France had planned to buy a number of twin-engined Convair-Liners. The Minister of Public Works and Transport has meanwhile denied Air France's application which would have necessitated a dollar outlay in the amount of $15,000,000 for aircraft and spare parts. Therefore, in keeping with their "Buy French" new program, full scale operational tests are being conducted with the twin-engine SO-30P Bretagne, a French type of roughly similar category. Recently the Bretagne underwent a single engine test and flew 564.2 nautical miles in 3 hours and 45 minutes. It is powered by two 2,400 hp P & W *Double Wasp* R-2800 engines and is reported to have a cruising speed of 240 knots. The wing spread is 88 feet and the fuselage is 62 feet and is fitted with a tricycle landing gear.

Saab-90 Scandia—The Saab-90 *Scandia,* the largest aircraft so far built in Sweden, is a 24/32 passenger, twin-engine, all metal transport, 91.8 feet in wing span and 69.9 feet long, with a maximum range of 1,500 nautical miles. A strong resemblance to the ubiquitous DC-3 (R4D) can be discerned in this Swedish design which was planned to meet ATA requirements and Civil Air Regulations.

Different versions of the *Scandia* are available; the 90A with two 1,450 hp P & W *Twin Wasp* R-2000 engines; the 90A-2 with two 1,650-hp P & W R-2180 engines; and the 90 B, a pressurized version of the 90 A-2. The latter version has an estimated cruising speed of 216 knots at 15,000 feet and a maximum speed of 240 knots at 6,000 feet. A conventional tricycle landing gear is fitted, and for ground service the aircraft is equipped with a tail support, which is controlled electrically by a push button from the pilot's seat.

IL-12—The IL-12 is a twin-engine, low wing monoplane transport. A 104-foot wing has positive dihedral; and its center section is rectangular, while the outer sections are trapezoidal with rounded tips. ASH-82 radial engines are fitted with an estimated 1680-hp giving a cruising speed of around 220 knots at 9,000 feet. It has a single tail with slight dihedral in the horizontal stabilizer and retractable landing gear. Later versions have been seen with a fin fairing. The main wheels are dual and the nose wheel is single. The IL-12 has a 70-foot fuselage with a capacity of 27 passengers or 19 paratroops. Designed by Ilyushin, the plane is similar to the R4D but the IL-12 wing is placed farther aft than the R4D. First public appearance of the IL-12 was at Tushino airport, Moscow, on 18 August 1946.

The IL-12 is gradually replacing the LI-2 (R4D) on Soviet Internal Airways System and flys the Moscow-Khabarovsk run of more than 4,000 miles in 28 hours. It has been flown on exhibition in Soviet satellite countries with the result that orders have been placed by Czechoslovakia airlines. It is to be noted that the Saab-90 *Scandia* and the IL-12 bear a strong resemblance to each other.

A cargo version of the IL-12 is also

FRENCH SO-30P HAS 2400-HP PW WASP ENGINES

available with an estimated capacity of 8800 pounds over a very short distance.

YAK-16—One of the most recent Soviet transports to go into production was the YAK-16 which became operational in 1947. It is an all-metal, 14-seat monoplane. Although basically a transport and used principally for "feeder line" work, the YAK-16 is also being utilized for crew training. This aircraft also may be exported to Soviet satellites.

CONVAIR 240 RESEMBLES MARTIN 202 AIRCRAFT

The YAK-16 is fitted with two 680-hp aircooled seven-cylinder radial ASH-21 engines on a 56-foot wing. Other estimated specifications: maximum speed 160 knots; cruising speed 105 knots; service ceiling, 16,400 feet; take-off distance 850 feet; range 620 nautical miles; normal load 2,500 pounds. The landing gear differs from the modern trend and is the normal two-wheel type with tail wheel.

FAT FUSELAGE AND HIGH, FAIRED TAIL FEATURE FAST MARTIN 2-0-2

SWEDISH SAAB SCANDIA, COUNTRY'S LARGEST PLANE, RESEMBLES R4D

SNB - JRB FACES LIFTED

IT MAY look the same, but be careful, Bub, it ain't the same. Those familiar SNB's and JRB's are undergoing a job of plastic surgery more complete than any ancient actress ever tried.

Almost every naval aviator in his career gets his hands on an SNB or JRB. If he has reached the swivel-chair age it is inevitable that he will fly a twin Beech. For keeping one's hand in the flying business, the type is unexcelled because it is light and economical to operate yet has two engines and complete instrumentation.

Now that a practically new airplane is coming off the line at the Beech plant in Wichita we'll have to take a sharp look at the end product. Many changes have been incorporated; switches and buttons aren't where they used to be. You'll find a little advance dope disseminated here until official BUAER notices are issued.

It all started after the war when it became apparent that no new twin-engined trainer would be forthcoming soon. Yet the B's were wearing out

SNB'S AND JRB'S ROLL OFF THE LINE WITH CIVILIAN D-18'S AT BEECH PLANT IN WICHITA

LCDR. MOYER INSPECTS NEW GEAR AND BRAKES

fast. Many had been overhauled three times; center section trusses cracked.

Navy overhaul facilities were more than busy with service types; preserving, depreserving and overhauling. With the Beech corporation still turning out the D-18 twin Beech for civilian service, a happy solution was reached. The company proposed to rework the old planes in the same production line as the new aircraft. John P. Gaty, Vice-President General Manager says, "We've been able to overhaul and modify SNB-JRB aircraft more efficiently than ever before possible. The reason is simple—assembly line technique."

In the first Navy contract 210 plastic-nosed jobs were processed into SNB-4's and JRB-6's. Of that number 150 were Air Force surplus AT-7's. Some of the smooth-nosed beauties weren't needed immediately and were stored at NAF LITCHFIELD PARK, Ariz.

THE CURRENT contract for 457 planes is expected to last until Feb., 1950, according to LCdr. W. J. Moyer, the BUAER resident representative. That will make a total of 667 of the Navy's 1,100 aircraft of this type that will have gone through the mill. Involved is the overhaul of SNB-1's and 2's, and JRB's, and the modification of the stored SNB-4's and JRB-6's.

The average SNB-1 that arrives at Wichita is in sorry shape. Along with other wearies, it is completely stripped down. All parts are segregated and inspected. Those needing overhaul get the works. Ships with cracked trusses beyond repair get new fuselages.

SHEET METAL MEN WORK ON BAGGAGE SPACE

The new all-weather instrument panel has a complete instrument setup for both pilot and copilot. Centrally located is the autopilot, either Sperry or Jack & Heintz. Because of the greater vacuum load imposed by the gyro instruments, larger pumps have been installed on each engine. Normally both pumps supply the demand. In case of an engine failure, the autopilot vacuum demand can be switched off by a valve handle located low on the right side of the pedestal by the autopilot on-off handle.

Fuses are no more. In their place and located on the right side of the switch panel are circuit breakers.

Neck strain is no longer a factor in checking fuel. Both the tank indicator switch and the gauge are on the switch panel in front of the pilot.

INSTEAD of a switch high on the instrument panel, the landing gear handle is the new type with a wheel knob on the left side of the pedestal. It is two position instead of three. The red button landing gear circuit breaker is no longer under the pilot's seat, where it is difficult to kick, but is now on the pedestal. Emergency operation of flaps and landing gear is the same as before. The flap switch has the new realistic-type grip.

A nerve soother for instructors has been incorporated in the form of brake

COMPLETED SNB-5 IS PULLED FROM BEECH HANGAR AFTER OVERHAUL

NEW SWITCH PANELS AND PEDESTAL ARE INSPECTED BY LCDR. BOODA

pedals on the right side. The brake lock no longer works on the hand safety principle as in automobiles, but is actuated by pulling the handle on the lower pedestal panel and pushing the pedals.

Magneto switches and the starter switch are now on the pedestal panel.

A common complaint in SNB's and JRB's was the positioning of the control column wheels. As originally received, they were semicircular, placed up, effectively hindering full perusal of the instrument panel. Most activities turned them to the down position. Then the instruments could be seen, but a big fellow was rather cramped with the wheel pressing in his lap. Now a modified handle allows lap room and full view forward too. The ultra violet instrument lights are placed on the control columns instead of overhead. Their switches are on the panel instead of overhead right.

Shoulder harnesses are being provided for all seats, and, although not yet installed, 20 G seats for the cabin are under development. There are four cabin seats.

If you get the willies figuring weight and balance near maximum loading conditions, here's one change to ease the strain on the slipstick. Some radio gear is now on a rack in the place of the fifth seat and the ADF is in compartment F, the baggage compartment. All had been way back in the tail where a little weight can cause complications.

Outside, the plane looks almost the same. The leading edge of the wing between the fuselage and nacelle is now further forward and sweptback. Stalling characteristics are said to be improved by this change.

WOMAN ELECTRICIAN INSTALLS WIRING IN SNB-4

Landing gear in the SNB-5 accounts for perhaps the greatest departure from the old plane. The oleo now points a little forward to lessen whipping on landing. As a result the plane's tail will take longer to come up on take-off and won't stay up as long on landing. The brakes are the Goodyear type, similar in principle to those on the F8F. They are much more positive in action.

There has been one important radio change. VHF is now the 10 channel ARC-1 transceiver. SNB-5's are being equipped with a radio altimeter.

There will be a few special configurations, all SNB-3's. The E will be an electronics trainer; the P will have a photographic hatch and oxygen equipment; the N will carry APS-19 radar.

In addition to LCdr. Moyer, the BARR office includes Lt. J. A. Achten; Harvey Bloom, inspector of naval aircraft; V. A. Crowder, aircraft administrator; five other civilians. Edward Green of the VU-VR design section of BuAer is liaison agent.

Everyday SNB/JRB's roll out the door along with D-18's and *Bonanzas*.

Next flight, peruse your cockpit carefully.

It ain't the same plane, Bub.

105 SNB'S AND JRB'S PARKED AT BEECH AIRCRAFT CORPORATION AIRPORT IN WICHITA, KANSAS, AWAIT PRODUCTION LINE OVERHAUL FOR NAVY

CANNONBALL EXPRESS

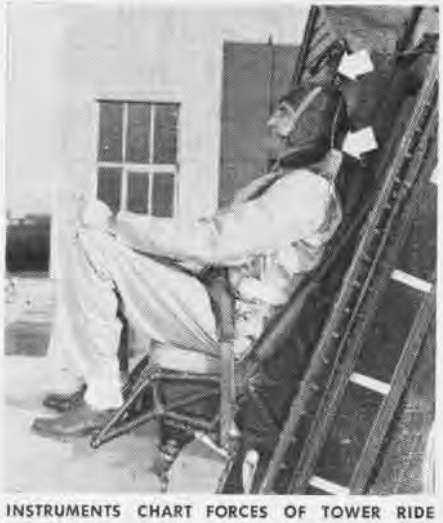
A GROUP of young pilots from Patuxent River grouped around a 105-foot steel tower, a "leaning tower of Pisa" sort of thing not unlike a fireman's ladder.

They were there to learn to save their own lives. Some of them did not seem too happy about it. They were going to take their first test "shots" in a pilot ejection seat.

Each was to take his place in the seat at the base of the tower. He would be buckled in, told how to position his body and then launch himself upward 45 feet in his seat by pulling a curtain in front of his face.

All this was a part of the jet pilot indoctrination given by Naval Air Material Center, Philadelphia to teach fliers how to operate the ejection seats installed now in most Navy jet fighters. Some 40 pilots have used the Aeronautical Medical Equipment Laboratory's tower. To a man they reported the experience of being shot into the air 45 feet as not being as bad as they had expected.

Whether they admit it or not, all of the pilots are nervous before they take their first "ride." After all, who would voluntarily let a friend kick him in the pants hard enough to boost him 45 feet in the air?



INSTRUMENTS CHART FORCES OF TOWER RIDE

The ascent on the tower is somewhat lower than the trajectory provided to clear the tail of a fast airplane, but the sensations and experiences are essentially the same. They give the assurance necessary to feel comfortable in flying with the seat.

The Navy, as yet, has never had a jet pilot who had to resort to using his ejection seat to save his life. But the pilot has to know how to use his seat, just as he needs to be checked out on how to operate a parachute. Ejection seats are not the final word in evacuating a crippled jet plane but they are the best mechanical escape device presently available to any air force. Someday an ejection cockpit capsule, pressurized as a unit, will do the job for 600-mph and up, but today the pilot puts his faith and his life in his ejection seat.

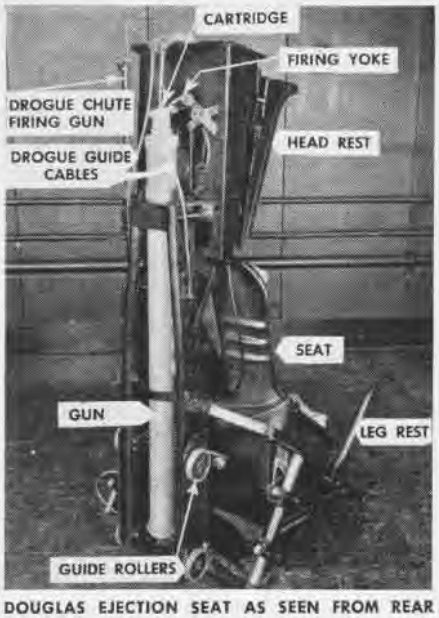
NAMC engineers at El Centro prepare F9F seat; Storm, Furtek (with caps) watch Weeher, Marzella, Hunter, McNichol at work adjusting the drogue parachutes.

An ejection has been made successfully at speeds as high as 555 mph. Two men were ejected from an Air Force TF-80, two-seater jet, near San Rafael, Calif., at speeds of from 405 to 555 mph. Earlier the English had ejected a man from a two-seater jet at 505 mph.

While the Navy at present has no high speed two-seater jet in which to test its ejection seats, it has made four successful firings from a JD-1. Using the Grumman F9F production seat in this plane, Chief Machinist Clarence E. Storm was ejected at El Centro in July while going 335 mph. Previously, the only live ejection the Navy had made was from the same type plane in 1946 when Lt. (jg) A. J. Furtek was catapulted out at 250 mph. Furtek also made three jumps during the El Centro tests at speeds of 205, 205 and 250 mph.

So that Navy pilots will know a little more about how to operate their seats, NAVAL AVIATION NEWS presents here a short indoctrination article on the technique. A training movie, *Emergency Escape—Pilot Ejection Seat,* is being made and will be issued next winter as #MN-6703.

Before telling the pilot how to operate his seat, it might be pertinent to explain briefly how an ejection seat works. Various aircraft companies, including McDonnell, Grumman, Chance Vought, Douglas, as well as NAMC, have produced seats to go in Navy fighters. Each is slightly different in appearance



DOUGLAS EJECTION SEAT AS SEEN FROM REAR

but all operate essentially the same. Details are covered in manuals or TO's.

An ejection seat is built heavier and larger than a standard aircraft seat. On the back is a series of rollers which fit into two guide rails. These are attached to the cockpit structure, out of which the seat can be fired. Also on the back of the seat is a piston-like "gun." At the top end of one of the "sleeves" is a 37 mm. powder cartridge. When the pilot pulls the face curtain over his face the charge is fired. Pressure is built up in the gun.

Riding the rollers, the seat, pilot and all sail out of the top of the cockpit, high enough in the air to avoid hitting the rudder, even at 600 mph speeds. A drogue parachute which stabilizes the pilot and seat just after it emerges is then automatically deployed. The pilot gets out of his seat by releasing his safety belt. After a free fall dictated by altitude, he pops his personal parachute for the descent to earth.

In the Philadelphia test program, the pilots merely ride the seat up the tower about 45 feet. The seat catches on ratchets and is lowered to the ground again by a winch arrangement.

For the pilot who must operate his ejection seat in his plane, here are the major steps and precautions he must take:

STEP ONE—Before he can eject himself and his seat out of the airplane, the pilot must operate a pre-ejection lever (*see photo*). Actuation of this lever decompresses the cockpit, moves the canopy to *emergency open position* or jettisons it entirely. It bottoms the seat for knee and toe clearance, if that feature is critical in his particular airplane. In the F2H airplane the leg braces on both sides of the seat are pulled up by the pilot to perform the function of the pre-ejection lever.

Jettisoning the canopy pulls the safety pin out of the seat catapult and arms it. This catapult is never armed unless the canopy has been moved to the emergency open position or jettisoned. It is practically, but not absolutely, fool-proof so the seat cannot be "fired" accidentally on the ground by inquisitive and uninformed mechs.

STEP TWO—Once the canopy is out of the way, the pilot pulls his feet back into the foot stirrups as far as possible so the toes will not hit the leading edge of the cockpit as he shoots upward.

STEP THREE—Positioning of the body in the seat before firing is highly important. The base of spine should be well back in the seat and the spine itself should be as nearly as possible in a straight line. The "kick in the pants" from the catapult is received directly in the seat. If the head is out of line or to one side it would bend his neck rather than compress it, causing strain of the neck muscles. So, the pilot should sit erect with his head pressed tightly against the headrest behind him. If flying on oxygen, he should then pull the ball handle of the bail-out bottle.

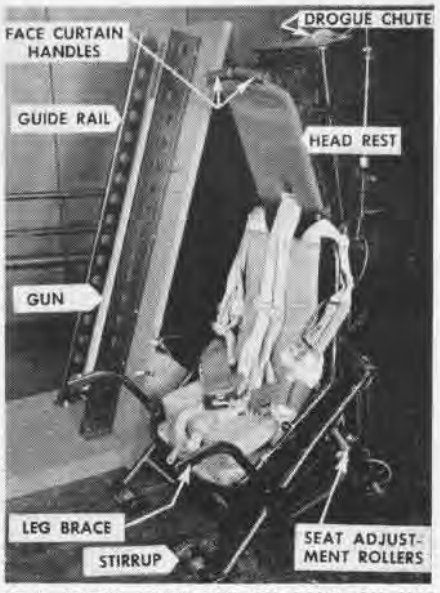
All seats have leg braces on them to position the legs and knees so they will not hit the cockpit going out and to avoid spread-eagling in the slipstream. Some braces are fixed while others like on the F9F spring up when the pre-ejection lever on the console is pulled. The pilot is now ready to eject himself from his aircraft.

STEP FOUR—The pilot now reaches over his head with his palms toward his face and grasps the handles of the face curtain. He must keep his elbows close together so they will not hit the cockpit or be spread by the slipstream. As soon as he realizes the canopy is clear, he yanks the face curtain all the way down in front of his face.

This curtain protects his face from slipstream blast as he emerges. When the curtain reaches the bottom of its travel, the charge in the catapult is fired and the seat leaves the airplane.

Microphone cords, oxygen tubes and other attachments between the pilot and the plane will be separated as the seat begins to move. BuAer has developed a composite disconnect which combines all of these wires and tubes in one sleeve and point for simplicity.

CROWD AT PHILADELPHIA SEES TEST ON TOWER



SEAT (RIGHT) RIDES OUT ON RAILS ON LEFT

STEP FIVE—Once he is free of the airplane and has slowed down sufficiently, the pilot reaches down and unfastens his safety belt. He should kick himself out of the seat as far as possible so he won't hit it or have his parachute fouled by it. The seat falls by itself. BuAer has a seat parachute which salvages the seat during experimental tests, but in operational planes the seat will be expendable.

STEP SIX—The pilot should fall free 500 feet or more if altitude permits before pulling the ripcord of his personal parachute. This will enable him to clear the airplane and his ejection seat. If he is at extreme altitude he should fall further to get down to oxygen breathing altitudes and warmer air.

Because there are a number of steps to the operation of an ejection seat, the Navy believes that some indoctrination beforehand will be valuable. That is why Patuxent test pilots and fleet pilots have gone to Philadelphia to ride the tower.

Besides the ride, the indoctrinees also see the English movie on seat ejection and listen to a short talk by Howard N. Hunter, who has been actively participating in the ejection seat project at NAMC. Hunter, a husky Reserve Navy lieutenant who set up mobile aircraft instrument repair units on South Pacific islands during the war, helps allay any fears the pilots have about ill effects from seat ejections. He has made 60 of them on the tower for test purposes—and that is a lot of kicks in the pants.

During the course of its experiments to find the right amount of powder for the cartridge, the best length for the gun barrel on the seat, and other scientific data, the Aero Medical Equipment Lab has fired the seat as high as 89 feet above the ground with Hunter riding it and 97 feet with a dummy aboard.

In the course of full-power shots,

1 Pilot pulls pre-ejection lever to decompress cockpit and jettison the canopy so he can be catapulted

2 Next, the pilot puts both feet backward in stirrups so his toes will avoid cockpit edge as seat goes up

Hunter absorbs the 18 G jolt which takes 1/100th of a second. It is because the duration of the shock is so short that a human body can stand it without blacking out or injury. A pilot can take only three or four G's without blacking out if the strain lasts several seconds. The Navy has tried many experimental types of powder, changed the angle and shape of head rests, seat pads and pans to find the best type for its pilots. It tried firing the seat at temperatures as low as minus 65° F and as high as plus 165° to be sure that the powder and seat function properly under these conditions.

Because it wanted to know what pilots thought and felt after they took their indoctrination shots in the ejection tower, AMEL had them fill out questionnaires. It was realized that pilots were uneasy and some downright scared about making the "trip." Like a visit to the dentist, the anticipation was worse than the realization, according to the answers received.

One SB2C pilot who had bailed out in the Mediterranean and had 1400 hours of flying reported the tower ride was "slightly uncomfortable." He said he had had an "unfavorable attitude" before the test and was "greatly reassured" after taking the test. He reported a "momentary impression of compression of the upper spine" at the instant of firing.

Another reported the experience as "comparable to a fall when ice skating. Prior to the checkout I was greatly

3 Pushing head firmly against the rest assures correct positioning of spine prior to firing catapult

4 Head back, feet back in stirrups, the pilot is now in correct position to be ejected from his aircraft

5 Reaching up with palms toward face and elbows in, the pilot grasps the bright red handles of curtain

6 When face curtain reaches bottom of travel, cannon in seat fires; shaped curtain protects from blast

worried. However, I would not hesitate to use the seat now in an airplane should the need arise. The assurance following indoctrination more than compensates for a slightly severe reaction."

Asked if they would be able to operate their seat belt and get out of the seat after an ejection, the men who took the tower test reported unanimously they were fully conscious at all times and could have done any operation required.

Other comments from pilots who made the test are interesting:

"I am anxious to see the seat made operational in any type of single-engine combat aircraft I might fly. This includes A8D's and F8F's. Fear of not getting clear is a mental hazard that makes many pilots ride airplanes in."

"It is the best emergency equipment I know of."

"Would prefer to have the seat at all times. Will not hesitate to use it."

Asked what pains they felt at the time of the "shot" or afterward, the men mostly reported momentary shocks or sharp pains which disappeared instantly and for the most part left no aches. Some said they felt it in the base of their spine, others in the neck.

Although to date a few dozen pilots from Patuxent and the Fleet have taken the indoctrination course, AMEL's superintendent, Capt J. R. Poppen indicated operating squadrons will be sending their jet pilots to Philadelphia to take the course on a schedule basis as requested by Chief of Naval Operations.

7 Once in midair, the pilot rides his seat for short time then jettisons it by pulling safety belt catch

8 Now in free fall, pilot pulls on his parachute D-ring to unfurl his personal chute and float down

RAdm Doyle Heads Reserves

CAPT. HARRIS, CAPT. LEE AND CDR. MacROBERT WELCOME RADM. DOYLE (RC) ABOARD CABOT

ON 22 JULY, Rear Admiral Austin K. Doyle took over as Chief of Naval Air Reserve Training for the entire nation. During the colorful ceremony held at NAS GLENVIEW, Rear Admiral Doyle outlined the tremendous strides which have been made in the three years since the post-war commissioning of the Naval Air Reserve and stated that he looks forward to increased progress during the coming year, when several Reserve stations will receive jets and F8F fighters.

A member of the Class of 1920 at the Naval Academy, Rear Admiral Doyle received his wings in 1922 and has served continuously in naval aviation since that time. During the last war, he was in command of the *Nassau*, which participated in the seizure of Japanese-held Attu Island in the Aleutians.

In 1944, he became commanding officer of the *Hornet* which played a decisive role in operations in the Philippines, Okinawa, Iwo Jima and the Japanese mainland. For his outstanding services during the war, Rear Admiral Doyle was awarded two Navy Crosses and two Legion of Merits. Before coming to Glenview, he commanded the naval operating base at Bermuda.

Rear Admiral Doyle relieved Rear Admiral Richard F. Whitehead, who served as Chief of Naval Air Reserve Training since 1948 and who now heads an On Site Survey Board for the Navy Shore Establishments Division.

The picture showing Rear Admiral Doyle being welcomed aboard the *Cabot* by Capt. C. L. Lee, the skipper, Capt. W. S. Harris, CO of NAS NEW ORLEANS and Cdr. O. M. MacRobert, CO of FASRON-63 was taken during the visit Rear Admiral Doyle made to observe training operations undertaken by CVLG-53 and FASRON-63 of NAS NEW ORLEANS aboard the carrier.

New Law Protects Reserves

Naval Air Reservists are now entitled to the same rights and benefits as comparable personnel of the Regular Navy if they are disabled or killed in the line of duty while in a training status, such as regular weekend drill.

Under the provisions of Public Law 108, 81st Congress, approved on 20 June 1949, all officers, nurses, warrant officers and enlisted men of the United States Naval Reserve or United States Marine Corps Reserve who—(a) if called or ordered into active naval or military service by the Federal Government for extended naval or military service in excess of thirty days, suffer disability or death *in the line of duty from disease* while so employed or (b) if called or ordered by the Federal Government to active naval or military duty for training or inactive-duty training *for any period of time*, suffer disability or death in line of duty from injury while so employed—shall be deemed to have been in the active naval service during such period and they, or their beneficiaries, shall be in all respects entitled to receive the same benefits, compensation, death gratuity, retirement pay, hospital benefits, and pay and allowances as are now, or hereafter, be, provided by law or regulation for officers, warrant officers, nurses, and enlisted men of corresponding grades and length of service of the Regular Navy or Marine Corps.

The provisions of this Act are retroactive and shall be effective from 14 August 1945. Naval Air Reservists in a training duty status have the right of election as to benefits, if entitled to pension or compensation from other agencies under applicable laws.

Chicago Names Field for O'Hare

The City of Chicago is honoring one of the greatest aviators of the last war in renaming its municipal airfield, at Douglas and Orchard, O'Hare Field in memory of "Butch" (Edward H.) O'Hare, the famed Navy hero who was killed in action during the Gilberts campaign.

The ordinance naming the field after "Butch" O'Hare was officially signed by Mayor Martin L. Kennelly on 27 June after the designation was approved by the Council of the City of Chicago.

Ceremonies celebrating the official naming of O'Hare Field and paying tribute to O'Hare are being held on 18 September at the field. Among those who are being invited to speak on that occasion are prominent civic leaders, such as the governor of Illinois and the mayor of Chicago, representatives of the National Military Establishment and outstanding naval officers.

The city of Chicago is also requesting the Navy to provide an air show at the dedication ceremony. A particular invitation to attend the event is being extended to all Naval Air Reservists in the Ninth Naval District. Representa-

ROGERS, DIETRICH CHECK O'HARE BAS RELIEF

tives from Naval Air Reserve stations throughout the country also are expected to participate.

Highlighting the ceremonies will be the presentation of a bronze plaque honoring "Butch" O'Hare, which is being given by the Naval Airmen of America, the naval aviation veteran's organization which has its national headquarters in Chicago.

Commissioned to execute this plaque, which shows O'Hare in the cockpit of his fighter plane and which bears an inscription taken from his Congressional Medal of Honor citation, was Lt. George A. Dietrich, professor of sculpture and art at the University of Wisconsin. In the picture Lt. Dietrich, a former naval aviation gunnery officer, is shown discussing the plaque with Lt. George Rogers, "Butch" O'Hare's wingman who is now a member of the Naval Air Reserve at NAS GLENVIEW.

The Naval Airmen of America are also taking charge of many of the local arrangements in connection with the dedication ceremony.

TYPICAL STUDIO SCENE DURING VIDEO TRAINING BROADCAST FROM SPECIAL DEVICES CENTER

Training Via Television for Reserves

Naval Air Reserve pilots and airmen at NARTU ANACOSTIA, NAS NEW YORK and NAS WILLOW GROVE are participating in an eight-weeks series of televised training programs, originating at the Special Devices Center, Port Washington, Long Island. Undertaken as part of the Navy's research project to investigate the effectiveness of television instruction as applied to service training problems, the series will also provide information regarding the possible utilization of television as a medium for training of Organized Reservists.

In addition, since the programs are available to the television public on their own receiving sets, the series is expected to provide valuable data on the practicability of training Volunteer Reservists on inactive duty via television and using televised programs to keep them up-to-date on the latest development in naval aviation.

The series of two programs weekly with pilot instruction on Saturdays and airmen instruction on Sundays, both from 0930 to 1030 (Daylight Time), are being carried without cost over the facilities of the National Broadcasting Company during an eight-week period which will end on 18 September. Transmitting stations are WNTB, New York, WPTZ, Philadelphia, and WNBW, Washington.

Fleet Admiral Chester W. Nimitz, Rear Admiral I. M. McQuiston and Rear Admiral A. K. Doyle, Chief of Naval Air Reserve Training, as well as a representative of the Office of the National Military Establishment, participated in the opening programs on 30 and 31 July.

To date, pilots have received television instruction on civil air regulations, aerology, and navigation. On 3 September they will hear a lecture on "Uses of Oxygen at High Altitudes." On 10 September, the subject will be "Engineering—pre-flight check, weights and balances, Yellow sheet", while the 17 September lecture will cover planning the flight under marginal weather conditions—cross country flight under visual flight rules and instrument flight rules, instrument landing system, ground control approach landing.

On 4 September, the airmen are to receive a television lecture on "Survival and Safety," while "Basic Jet Engines" "Squadron Organization, including Aviation Rates and Public Law 810" are scheduled for 11 and 18 September respectively. Previous lectures have been given on the theory of flight, line safety, aircraft handling and preflight; plane captain duties; ordnance and aerial gunnery; weights and balances.

Stationkeepers, both officers and enlisted, from NAS NEW YORK, NAS WILLOW GROVE and NARTU ANACOSTIA are delivering the various lectures at the Special Devices Center.

Naval Air Reserve control groups have also been set up in widely separated parts of the country in connection with the television training project.

One control group, a class of Naval Air Reserves at NAS SQUANTUM, is being given face-to-face instruction by the same teachers who lectured via television to Reserves in television classrooms at New York, Willow Grove and Anacostia. Classes of Reservists at NAS MINNEAPOLIS, NAS GROSSE ILE and NAS AKRON, which comprise the second control group, receive classroom instruction from local teachers who follow the lesson plans provided by the television instructors. Kinescopic recordings of the television lectures are being used for instruction of the third control group which includes classes of Reservists at NAS GLENVIEW, NAS OLATHE and NAS DALLAS.

Information obtained from the study of these control groups will aid in measuring the effectiveness of television as medium of instruction. Dr. Robert T. Rock, Jr., head of the psychology department at Fordham University serves as supervisor of the television evaluation program for the Navy.

Station Round-Up

● NAS GROSSE ILE—Sparkplugged by Lt. Benton, CVG-59 CIC officer, CIC problems were run by fighter planes of this Air Group and jet planes from the Selfridge Air Force Base. Selfridge CIC officers were present in the CIC rooms at Grosse Ile during the exercise were much impressed by the skill of CVG-59's CIC team. CVG-59 fighters and torpedo planes also made a simulated attack on a PCE enroute to Cleveland that was manned by Surface Reservists.

● NARTU MEMPHIS—VP-ML-59 and FASRon-160 took their annual cruise at NAS MIAMI, where they operated as a self-sufficient unit. Overwater navigation flights were made to Guantanamo Bay Naval Air Station.

USE YOUR SAFETY EQUIPMENT

HAVE YOU ever stopped to think about how much money the Navy spends each year to reduce the number of deaths and injuries resulting from aviation accidents? It is impossible to compute the exact monetary figure, because the program involves research, the design of new aircraft, the modification of existing planes, as well as direct expenditures for items of survival equipment, and equipment maintenance.

The concrete results of this program can be and are shown statistically, but are presented almost daily in a much more dramatic manner to the personnel who process aircraft accident reports. Hardly a day goes by without someone in the Flight Safety Section holding up a picture of a badly battered plane and remarking that the pilot got out with minor lacerations or a broken wrist.

However, the money spent on life jackets, dye markers, oxygen masks, emergency signalling equipment, protective helmets, and exposure suits, is wasted on the aviator who leaves this gear in his locker or takes it along but doesn't know how to use it. Likewise the money spent to "beef-up" the cockpit of a fighter and anchor the pilot's seat so that it will still be in place after a 40 "g" crash, is wasted on the aviator who fails to use his shoulder straps or uses them but fails to lock them.

Let's look at it this way. If someone offered you a free chance on a new Cadillac convertible every day, you wouldn't turn it down just because you knew that they only gave one car away each day and there were 1483 other ticket holders. In fact, if you were statistically minded, you'd probably reason that each ticket was worth about $3.00 and that if they kept on giving you free chances, sooner or later, you'd end up back of the steering wheel.

Why not take the same attitude in regard to your safety equipment. Surely your life is worth as much as this imaginary convertible. Statistics show that the average naval aviator can expect to be involved in a major damage accident once for every 1484 hours that he flys. In other words the chances are 1483 to 1 that you won't need your safety equipment on the average one hour flight, but when that *one time* comes along, you'll *really* need it. It may well mean the difference between life and death, as the cases below show:

Case #1. Lieutenant (jg) in the Organized Reserve was one of a flight of seven FG's

on a Round Robin navigation and tactics flight. While over the city of Milwaukee at an altitude of 1500 feet his engine suddenly quit. He turned on his emergency pump, pushed his mixture control to rich and the engine began running and then quit again. By this time he was at an altitude of 1000 feet. He unfastened his shoulder harness and safety belt and prepared to jump. When he looked over the side he saw that he was near the lake shore. The beach was crowded. If he jumped, his plane might hit in a residential area, or crash on the beach, so he decided to ditch instead. By this time he was too low to refasten his shoulder harness. He hadn't *planned* to make a water landing that day, so he didn't have his life jacket on.

He managed to get his safety belt fastened again, and looked up to find himself heading for a stone breakwater. To miss this he veered to the right. He was too low to

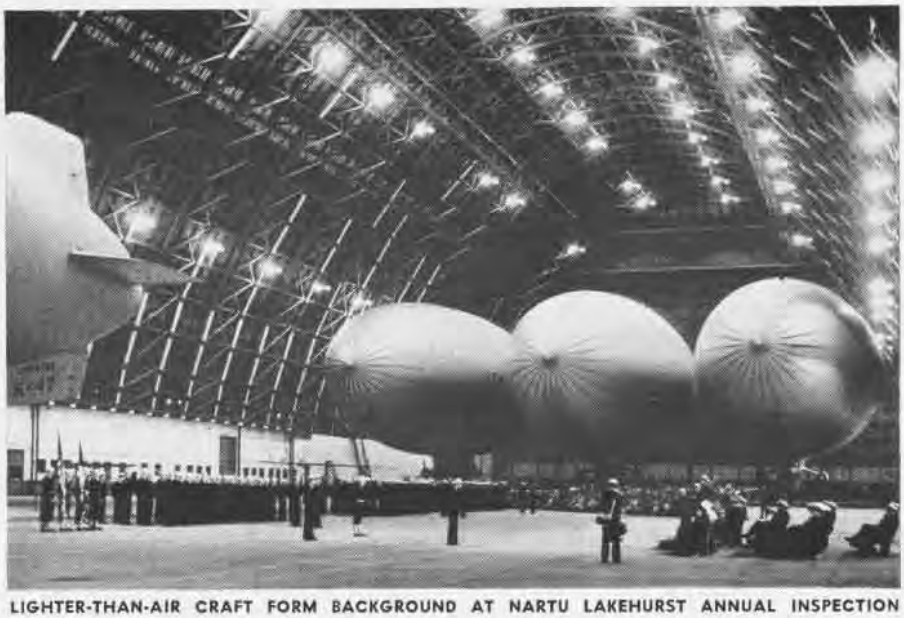
complete his turn into the wind. In the excitement of attempting to get his belt refastened and miss the breakwater, he neglected to lower his flaps. He ditched down-wind, outside the breakwater, and hit doing about 90 knots. His hood slammed shut and his head was gashed from the impact with the instrument panel. Luckily he managed to get out before the plane sank.

His troubles weren't over yet, as he had no life jacket. The water was cold and he was a good distance from the breakwater. Fortunately he was a good swimmer, and his squadron mates directed a small pleasure boat to the scene. He was fished out about 15 minutes after the ditching. They put the water that he had swallowed back in the lake—so the level is just about the same as it was before this close call.

Case #2. An Ensign was making night carrier qualification landings in an F8F-2 on a dark, cloudy night. He received a cut on his first pass and made a good landing. His second pass was a near duplicate of the first. After the cut, however, he hit slightly wheels first, bounced back into the air, and went into the barriers.

The F8F flipped over on its back with considerable force. The squadron had been issued the new protective helmets just five days prior to this accident. The pilot was wearing one and it very probably saved his life, for his head struck the deck with sufficient force to crack the protective helmet.

LTA RESERVES ARE PART OF ASW TEAM



LIGHTER-THAN-AIR CRAFT FORM BACKGROUND AT NARTU LAKEHURST ANNUAL INSPECTION

THE NAVAL Air Reserve Training Unit at NAS LAKEHURST has a unique place in the Reserve line-up. Not only is it the only unit which provides lighter-than-air training for Organized Reservists but it is the first Reserve LTA unit ever to be set up either in this country or abroad.

Now that the Navy has been given antisubmarine warfare as a primary mission, the role that these LTA Reservists will be called upon to undertake assumes major proportions. In a future conflict they will be an integral part of the ASW team.

Ready to take their place on this team are the 59 pilots, 4 ground officers and 236 enlisted personnel in ZP-51, the Organized Reserve squadron at NARTU LAKEHURST, as well as the 13 pilot, 18 ground officer and 5 enlisted Reservists in an Associated Volunteer status.

Because of the somewhat isolated location of the NARTU officers travel an average of 85 miles and enlisted men an average of 70 miles to attend drills. Despite this fact, ZP-51 has always maintained almost 100% of its assigned complement. Many officers, indeed, come from such points as Washington, D. C., western Pennsylvania and the Boston, Massachusetts, area, making the drill trek add up to more than 600 miles. They usually drive to Lakehurst on Friday night to be on board for muster at 0800 Saturday morning.

In addition, Volunteer Air Reservists (LTA) from all over the country, who are interested enough in the program to pay their own travel costs or to hitchhike via government air, come to NARTU LAKEHURST for their two-weeks annual training. During the past two years between 300 and 400 Volunteers have taken these cruises.

So far this year, Organized pilots have piled up a total of 3,000 flight hours, a sharp increase over last year's total of 1,000 hours.

Safety is stressed all along the line. It is significant that there have been no injuries to personnel, either flying or on the ground, and in fact no accidents during the whole period the NARTU has been a going concern.

Organized Reserve training is focused on antisubmarine warfare tactics.

The course for ZP-51 pilots is patterned after that for Fleet patrol squadrons and follows the lines of Fleet airship employment. Magnetic air detection, radar, navigation, communications, gunnery and bombing techniques are emphasized.

Two airships of the K-type have been assigned for use by Reserves. Training flights frequently last for some 12 hours, which means that Saturday drills frequently are not wound up until late in the evening. Cross country flights are often scheduled to such places as NAF WEEKSVILLE, North Carolina, or Weymouth, Massachusetts.

Present aim in training is to prepare Organized Reservists for future airship operations aboard carriers. During the recent *Vieques Exercises* in the Caribbean, the use of airships as a component of air/surface hunter-killer groups worked out most successfully. New procedures in airship-carrier operations, developed during these exercises, are now being adapted for use by Reserves.

Here, the close working relationship that exists between the NARTU and the Fleet Airship Unit, also based at Lakehurst, is paying off. Many Reserve officers were invited to participate in the Fleet carrier qualifications. In addition, Cdr. A. L. Cope, CO of FAZW-1, has briefed ZP-51 in the latest LTA techniques evolved during the exercises.

ZP-51'S QUINN, LEE, SEVERANCE, HAVENS, HENNESSEY CHECK DATA WITH LCDR. SCHUENEMAN

NARTU CO, Cdr. R. C. Gossom (c) plots training flight with ZP-51's CO, Cdr. J. D. Quinn and exec, LCdr. C. Severance

With the huge hangars of NAS LAKEHURST looming in back of them, Organized Reservists of ZP-51 pass smartly in review

RESERVISTS profit greatly all along the line from the backing and support given them by Regular Navy units at the naval air station. All the facilities, including the most modern equipment, of the Naval Airship Training School are made available for Reserve use on weekends. Reservists also get the latest word from such experts as Cdr. C. L. Bolam, officer-in-charge of the Training School, and from specialists who are conducting airship development experimental work at Lakehurst.

Training for enlisted personnel in ZP-51 represents a well-balanced mixture of classroom instruction and practical on-the-job experience in the various LTA fields. Of the two mechanics, radiomen and riggers, assigned on each airship training flight, one of each is usually a striker on an in-training status.

NARTU LAKEHURST has a streamlined course for seaman recruits, which follows the regular HTA outline, but which includes such features as basic safety instruction in ground handling of airships. As soon as the new recruits get the safety picture, they become members of ground handling crews to aid in airship landings.

Another feature of the recruit course is an airship indoctrination flight, designed to quicken the enrollee's interest and make him feel that he is a regular member of the aviation team.

LCdr. Hohlman Lee of ZP-51, professor of science at Admiral Farragut Academy, heads the recruit program. The fact that 28 SR's were advanced to AA in May makes a good commentary on the effectiveness of the course.

The NARTU, which is notably proud of its record of never having to go out and recruit O-2's, since good prospects were always pounding on the door, is even prouder of the number who have been appointed to the Naval Academy. Last year eight enlisted men from the unit entered Annapolis and this year 14 more were selected. R. F. Harney AA stood #2 in the national examination competition and W. A. Ryan AA was #5.

NARTU LAKEHURST helps support one of the liveliest associated volunteer units in the country—AVUA(LTA)-4, Squantum, Massachusetts. This pioneer unit started out as a Volunteer Aviation Unit under the commandant with no flying privileges, but so great was the enthusiasm of its members and so many LTA personnel and new recruits were interested that a mast was erected at NAS SQUANTUM so that a Reserve airship could be moored there for flight training. On 25 June the AVUA(LTA) was commissioned and LCdr. Timothy J. Hennigan, who saw war duty in both the Atlantic and Pacific areas and who did much to build the unit, took over as CO.

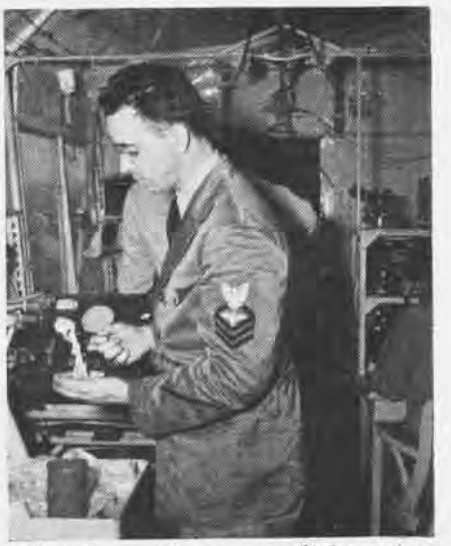
ON THE community front, LTA Reservists have contributed their services in many ways—and usually in their free time. Assisting in memorial ceremonies, conducting photographic surveys, aiding in Regular Navy recruiting drives are practically regular routine. Searches for lost children have been made from the air and State authorities also have been assisted in hunts for fugitives and in traffic surveys.

Chief Crowell explains equipment to ZP-51's Emmon, Garriel, Finoler, Gregg, Woods and the Silverstein brothers (front)

ZP-51's fine choir—Smith, Bouk, Sherman, Mulford, Clawson, Keim, Walzer—sing at the NAS chapel on drill days

Cdr. Quinn presents commission to Ens. Kalmbacher, ex-ZP-51 ordnance chief

Free ballon is trucked to the take-off location for a regular training flight



Chief Carnaghi prepares flight rations for airship crew during training flight

NARTU LAKEHURST was commissioned on 2 June 1947 with a personnel allowance of two officers and 10 enlisted men. It operated for more than a year with this small force; then an officer and 10 enlisted stationkeeper billets were added. During its two years of operations, the NARTU has had only seven changes among the enlisted stationkeepers (all in the non-rated group) and no officer turn-over. An important member of the staff is Mrs. Calhoun, the CO's secretary and the only civilian employee at the unit.

Commander Raymond C. Gossom, USNR, an HTA as well as an LTA pilot, is the commanding officer of NARTU LAKEHURST. A former officer in the U. S. Merchant Service who had command of several vessels, Cdr. Gossom was first commissioned in the Naval Reserve in 1936. After training with LTA Class 19 in 1942, he took over as exec of ZP-12 which was engaged in escort and patrol operations in the Atlantic. Later he served as CO of ZP-22 and then of ZP-15 with additional duties as Commander, Fleet Air Detachment. In 1944 he was transferred to the amphibious forces in the Pacific area and after service as acting CO of the *American Legion* (APA-17), wound up as CO of the *War Hawk*. Called to help organize the NARTU in 1947, he has done much to build up today's streamlined program.

He is assisted by his exec, Lt. George Zeitler, USN, and such staff members as LCdr. W. R. Schueneman, the type training officer. After many tours of duty in the Navy during which he worked his way up to a warrant appointment, Lt. Zeitler was selected for the Officer's Airship Training School. During the war he served with ZP-12 which operated in the Caribbean area. LCdr. Schueneman also saw duty with ZP-12, as well as with ZP-32, ZP-14 and ZP-21.

Spark-plug of ZP-51 is its commanding officer, Organized Reservist Cdr. James D. Quinn, Jr. Coauthor of two widely used aviation text books, Cdr. Quinn has had an outstanding career in commercial aviation, as flight mechanic, pilot and base manager, and as head of the largest public aviation school in the country devoted to aviation mechanic training. In 1939, after service as head of the Aviation National Defense Program for New York City, he was called to active duty from NRAB NEW YORK. During the war he served as CO of NAF FERNANDO DE NORONHA, and then as CO of NAS MACAO Brazil and of NAS RIO DE JANEIRO.

WITH THE Organized and Associated Volunteer Air Reservists and NARTU personnel working as a team, the Reserve LTA training program at Lakehurst is now rolling along in high gear—so smoothly, in fact, that plans for next year call for an increase of C. R. billets. The LTA Reservists have proved their worth and have set their sights for even greater progress ahead.

Type training officer Schueneman briefs stationkeeper Kay who is about to check personnel in radio range procedures

Class in radio code practice—here Chief Van Etten gives the word to Reservists Beers, Vasiliades, Karpoff and Phillips

Day in the Life of a Ferry Pilot

The following opus does not represent the editorial opinion of Naval Aviation News. It was sent in by FASRon-108, which apparently knows whereof it speaks.

1000—Opens one eye, scratches one leg and yawns. Absently wonders where he he is. Surroundings vaguely familiar.

1030—Scratches other leg and yawns again. Lights a cigaret and remembers that he should have been in Operations Clearance at 0800. Intended to get up at 0730 but figured the field would be fogged in and the airplane not ready or transportation not available. Too tired to do any further figuring at the moment. Crawls painstakingly out of the sack.

1100—Eats breakfast. This consists of a tall tomato juice, black coffee, a double Bromo and three cigarets, chain style, to steady jangled nerves. Attributes hangover entirely to quantity of giggle juice consumed rather than the quality. Solemnly swears off the stuff for life.

1131—Gets underway for field, maintaining running chatter and witty repartee with female driver who obviously is not impressed. She's long-since become familiar with the standard approach. He's still not fazed; believes himself to be the original Casanova. Resolves to explain technique in detail to copilot.

1145—Arrives at field. Checks weather. Also checks all females in sight. On sudden inspiration, plans RON in home town which is no gas stop, but where he'll happen to be a half hour before sundown. Decides it's impossible to take off before chow. Goes to chow.

1300—Finally gets off. Lets copilot pull up landing gear after determining he has 1500 hours or more. Adjusts auto pilot at cruising altitude, tilts seat to reclining position and puts foot on control pedestal. Instructs copilot to wake him up over Albuquerque.

1645—Arrives at home town, circles momentarily, then gets into screaming dive over fiancee's house, revving engines to 2700 when directly overhead. Lands at local airport, goes through a lot of unnecessary ground maneuvering and engine blasting to impress the local 30-hour pilots. Tells the engineer that he will see him at 0800 the next morning. Pins on campaign ribbons and departs. Ribbons include two theaters of operations through which he passed once on per-diem.

1700-0300—Spends evening telling friends about experience in C. B. I. and Alaska, interrupting conversations only to refill glasses. Tells fiancee long tales about how utterly tired he is. Stays in town three days. Occluded front and local smoke screen make flying out of the question.

Last Seen—In disbursing office demanding instant per-diem and attempting to date pretty WAVE storekeeper after 'borrowing' a cigaret, match and holder from her.

First Carrier Was 'Fanny'

Civil War Saw Balloon Doing Work

Know the name of the first Navy ship to carry aircraft?

If you can count a captive balloon as aircraft, it might have been the USS *Fanny*, an armed transport, during the Civil War. John La Mountain of Troy, N.Y., a pioneer aeronaut, offered his services to the War Department in May 1861 but was refused.

Later, Maj. Gen. Benjamin F. Butler, commanding general of the department of Virginia, whose principal mission was to hold Fortress Monroe with a small garrison, wanted some data on Confederate activities in the area. He decided La Mountain's balloon would be of some aid.

The balloonist made several ascents from land and then on August 3 he went aboard the *Fanny*, which steamed into Hampton Roads channel off Sewall's Point. He ascended to 2,000 feet and made careful observation of Confederate positions. The balloon then was hauled down and the *Fanny* moved to Craney Island and Pig Point where La Mountain again went aloft.

Later in the war T. S. C. Lowe built a balloon boat, the *G. W. Parke Custis*, and operated it along the Potomac.

Four hundred *skeet and trap shooters turned out for the annual Admiral Mullinix memorial skeet shoot at NAS San Diego to compete for above trophies. Actress Jeanne Crain was one of the onlookers. Lt. (jg) Verne Brewster was second high gun in Class A skeet with* 98 *out of possible* 100 *in the shooting.*

PBM Prop Is Temperamental

Gives Pilot Some Single-Engine Time

VP-47, SAN DIEGO—Occasionally some of the Big Boat Boys display a twinge of envy when one of the fighter pilots slow-rolls by, and long for a single fan job. Sometimes they get their wish.

Take the case of Ens. Laddie F. Long. While engaged in checking out some utility squadron pilots in the PBM, Ens. Long suddenly discovered his port prop feathering. The prop governor had decided to act up. So, securing the faltering engine, our hero calmly got in his single-engine time for the month enroute back to North Island.

VMF-218, Pacific—Time saver: The engineering department has a barber chair and cuts engineering personnel hair during working hours. It is estimated 30 man-hours a week are saved because the men do not leave the working area.

Quick, would *you shoot at any of these planes if you met it in midair during wartime? Recognition is something you have to work at all the time to keep abreast of new plane types. How long did it take you to figure out the three pictured above at North American's plant are the Navy AJ-1 carrier attack bomber, first Navy plane designed to carry an A-bomb; the F-86 Sabre, Air Force jet fighter, and B-45 jet?*

Cool Head Heals Hot Foot

NavCad Lands Burning Plane Safely

A routine acrobatic hop from NAAS CORRY FIELD, Pensacola, ended with a training plane's engine trying to break in and steal the act.

The instructor was leisurely enjoying the performance of one of his star students in a series of acrobatics when the NavCad informed him of an uncomfortable feeling around the area of his lower extremities.

"Feels like a hot foot," he said.

The instructor ordered the student to land immediately, concluding that there was a small electrical fire in the accessory section. At the same time the engine cut, and the NavCad began a 7,000-foot descent without power.

After making a perfect landing under emergency procedures at one of the outlying fields, the NavCad and his instructor discovered a first class gasoline fire roaring beneath the cowling. Quick action with the extinguisher put out the fire and saved the plane.

The youthful pilot and his instructor drew the praise of the station's commanding officer for remaining "calm, cool and collected" when their plane was hot and bothered.

Volunteers Get CIC Course

New Classes Set Up at CIC School

To bring Reservists up-to-date on new equipment, such as airborne and surface search radar, and on the latest fighter director techniques, the CIC Officers' School located at NAS GLENVIEW is scheduling four classes a year for 15 Reserve CIC officers from all over the country. While the course is slanted for Volunteer Reservists, a limited number of Organized Reservists also will be eligible to attend.

The 15 Reservists in each class will be instructed as a unit. They will be taught by the regular CIC school personnel and will utilize the full equipment of the school.

A special 80-hour curriculum has been developed for the Reserve course, which lasts for the two-weeks annual cruise period.

Two classes have already been held with additional ones being slated to convene on 12 September and 28 November in 1949 and on 23 January, 10 April and 22 May in 1950.

Volunteer CIC or fighter-director officers are eligible to apply for the course through their district commandants.

USS CORAL SEA—Three hundred Italian officers and midshipmen from the Leghorn, Italy naval academy came aboard on 20 June and saw a half day's flight operations, including bombing and machine gunning of a towed spar, carrier take-offs and landings.

LINKS GET APPROACH CONTROL

NEW REALISM has been added to "flying" under the hood on cross country flights in Link trainers. NARTU Anacostia now has an Approach Control Center. This control center is designed to relieve the solitude of the one pilot sitting in his cockpit who apparently is making an instrument letdown without another plane in the vicinity. It simulates actual flight conditions closely.

"Instead of one man flying instruments in a Link we now can have up to four other pilots in the same area," states LCdr. O. W. Brooks, instrument training officer at the NARTU. "It builds up the pilot's confidence to know that he can come in safely with other craft flying near him in instrument conditions."

The setup at Anacostia is a streamlined approach to safe instrument flying in congested areas, of which Washington is one. In one long room at NARTU are five Link trainers where operators talk pilots through mythical flight courses to destinations where an approach controller takes over.

In an adjoining room the approach control operator sits at a control panel in two way contact with all of the pilots. In the front of the operator on the port side is a sectional chart of the Washington area. Directly in front of him is a 10-inch speaker and to starboard is a chart of five nearby holding points.

The chart itself is ingenious and simple. It consists of a steel covered board with horizontal lines to indicate each 1,000 feet of altitude and vertical lines which intersect to represent five different holding points.

Five small magnetic planes, representing the five Link trainers, can be moved quickly and conveniently to different holding points and different altitudes. The operator can check the positions of all planes at a glance and guide them with safe altitude separation to the let-down leg of the Washington range.

Training in holding patterns—that is, the ability to control aircraft at different points to avoid congestion—is an extremely important phase of instrument flight. In the Washington area, for instance, the Approach Control Center of the District of Columbia serves, in addition to National Airport, Bolling AFB, Anacostia NAS, and Andrews AFB.

Washington is only one of the many congested areas in the country. The new approach control device marks an advance in safe all-weather flight training.

The control center desk was designed by LCdr. Brooks as was the wiring. Inasmuch as no funds were available, scrap materials were utilized. The magnetic planes started out as little magnetic "doggies" and were converted.

VERONICA LENOX, TD2, APPROACH CONTROLLER

Lt. W. F. Viering, assistant to LCdr. Brooks, sums up the new system in these words, "This type of instrument flight training at NARTU is the best life insurance we can give our pilots."

Pilot Has a Slow Flight

Ferrying Across U.S. Takes 29 Days

VR-31—A 29-day ferry trip across the U.S. is the latest slow-freight experience for this squadron, turned in by Lt. T. A. Holl.

He flew an ancient PBY out of Pensacola for Seattle. The first night out the venerable plane was damaged by high winds while buoyed at Corpus Christi and recommended for salvage. Restarting with his crew from Pensacola with another PBY for Seattle, Lt. Holl was beset by weather. He once had to backtrack 400 miles to maintain VFR. That trip took him two weeks to reach Alameda.

There the *Catalina* decided it was too tired to fly any farther and the plane was turned in for overhaul. The crew went to VR-32 at San Diego for a referry east. Several more fruitless days were spent trying to coax an R5C into the air, with negative results.

Finally Holl went to Litchfield Park, Ariz., to pick up a JRB destined for Wichita. After two more false starts, the Beechcraft was delivered successfully, allowing the pilot, at month's end, to return to Norfolk.

● NAS LOS ALAMITOS—As soon as the summer training course for new seaman recruits was announced, the deluge of enthusiastic applicants descended. In the first week more than 90 young men were put through some part of the recruiting process.

An airlift was provided for 15 Reserve ordnance officers to NOTS INYOKERN and return for their regular weekend training.

EVERYONE IN CREW BECAME A PUBLIC RELATIONS MAN AS CROWDS THRONGED TO VIEW THE R6O

OPEN HOUSE ON THE CONSTITUTION

MOM AND DAD and Aunt Bessie and all the kids went out to the airport to see the Navy's big airplane. Just as in former years thousands of citizens flocked to the docks to see another famous *Constitution*, "Old Ironsides," so they turned out this summer to inspect the Lockheed R6O. On the *Constitution's* cross-country recruiting tour during May and June, over 542,000 people actually walked through the plane at various cities, and a conservative estimate is that three times that number saw it from the outside. In fact, Lockheed reported that the chief maintenance problem was wear and tear on the upper deck carpeting.

The tour covered 10,000 miles and 19 cities; it started in San Francisco and wound up in Boston. An average of 40 news and radio people traveled on the *Constitution* between cities. The average hop was about three hours, during which newsmen went over the plane thoroughly; many were allowed to fly, and some even put on coveralls and crawled into the wings. There were plane to ground broadcasts on each hop, including the hour-long Arthur Godfrey broadcast over New York. Godfrey flew the R6O from Washington to New York and was in the pilot's seat when he opened his show over Long Island.

One live television show was made from the plane while it was on display at NAS GROSSE ILE. Cdr. William M. Collins, skipper of the *Constitution*, and LCdr. Charles "Buddy" Rogers, who spent his two weeks of active duty aboard in recruiting work, made many personal appearances on various local television shows. On the flight from Minneapolis to Kansas City fifteen live broadcasts were made from the plane. All shows were done from the forward flight engineer's compartment, and the activity at times would have put Grand Central station to shame.

The giant aircraft created tremendous interest throughout the country, was talked about on hundreds of radio programs, was photographed from every possible angle. Several JATO take-offs added to the spectacle. Hundreds of prospective NavCads, nurses, and doctors were interviewed. At most stops the crowds going to the airport caused the greatest traffic jam in the city's history. The Marine *Phantoms* jet exhibition team accompanied the *Constitution* for several weeks and their fine show of precision flying got an enthusiastic reception.

At the final stop in Boston souvenirs were presented to the half-millionth person to be clocked through the plane. A model of the aircraft *Constitution* was presented to the crew of the frigate *Constitution*, now a national museum in Boston harbor.

Shown in the picture are members of the third and final flight crew to come out from Moffett Field to man the *Constitution* during the tour. Pictured (*left to right*) are Lt. L. A. McNaughton, flight nurse, LCdr. L. L. Bangs, officer procurement; Lt. Grant Essex, officer procurement; Lt. Bill Fey, public relations; LCdr. C. E. Rogers, pilot; Cdr. W. M. Collins, commanding officer; LCdr. L. Burnett, pilot; LCdr. W. B. Oliver, pilot; LCdr. R. E. Curtis, pilot. Lt. Robert Moore, officer procurement; Lt. W. H. LaRue, pilot; Lt. R. P. Calcagne, pilot; Lt. N. R. Townsend, flight engineer; Lt. E. M. Schwartz, flight nurse; Capt. A. D. Blackledge, CO Naval Ordnance Factory, Indianapolis.

Cdr. Collins, LCdr. Burnett, LCdr. Curtis, Cdr. Joe Thatcher, flight surgeon, Lt. Swartz, Lt. McNaughton, LCdr. Bangs, Lt. Essex, Lt. Moore, Lt. Fey were with the plane for the entire trip. Also on the plane throughout the tour were five representatives of Lockheed.

Since completion of the recruiting tour, the *Constitution* has been used this summer for air cruises for midshipmen.

Law Course for Jet Pilot

LCdr Kelly Starts Postgraduate Work

From jet fighter to law library will be the lot of LCdr. William Wright Kelly, first Navy pilot to fly the FH-1 *Phantom*.

Kelly, former carrier fighter and test pilot who previously worked in the fighter design section of BUAER, has reported to Washington to begin in September a three-year law course at George Washington University.

FROM JET JOCKEY TO JURIST FOR LCDR KELLY

Purpose of the post-graduate course, which will be taken under the cognizance of the Judge Advocate General's Office, is to provide Kelly with a legal background as an aid in contract negotiation with aircraft manufacturers in the future.

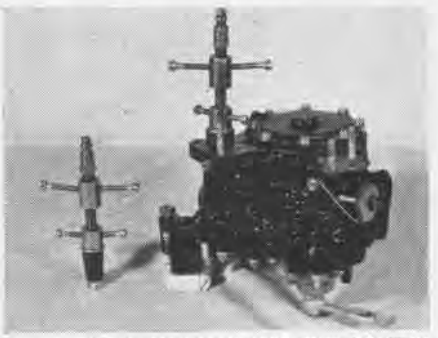
As a member of VF-17, from which he has been detached, Kelly demonstrated the *Phantom* at the Miami All-American Air Maneuvers in January, 1947, and is the first pilot to bail out of a Navy jet.

Third time *usually is the charm and so it was when VP-4 won ComFairWestCoast's quarterly safety record from other P2V squadrons three times in a row. As a result, they received a special award, held by skipper, Cdr. T. F. Pollock, above. It flew 3707 accident-free hours in Alaska and Seattle areas to win the honor from its competitors.*

TECHNICALLY SPEAKING

Checks Fuel Control Valves

NAS NORFOLK—A device which provides a faster means of checking the idle cut-off, fill valve and idle valve on all PD, PT and PR type fuel control assemblies of the Stromberg injection carburetor has been developed and successfully used at this station. The device was suggested by Joseph P. Tylka under the Navy Employees' Sugestion Program and can be manufactured readily at any station performing carburetor overhaul.



SPEEDS CHECKS ON CARBURETOR FUEL CONTROL

The following material is required: one ⅜" threaded nipple, 4" long; one ¼" quick disconnect fitting; two brass bushings ¾" diameter, 1" and ⅝" long respectively; two flat washers ⅞" and ⅝" for PR and PT; ¾" and ½" for PD; one tapered rubber plug 1-¾" long with a ⅞" diameter tapering to a ⅝" diameter for PT and PR, and a ¾" diameter tapering to a ⅝" diameter for PD; one ⅜" nut; 5" of 3/16" rd. stock for handles.

Drill and tap one end of the larger brass bushing to receive a ¼" quick disconnect fitting. Drill the other end to receive the ⅜" nipple. Drill and tap the smaller bushing so that it will screw onto the ⅜" nipple. *Note:* The smaller bushing rotates on the threaded nipple; the larger bushing is fixed. Insert handles in the two bushings. Place the larger of the two washers on the threaded nipple, followed by the tapered rubber plug, small washer and nut.

Insert fixture in the unmetered fuel inlet of the fuel control and tighten down on the smaller of the bushings. Attach fuel supply and raise pressure to 4 to 5 psig. Place manual mixture control in the idle cut-off position and check for leaks at the metered fuel outlet port. A leak indicates warped or damaged mixture control plates.

Check for fuel leakage at fill valve outlet port. A leak here indicates defective fill valve. Place mixture control in the rich position, and, with the idle valve closed, check for leaks at the fuel outlet. A leak here indicates a bad idle valve sleeve packing.

Broken Strut Hazard To R5C

VMR-252, CHERRY POINT—Failure of an R5C main landing gear strut assembly side brace, P/N CW-20-310-6R, on a routine training flight recently made the landing a little more than routine. The pilots reported that upon normal take-off, while wheels were being retracted, a loud report was heard in the cockpit and the aircraft shuddered violently—much the same as a tire blowing

STRUT SIDE BRACE THAT BROKE WITH A BANG

when retracted. The pilot's investigation showed that the right main gear had not retracted.

After a climb to a safe altitude over the field, the landing gear was put down but failed to indicate locked. Gear was again retracted and the right wheel remained down. Gear was lowered again and this cycle indicated that both wheels were down and locked.

A normal landing was made, but upon runway contact the right gear lock indicator light went out and the warning horn sounded. Pilot allowed the aircraft to roll to a stop without using brakes and shut down the engine immediately. Visual inspection showed the broken strut as pictured. Magnaflux inspection of this part on other squadron aircraft showed that four others had cracked side brace struts.

▲ ***BuAer Comment*—R5C E&M Manual prescribes inspection of this particular part. Copies of RUDM have been forwarded to BAGR-CD. USAF history and corrective action, if any, have been requested. Contractor is considering reinforcement in area of failure.**

Gunk Gadget Gets The Goo

VMP-254, EL TORO—This squadron, by using parts obtained from salvage and compound cleaning grease, Type I, Spec. C-147 (Gunk), has devised a means by which the cleaning of aircraft engines and fuselages takes less than half the time it did in the past.

The brain behind the "Easy Gunk Applicator" is M/Sgt. Walter W. Berzon. Finding an old surveyed 10-gallon pressure paint can and lid with an air-driven agitator in a salvage pile, the idea of the gunk machine was born. After the initial find it was easy to obtain, also from salvage, two surveyed low pressure gauges, 75 feet of outdated high pressure hose, gate valve, quick disconnect air hose fitting, and a small pipe with a restricted opening at the end to spray the gunk. The pressure can was then drilled and the necessary fittings placed on it. The hose was connected to an air compressor and the gunk applicator was ready for business.

The applicator's capacity of 10 gallons enables a man to clean several aircraft, engines and fuselages, without refilling. The air driven agitator mixes the correct combination of gunk and kerosene in the paint can without the waste of time involved in mixing by hand. With a pressure of 50 to 80 pounds supplied by the air compressor, all grease can be cut off the usually inaccessible parts in the engine and wheel wells of F7F and F4U type aircraft.

The gunk applicator has been found very practical and is in constant use in the squadron.

GUNK APPLICATOR HELPS IN CLEANING AIRCRAFT

▲ ***BuAer Comment*—This will serve as an emergency cleaning rig. However, it has no heat, and pressure and volume are low for efficient general cleaning of aircraft. All air stations are provided with a high pressure hot water and steam cleaning machine, V40-C-988-100, designed for this work.**

Print Trimmer Saves Time

VP-61 SAN DIEGO—In major photo-mapping operations prints are made on a large scale. This involves much manual labor when preliminary prints are made on a Sonné printer, which prints up to a 200-foot roll.

Separating each print normally takes five strokes of a print blade trimmer. Now the job has been simplified with a four-bladed print trimmer designed by L. Roberts, AMI, of VP-61.

The machine isn't perfect but it trims prints at a great rate. Small adjustments must be made as the job progresses.

This prototype model weighs 60 pounds. Its primary value is in expediting evaluation of aerial coverage so that any re-runs can be taken care of as soon as possible. It is of no value in trimming single contact prints.

Can You Improve On This?

NAAS REAM FIELD—Can you write a better definition of a nut and bolt than a seaman did here in an examination:

"A bolt is a thing like a stick of hard metal, such as iron, with a square bunch at one end and a lot of scratches going round and round the other. A nut is similar to the bolt only just the opposite, being a hole in a little square of iron sawed off short with rings also around the inside of the hole."

Tool Kits Get the Eagle Eye

COMPLETE DISPLAYS OF 16 DIFFERENT TOOL KITS WERE CAREFULLY APPRAISED BY CONFEREES

THE OLD saying that "a good workman is known by his tools" receives an up-to-date, en masse twist when it comes to fitting out the maintenance experts of naval aviation. A display of 16 different kits of hand tools, each kit containing an impressive number of special implements, recently focused attention on what it takes to keep aircraft flying.

The occasion was a conference convened at the Bureau of Aeronautics and NAS ANACOSTIA during the week of 13 June to improve the Section "U" Allowance List and to consider the numerous recommendations received by BUAER regarding it. This is the list which covers the standard hand tools used by aviation personnel in the day to day maintenance and operation of naval aircraft.

Attendance at the conference included representatives of the Chief of Naval Operations, ComAirLant, FMFLant, Aviation Supply Office, and various sections of BUAER. ComAirPac, while unable to attend, expressed confidence that full weight would be given to fleet interests by ComAirLant.

Each of the current Section "U" tool kits was inspected and appraised by the conferees; and additions, deletions, and rearrangements of the tool kit contents were made as required. Recommendations received from field activities were considered, evaluated, and resolved by the conferees.

Decisions reached relative to the selections and rearrangements of the tool kit contents will be reflected in the next reissue of the Section "U" Allowance List. The selection of tools represents the collective experience of many aircraft maintenance specialists. There may be instances where a mechanic may think that a certain tool is not required or is not the right type for the job at hand, but it should be remembered that it is practically impossible to select tools that are satisfactory to all personnel.

During the detailed inspection of each tool, it was noted that the weight, wall thicknesses, tolerances, and general construction of some of the tools were not considered adequate for aeronautical purposes. BUAER has initiated action to revise the applicable tool specification to provide for better quality tools for aeronautical purposes.

The conference decided that the application of the Section "U" Allowance List should be extended to include allowances for naval air training activities, FASRON pool aircraft, and Marine service squadrons. In connection with the tool allowances for the aircraft pools operated by the FASRON, it was decided that the cognizant Fleet aircraft command is to determine the normal or average size of the pool, since there is variance in the number of aircraft in pools. The appropriate allowance column nearest the combined total of pool aircraft and administrative aircraft will be used in making requisitions for tools.

Marine service squadrons will be authorized to draw allowances of standard hand tool kits based upon the combined total of Group HedRon aircraft plus 10% of the aircraft being supported. The appropriate allowance column nearest the combined total will be applicable.

The revised allowance list format as adopted by the conference is similar to Part I of the current Section "U" Allowance List. This new format will authorize allowances in accordance with the number of aircraft being supported. In addition, three columns will be inserted to cover aircraft detachments of one, two and four aircraft. The following aircraft ranges were adopted as being applicable to all Marine and Naval aviation activities: 1-4, 5-8, 9-12, 13-16, 17-20, 21-26, 27-32, 33-50, 51-75, 76-100, 101-150, 151-200. It was decided to eliminate Parts II, III, IIIa and IV of the Section "U" Allowance List since the revised allowance format, based on the number of aircraft assigned to an activity, precludes the necessity for specific squadron allowances.

Recommendations relative to consolidation of the current Section "U" tool kits to conform to the peacetime general rating structure were discussed. It was decided that retention of the current tool kits was essential. This decision was based primarily on the fact that mobilization would require expansion of the peacetime general rating structure to include specialist ratings; consequently, retention of the present tool kits would obviate the need for re-establishing the specialist kits in the event of mobilization. It was decided that Fleet commands would be given authority for independent action relative to rearrangement of the contents of the standard hand tool kits to conform to local maintenance methods.

THE CONFERENCE agreed that the cognizant command would consolidate allowance change recommendations and would request changes to allowance listings only when considered to be generally applicable to activities of a specific type of activity covered by the list. Cognizant commands can authorize in-excess allowances for subordinate activities if the conditions requiring such authorization are deemed to be local and not generally applicable.

The Section "U" Allowance List is divided into four parts and an appendix. The parts designate the number and types of tool kits allowed to the various aviation activities, while the appendix lists the individual tools in each kit.

INK, SALT HELP CORPUS CLASS

AN UNUSUAL training device to show students how weather fronts develop has been developed by D. M. Pinnegar, instructor of the ground training department at NAS CORPUS CHRISTI. A bottle of ink is the principle ingredient.

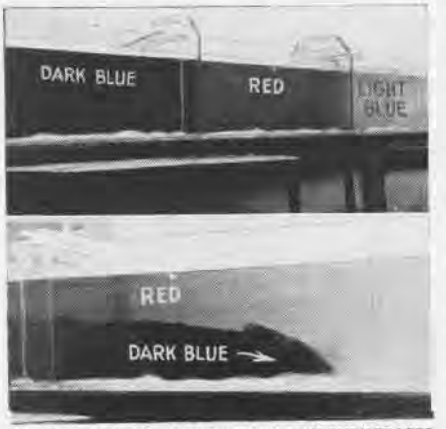
With it the instructor is able to illustrate cold, warm and occluded fronts, and is able to show behavior of a frontal system in motion.

Called a "density channel," it is a plexiglas trough 5½'x10"x10", open at the top and divided into three equal sections by watertight plexiglas slides.

To make it work, all three sections are filled with water. One of the end sections is colored with dark blue ink to represent cold dense air and the density of the water is increased by mixing a small amount of salt in the water. The center section is colored with red ink to represent warm and less dense air and the water density is left unchanged. Water in the last section is colored light blue and a small amount of salt added, making it representative of cool air.

By removing the slide dividing the dark blue and red water, the blue will under-ride the red, giving an excellent reproduction of a cold front in motion. The bottom of the channel has a reproduction of rough and smooth terrain so that terrain effects can be noted as the cold front moves along the channel. Upon removing the other slide, a reproduction of a warm front in motion may be seen. Near the end of the experiment, an accurate picture of an occlusion in motion may be seen.

With this visual aid, a realistic moving picture of some of the occurrences in the atmosphere is offered.



WATER TANK SHOWS HOW BLUE INK INFILTRATES

PLAY SAFE IN HYDRAULIC TESTS

An unfortunate series of circumstances recently resulted in fatal injury of an O&R hydraulic test machine operator while testing hydraulic actuating cylinders which had just been overhauled.

Six double-acting cylinders were connected at the piston rod end to the pressure manifold of the machine for pressure testing. The cylinders were placed at an angle across the bench with the rod end of the three cylinders on the right facing the operator's position. The accident occurred when the first cylinder was subjected to hydraulic pressure and the piston rod was ejected from the cylinder and struck the operator.

Inspection showed that the piston and rod separated when the piston retaining nut failed and the hydraulic pressure acted on the shoulder and end of the rod, thereby forcibly ejecting the rod out the piston rod end of the cylinder. Normally the piston and rod subassembly would have been expected to bottom against the opposite end of the cylinder.

Personnel operating hydraulic test machines are cautioned against using similar test arrangements. It is recommended instead that actuating cylinders always be tested with the piston rod parallel to the operator's edge of the test bench and that guards be installed at the ends of the bench.

Leakage, proof, and other static tests on all components, including cylinders, should be run with the hydraulic pump adjusted for its lowest output. In this way the violence of any rupture will be lessened.

Another safety precaution recommended for static testing of all components, wherever possible, is to shut off the test bench pressure accumulator from the test circuit. However, this procedure requires closer manipulation of the by-pass valve to maintain constant pressure than would ordinarily be required with the accumulator in the circuit. Whenever the accumulator is shut off for this purpose care must be exercised to do so with the accumulator discharged so as to prevent subsequent reopening of the accumulator shut-off valve and discharge of released pressure through open lines.

● NAS SPOKANE—To aid in training Volunteer Reservists who come aboard for two-weeks annual cruises, the type training department has developed a "Welcome Booklet." The booklet includes a welcome from the CO, a roster of station officers, a map of the station, check-in and check-out procedures, a daily flight schedule for the full training period and a foul weather schedule. Since it is to be retained by the training department, space is allotted on each page of the flight schedule for hours flown each day and for the initials of the ground school instructors. Thus a complete training record of each Volunteer will be available.

Spokane city officials and firemen were on hand to observe training of stationkeepers in fire-crash-rescue work conducted by the visiting NAMF-2 unit. The nearby Spokane Air Force Base requested that the unit also check out their crash crews and it was done.

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Must We Hide? R. E. Lapp. Addison-Wesley Press, 1949, $3. (Review of the effectiveness of the atomic bomb.)

The Second World War, 1939-45; A Strategical and Tactical History. Maj. Gen. J. F. C. Fuller. Duell, Sloan & Pearce, 1949, $5.

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Research for Aircraft Safety. Dr. C. C. Furnas. *Aeronautical Engineering Review*, July 1949, pp. 18-21, 29.

Is the Fighter Obsolete? *Air Force*, July 1949, pp. 17-20.

How Delta-Wing Aids High-Speed Flight. Robert McLarren. *Aviation Week*, July 4, 1949, pp. 21-25.

Magnesium Used as Structural Material. J. P. Donald Garges. *Aviation Week*, July 4, 1949, pp. 26-30.

Cycle Reconditioning Cuts Overhaul Time. *Aviation Week*, July 4, 1949, pp. 44-45. (MATS C-54 maintenance.)

Crisis in Naval Aviation—An Analysis. *Aviation Week*, July 11, 1949, p. 7.

Navy Studies New Attack Planes. *Aviation Week*, July 11, 1949, pp. 13, 14.

Ducted Fan Engine Under Study. Robert McLarren. *Aviation Week*, July 11, 1949, pp. 23-27. (Combining economy of the turboprop with high thrust of the turbojet.)

Sea Power for Peace. Rear Adm. Albert G. Noble. *Ordnance*, July-August 1949, pp. 22, 23.

Operation Jato. Cpl. William Daum, USMC. *Skyways*, August 1949, pp. 32, 33, 46, 47. (Jato rescue of a downed FH-1.)

VR-2, ALAMEDA—School children were visiting the *Mars*. One small fry remarked "It's OK, but the modern jet engines of today make this thing a museum piece." Further interrogation divulged his brother was an Air Force jet pilot.

● NAS OLATHE—On 5 June Naval and Marine Organized Reserve squadrons participated in a tactical exercise defending the station from "attacking" Organized squadrons from NAS ST. LOUIS. More than 120 aircraft took part in the exercise which provided a good review of operational procedures.

AVIATION ORDNANCE

Ejector Failures on 20 mm.

The Naval Proving Ground, Dahlgren, and the Naval Air Test Center, Patuxent River, recently reported failures of *ejector assembly*, Army Ordance part number B163473, during firing tests of 20mm automatic guns M3.

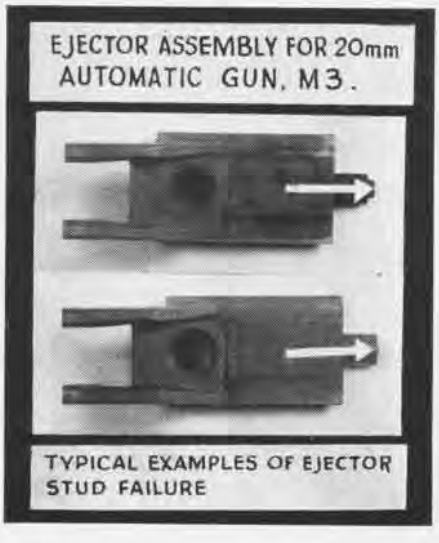
Failure of the *ejector assembly* has been infrequent and is caused by breakage of the ejector stud occurring at the undercut section forward and aft threaded portion of the stud body. The accompanying photopraph is a typical example of ejector stud failures.

Ejector stud failures have been eliminated by a redesign of the ejector assembly. Eventually ejector assembly B163473 will be replaced by an improved assembly B7229942. The improved ejector assembly differs from the original assembly in the following respects:

1. Ejector stud modified by eliminating the undercut described above. The thread is carried back almost to the shoulder with a generous fillet radius of .04 inch.
2. Ejector stud material improved.
3. Ejector stud welded to ejector body, eliminating the pin previously used.

Due to infrequent occurrence of failure of ejector assembly B163473, mass replacement by the improved assembly is not warranted and a NavOrd OMI-V will not be promulgated by Bureau of Ordnance. Ejector assembly B7229942 is being procured and will eventually replace the original assembly as stocks of the latter are depleted.

Pending replacement, close inspection of ejector assembly B163473 is recommended during gun maintenance. When loading the gun, check the ejector assembly for a broken stud prior to installing the feed mechanism. If the magazine slide has been disassembled for inspection, closely examine the ejector horns and ejector studs for signs of fracture. If the ejector assembly is defective, replace.



40" LENS ON A MODIFIED GUN DIRECTOR MOUNT

NAOTS Uses MK 51 Director

A Mk 51 director, normally used as a 40mm gun director, has been adapted and modified by the Naval Aviation Ordnance Test Station, Chincoteague, Virginia, for use in the smooth tracking of bombs and various guided missiles. The resulting film made on 35mm stock carries no data for trajectory evaluation, but is particularly successful in recording flight attitude.

The accompanying photographs illustrate how this director is modified. The left handle is replaced with a piece of pipe that is bent in a circular shape and welded. This permits a firm grip and insures smooth operation through any degree of elevation or depression.

By pushing or pulling with either hand, the instrument can be trained in azimuth. The operator takes his position at right angles to the handle and visually tracks the subjects through an M-17 elbow tracking telescope that is supplied with an optical magnification of 8X.

The camera used is a 35mm Cineflex equipped with a 40-inch lens. This is mounted on a plate on the top of the gun director. Both the camera and the elbow telescope are provided with facilities for boresighting.

Photograph Distant Missiles

How can guided missiles seven miles away be photographed? The human eye has difficulty seeing such a missile, and on a picture taken with standard movie equipment, the missile appears as a dot.

The Photographic Laboratory of the Naval Aviation Ordnance Test Station, Chincoteague, solved the problem by using a 450-mm lens on a 35mm Mitchell movie camera and by designing and constructing a special sight.

With the long range telephoto lens, the missile fills a large portion of the picture. Flight behavior can therefore be accurately studied. Very careful sighting is required with such a lens.

For accurate sighting and as an aid to the human eye, a special aluminum frame was constructed and either half of a Mk 39 Mod 1, 7 x 50 binocular was attached. (*See photo*) An auxiliary open sight is made available beside the binocular on the same frame for use at short distances and for rough approximation prior to sighting on distant subjects. The whole unit was then mounted on the standard dovetail bracket of the Mitchell camera. Chincoteague now photographs missiles from close in, and out to a distance of seven miles.

MONOCULAR VIEWFINDER INSTALLED ON CAMERA

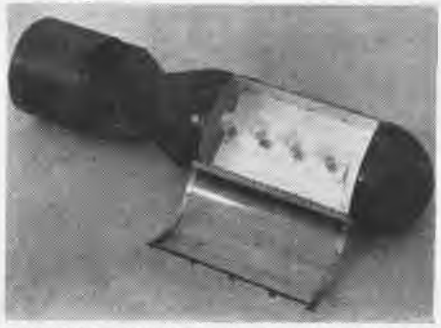
Photoflash Bomb Aids Tests

Have you ever tried watching a plane fly over at 25,000 feet or higher? If so, you can imagine the complicated problem involved in accurately determining the trajectory of a bomb dropping from such a high altitude. This is a problem that is solved daily at the Naval Aviation Ordnance Test Station, Chincoteague, Virginia, by photographing the drop with a group of special movie cameras (photo-theodolites) located on the ground.

The exact instant of separation of the missile from the plane is indicated by an intense flash of light at the plane, at the instant of bomb drop. This flash comes from a battery of photoflash bulbs and shows on the film, thus making it possible to coordinate the rolls of film from the different phototheodolites and thus determine the trajectory of the bomb by triangulation.

The phototheodolites that film the falling bomb are located at carefully surveyed points on the ground. They are sighted visually at the bomb and each camera automatically records the azimuth and altitude on each frame of the movie film.

In order to carry the photoflash bulbs under the plane being tracked by the phototheodolites, a 500 pound water-fillable bomb capsule was modified with a hinged plastic door on the underside and sockets to hold four No. 3 photoflash bulbs mounted on the inside. The capsule can be hung on any of the bomb shackles available, but is usually carried in the auxiliary gas tank position.



FLASHBULBS INSTALLED IN A WATERFILL BOMB

The flashbulb sockets are wired to a selector switch in the cockpit whereby any one or combination of flashbulbs can be used. The circuit firing the flashbulbs is tied in with the bomb release so that, at the exact instant of release, the bulbs fire.

MCAS EL TORO—This Marine Corps air station recently was host to 595 teen-agers and 23 instructors of the California Cadet Corps representing 17 southern California military schools.

VF-63, ATLANTIC—The new anti-buffet helmet may be hot and uncomfortable, but Ens. M. E. Russell and this squadron are sold on them to a man. Russell's plane flipped over on its back, putting a dent in the top of his helmet. It is felt that without the helmet, he would have suffered severe injury.

MCAS EL TORO—When T/Sgt. John J. Harrington of VMF-513 was killed in a plane crash leaving his house partly completed, 11 Marines from his squadron pitched in and completed it for his widow and young son.

Fuel Pump Fittings Installed

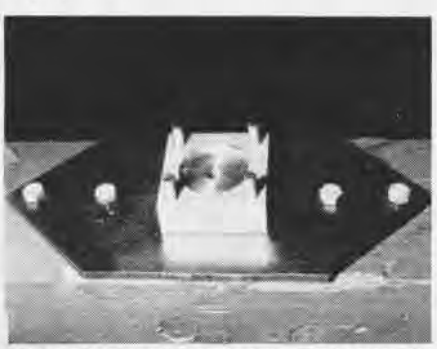
SMS-33, EL TORO—A simple device, the work of M/Sgt. J. W. Mann of SMS-33, is speeding the installation of fuel pump fittings. In the past all fitting installations on various types of fuel pumps have been accomplished by clamping the pump mounting base in a vise and with the use of a bicycle wrench. In this process, even with care and caution, it is often impossible to prevent damage to both pump and fittings.

The mounting base and adapter designed to facilitate installation can be manufactured locally from standard material. Approximately four man-hours are needed to complete the unit.

To manufacture, cut a piece of ¼" by 6" by 12" boiler plate. Drill four holes to fit standard fuel pump, threading with ¼" studs. Screw studs in flush with the back of the boiler plate, center punch studs to secure to boiler plate. Using S. O. aluminum one inch thick and the size of the face of the pump, machine a recess in the face of the aluminum for the protrusion on the face of the pump. Drill four holes to fit studs mounted to the boiler plate, mount the aluminum over the studs and glue gasket to the face, making sure studs are just long enough to permit screwing a nut on properly.

Mount the entire base to a 6" by 6" upright high enough to allow a complete 360 degree turn of the wrench.

It is estimated that one man-hour per pump installation is saved with this unit. The mounting base has been in use for two months and no fitting damages or leaky installations have been reported since its employment.



BASE AIDS IN INSTALLING FUEL PUMP FITTINGS

JAX CHIEF GETS ALL BALLED UP

CHIEF OFFENHAUSER POSES BESIDE 1812 BOMB

NAS JACKSONVILLE—It all goes to show you what can happen to a Navy chief who knows his 1812 cannonballs.

Harry E. Offenhauser, AOC, was called on to identify a "live bomb" found by a panicky beachcomber on a nearby sandy shore. This won him a front page story in a local paper. Members of the U.S. Society of the Daughters of 1812 read it and contacted him to get the missile for a relic.

He did some research and decided it probably was a fuze-type of cannon ball used in the battle of Fernandina back in March, 1812. A naval force of seven ships under Commodore Hugh Campbell and the "patriots" of east Florida were moving against the town and the ball easily could have been fired in that encounter.

By that time the cannon ball was making history of its own. The CO of Jacksonville presented the relic to the ladies in proper Navy style. Offenhauser removed the rust from the ancient missile and gave it a shining coat of shellac. In addition, his presence was required in the CO's office during the ceremony, which necessitated purchase of a special new uniform.

With this last hazard hurdled, the chief heaved a sigh of relief. Surely nothing more could happen to him in connection with the cannon ball. Alas, how wrong he was! For fame spreads —and Offenhauser soon was giving his free time to rehearsals for a radio feature in which he recounted the entire episode over the air waves.

WHY F8F PILOTS GET GREY HAIR

VF-63, ATLANTIC—If Lt. (jg) Paul Barrow does not have grey hair, it isn't because he didn't have a chance to acquire it. Listen to what happened:

On the CVB *Roosevelt* during the Caribbean maneuvers, Barrow was flying the only F8F-2 with manual blower control. Fired from the catapult, he reported the shot felt extremely hard and the rapid acceleration engaged his blower control.

He felt a terrific surge of power and his engine cut cold about ¾ of the way down his catapult run. He was in the air 30 feet above flight deck level when he noticed his blower handle was in the "out" position, and immediately pushed it back in. His engine caught, and the plane did not settle below flight deck level, but smoke poured out.

The engine backfired as it caught. This soon stopped; however, it continued to run rough. After making a short reach ahead of the ship, the pilot turned toward his rendezvous sector at about 400' altitude. When he cut back his RPM, his engine quit for a second time—again the pilot managed to get it started, but it was backfiring, surging, and cutting out badly.

By using full power, and by enriching or leaning the mixture, Barrow was able to maintain 400' altitude and 100 kts. IAS. When the engine cut, he leaned the mixture; as it caught he moved the control toward rich. However, it would not run at all in full rich, and the pilot was able to get only surges of power to keep the plane airborne. He immediately turned back toward the ship, dropped belly tank and hook, and turned downwind for the most exciting landing of the cruise.

As he turned off the downwind leg of his approach, he dropped wheels and flaps, still flying with the mixture control, and still maintaining 400' and 100 kts. When he turned into the groove the power dropped off suddenly, and the LSO went from a *Roger* to a frantic *Low*. Fortunately, the pilot was able to hit a good mixture at this point, and the engine responded with a comfortable surge of power that put the plane about 20' over the ramp for the cut. A normal landing was made, but when the mixture control was retarded to idle cut off, the engine kept idling, and could be stopped only by turning off the ignition switches and fuel. Inspection revealed that the BMEP of the engine had been exceeded to such an extent that 16 plugs were blown out.

Barrows is still a little dazed by it all.

NAAS SAUFLEY FIELD—Seventy-two SNJ's from BTU-8 flew in honor of Admiral Fehmet Ali Ulgen, Chief of Naval Operations, Turkish Navy, a visitor at Pensacola. Admiral Ulgen also witnessed the GCA team in action.

SERVICE Test INTERIM REPORT DIGEST

This digest covers the 15 July Interim Report of Service Test, NATC PATUXENT, and does not necessarily reflect BUAER policy.

F8F-2 (437 Hours)

Hydraulic Leak. Investigation of hydraulic leak in accessory section showed that lower accessory cowling was chafing hydraulic line between oil cooler door selector valve and actuating cylinder. The E&M handbook does not contain a drawing of the F8F-2 hydraulic system.

Recommend: 1. Contractor provide adequate clearance between hydraulic line and accessory cowling. *2.* Operating activities inspect line for evidence of chafing. *3.* Revise E&M handbook to include an isometric drawing of F8F-2 hydraulic system.

Ignition Leads. Investigation of rough engine operation on left magneto showed that insulation of rear spark plug lead assemblies, P/N PW-82322, to cylinders 2, 8, and 10 was defective. Insulation broke down when subjected to high tension test. *Recommend* that lead assemblies be returned to contractor for investigation and that lead assemblies be provided which will last the service life of engines between overhauls.

E&M Handbook for F8F's. Although the Bendix and the Vickers accumulators, AN 6203-1, are listed in the ASO Catalog as interchangeable, the accumulator clamp assembly, Grumman P/N 25259, is not readily adapted to the Bendix accumulator, and no instructions are given in the E&M handbook for installing the Bendix accumulator.

E&M handbook states that accumulator is charged to 1200 psi. Vickers accumulator installed in the airplane is stamped "Not to be charged to a pressure above 900 psi." Grumman Aircraft representative states that accumulator air pressure in F8F aircraft has been 900 psi, but was increased recently to 1100 psi.

Recommend 1. Include instructions in F8F E&M handbook for installation of a Bendix AN 6203-1 accumulator or indicate in pertinent publications that only the Vickers AN 6203-1 accumulator (P/N R83-VI-AA-14007-B) can be installed in the F8F airplanes. *2.* Clarify existing instructions for proper charge to be carried in F8F accumulators.

Engine Exhaust Stack. First failure of engine exhust stack, P/N R82-GR-124178-12, occurred after 420 hours.

Carburetor Header. NATC Patuxent Yellow Sheet BIS 21108 Item S-15 reported cracks in header, RH & LH P/N 124030-2 and -3, after 186.9 hours. Cracks were welded and header reinstalled. Cracks were again discovered in header after 361 hours, and a new header was installed. Cracks were discovered in this new header after 59.5 hours operation. *Recommend* that satisfactory carburetor header be provided and that header be inspected for cracks at each 60-hour check.

Down Lock Cylinders. Both port and starboard down lock cylinders were removed because of hydraulic leaks. In each cylinder the "O" ring packing, P/N AN 6227-15, had rolled or twisted in its groove and allowed hydraulic fluid to leak past. The small "O" ring packing, P/N AN 6227-7, in the port down lock cylinder had worn to about one half its original size. This packing was not leaking. Several similar descrepancies have occurred on other F8F aircraft at this activity. *Recommend* investigation of cause of movement and wearing of the "O" ring packings.

F2H-1 (189 Hours)

Canopy Seal. Improper alignment of the two parts of the canopy seal disconnect caused the male end (fixed to fuselage) to damage the seal in the female end (fixed to canopy). No provision is made for adjustment to align these parts. *Recommend* that the two parts of the canopy seal disconnect be made adjustable so that proper alignment can be maintained.

Fuel Cell Sump. The center fuel cell sump horizontal strap is riveted to the vertical strap at the after end and bolted at the forward end. Bolt is inaccessible unless cockpit pressurization lines, which pass under the sump, are removed. *Recommend* that accessibility of bolt on strap be improved.

Fuel Controls. (Westinghouse No. 22E468-5 J34-EW-22 engine). During a period of four days, five new fuel controls were installed in an effort to obtain satisfactory engine operation. One control leaked because of a cracked case. The other four caused erratic engine operation. *Recommend* that satisfactory fuel control be provided.

Aileron Boost. Port aileron boost system failed in flight. Motor armature rear ball bearing seized and centering spring washer allowed armature to move to rear and cooling fan to rub against cover assembly.

Starboard aileron boost system failed in flight. Motor assembly front bearing failed and seized, causing the motor to fail. *Recommend* that satisfactory aileron boost motor and pump assembly be provided.

Wing Skin. Skin on port wing at station 107.848 cracked immediately forward of flap. Skin on starboard wing at station 107.848 showed evidence of incipient failure. Failures apparently caused by flexing of skin.

Cherry rivets at both wing stations 97.00 were found loose. *Recommended:1.* Provide stiffeners in wing to prevent failures described. *2.* Provide satisfactory non-structural rivets in wings.

Canopy Track Bearings. Outer race of one of the rear bearings on canopy track failed during flight and caused canopy to jam. Clutch, P/N 15-35030, slipped and failed when attempt was made to open canopy with actuator. Emergency canopy release was also pulled, but canopy would not open. This is second failure of bearing in 18 hours of flight operations. *Recommend* that satisfactory bearings on canopy track be provided.

Spark Plugs. (Auburn AA 49-220 Rev. O. W. E. Co. P/N 62 G-488-2 Rev. O) AN-F-58 fuel is being used in service test of F2H-1 as requested by BUAER letter. Spark plugs become so fouled with heavy carbon deposits after six hours of engine operation that is is impossible to start engine.

F9F-2 (67 Hours)

Terminal Blocks. Electrical system terminal blocks throughout the airplane are uncovered. Short circuiting of the systems will occur if tools or other metal objects touch the blocks. *Recommend* that all terminal blocks be covered.

Generator Drive Seal. During acceptance check oil was found in starter dog compartment. Generator drive seal, P/N 133498, was found to be leaking.

Fuel Filter Body. Seal, P/N 123055, was improperly installed. When fuel filter body was tightened the seal was forced out of position and fuel leak developed.

Canopy Actuator. Hydrolube leaked past seals in shuttle valve, P/N 95017, into emergency air system, forced shuttle valve to neutral position, and prevented canopy actuator from closing canopy. Two seals had rubbed against rough surface of valve body and each seal had flat spot on outer surface.

Speed Brake Selector. Speed brakes would not open during flight and operated erratically during subsequent ground check. Solenoid on selector valve was found to be burned out. *Recommend* that cause of failure be investigated.

Aileron Boost. Valve assembly leaked hydrolube and adequate pressure was not available in aileron boost system. Disassembly of valve assembly revealed the following:

1. An incorrect seal, AN 6227-25, had been installed during original assembly instead of correct seal, AN 6227-23. This caused by-pass valve to stick in by-pass position.

2. Seal AN 6227-12 was chipped, causing slight leak.

3. Seal AN 6227-6 on external fitting was cut, resulting in external leak.

Recommend: 1. Require contractor to institute adequate inspections to prevent improper assembly. *2.* If practicable, conduct a functional and leakage test before installation on aircraft.

Nose Section Metal. Metal surfaces in vicinity of battery are not painted with acid resistant paint in acordance with Spec. AN-E-17, paragraph D-1b(3) (a). *Recommend* conformance with specification.

E&M Handbook. F9F handbook states "Access to the actuating cylinders and the swivels is gained by folding the wings and lowering the dive brakes." This is incorrect in that it

is unnecessary to fold the wings. *Recommend* correction.

Hydraulic System. Pressure relief valve on auxiliary hydraulic pump stuck in open position and prevented pump from building up pressure in excess of 175 psi. A scaly residue found in the filters and filter bowls probably caused the valve to function improperly.

Hydraulic fluid used in this system is a commercial grade of "UCON" hydrolube U-4 manufactured by Carbon and Carbide Chemical Corp. Appears to be possibility that there is some reaction between the fluid and certain parts of the hydraulic system that causes the formation of this residue.

Filters were changed; entire hydraulic system was operated for two hours, and filters changed again. *Recommend* investigation to determine source of residue.

Hydraulic system has proved to be greatest maintenance problem. Metal shavings and rubber particles have been found throughout the system. Rubber particles came from accumulator diaphragms. These diaphragms have been replaced with new ones which have a metal disc over the point where the diaphragms had worn. Metal shavings are believed to have been left in system during assembly.

Flying Hood For Transports

VMR-152, El Toro—A new blind flying hood has been developed for R5D aircraft that allows the instructor or check pilot in the right cockpit seat the necessary visibility for safety of flight and at the same time puts the pilot on the left on total instruments.

A common piece of tin first was molded to fit properly on the glareshield of the R5D. A method was devised through attachment of two clips to the hood which permits the instructor to slip the hood onto the leading edge of the glareshield in one simple move-

ALUMINUM HOOD IN PLACE IN COCKPIT OF R5D

ment. This also permits rapid removal in case of an emergency.

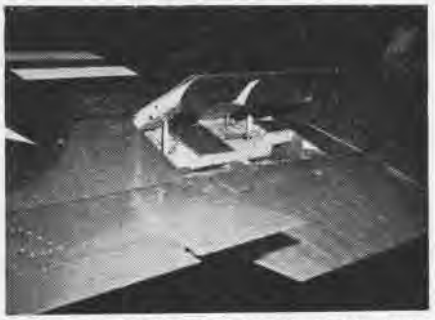
After a finished pattern was devised for this piece of tin, the first finished hood was made of Alcoa aluminum, painted black to alleviate glare or reflection. A small diagonal curtain was cut for the left side window and secured with dot fasteners.

Take Paint Off F8F Plates

VF-151, Pacific—This squadron has removed the paint from the flash plates on its F8F's to retard deterioration.

Plane captains got a supply of "gunk" from the O&R and removed the paint with it. Although it is too soon to ascertain positive results, it is believed that this procedure will save metalsmiths the chore of having to replace cracked and corroded flash plates.

SPOILER INCREASES PLANE ROLL



SPOILER IS SLAVE TO AILERON ABOVE WING

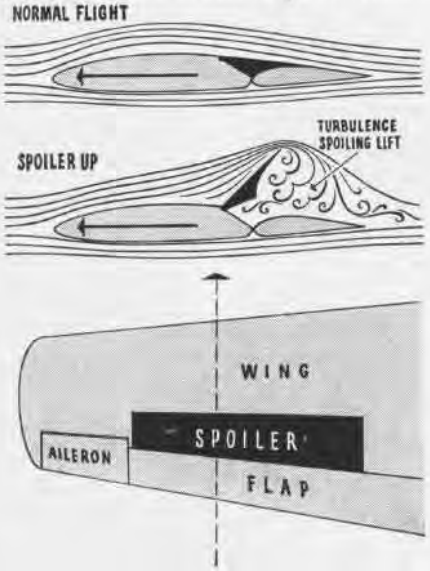
Something new in control surfaces, a "spoiler" to increase effectiveness of the ailerons, is present on three Navy aircraft built by Glenn L. Martin Co. They are the AM-1 *Mauler*, the P4M *Mercator* and the P5M-1.

The spoiler aileron has the effect of creating a turbulence on top of the wing, decreasing the lift of that wing and augmenting the push from the aileron in lifted position. The result is better maneuverability.

Spoilers are located on top of the wings at the trailing edge, just in front of the flap. Each is a slave to the adjacent aileron and is automatically operated by a hydraulic cylinder when the aileron is operated. During normal flight, the spoiler is flush with the upper surface of the wing, but when the aileron is raised the spoiler rises at the same time and in a proportional amount.

Thus the spoiler breaks up the airflow over the upper surface and gives greater maneuverability. Given the same span as the aileron, the spoiler may be several times as effective as the aileron.

Because the spoiler is hydraulically raised, the pilot does not exert any force to operate it. To provide emergency operation in case of power failure and provide proper aerodynamic feel for the pilot of his lateral control system, at least a small "feel" aileron is provided. As the pilot manually controls this aileron, through the force required to move this surface during maneuvering, he thus maintains a knowledge or "feel" of his airplane's response.



SPOILER RAISES UP TO DESTROY LIFT OF WING

VF-152 Relocates Check-Off

VF-152—Due to the poor placement of check-off lists in the F8F-1, the squadron safety officer, Ens. R. M. Buller, devised an improved one.

It consists of a piece of cardboard about 2½" square on which the check-off list is typed in red ink. In addition, the card is outlined with ¼" red border. Take-off items are listed on the left hand side of the card and landing items on the right.

The cardboard is covered with celluloid and secured to the top of the rubber crash pad on the gunsight by means of a safety wire in each upper corner. The new position places it almost directly in front of the pilot's eyes without blanking any other switch or instrument.

MINIATURE PLANE HELPS VISUALIZE LANDINGS

Device Aids ADF Training

VMR-152, El Toro—This squadron figured out a way to simplify teaching its pilots the new system of "in and out" ADF let-down which recently replaced the old DF and ADF "Box" let-down.

A pilot got a piece of plastic and cut it in the form of an aircraft. An extra compass rose ring from an E6B computer was riveted to the plastic airplane. A small magnetic compass was taken from a surveyed life raft and cemented to the plastic airplane's nose position.

To demonstrate the usefulness of this trainer, it is placed on an ordinary sectional map which is oriented on a flat surface to magnetic north. The aircraft is then moved around on the map and at the same time the instructor moves the needle of the compass in any desired position in relation to the compass reading on the nose.

This simulates movement of the radio compass pointer as the aircraft is being flown with the compass in the ADF position.

LETTERS

SIRS:

On 8 July VA-14 completed one year of operations in F4U-4's without a single accident due to pilot error, faulty material or faulty maintenance. Over 4,000 hours were flown at San Diego, aboard the CV *Tarawa* on a world cruise and at Cecil Field, Jacksonville. During this time 355 carrier landings were made.

In that year the only accident occurred aboard the *Tarawa* off Tsingtao, China. Lt. (jg) E. M. Bain was landed aboard while No. 2 wire was being retracted. The wire did not pay out and a broken hook resulted in a barrier crash.

We fully realize that our record is not earth-shaking or amazing and that it has been bettered by others, but we still are rather proud of it. We further realize that the writing of this letter undoubtedly will break the spell and bring chaos and confusion upon our heads, but we feel we may as well write it while we can. Tomorrow will no doubt see a rash of wheels-up landings and high pitch take-offs.

We attribute our modest success to careful flying, interminable lectures on safety, good maintenance, a good airplane and a staggering amount of good luck.

L. E. BURKE, CDR.
VA-14

SIRS:

Your unclassified edition of June 1949 failed to include in its listing of volunteer aviation units, VAU 14-1, the only such unit authorized outside the continental limits. It was formed in September 1948 and now has a membership of about 60 officers and men.

The facilities and aircraft of NAF HONOLULU were available to us till it closed in March and since May we've been using the planes of NAS BARBER'S POINT. Eight drills were held in fiscal 1949. We are ably led by Cdr. Budd Murray, formerly of VR-2.

W. G. DOONAN, LT.
HONOLULU, T. H.

SIRS:

I should like to comment briefly on your article on VF-9 (NANEWS, August) and point out that squadrons are often, if not consistently, overly-optimistic in their claims.

Specifically, in this instance VF-9 claims to have intercepted and turned back one CL, one DLS and four DD's, coming out of Casablanca harbor on the morning of 8 November 1942. If your editor had referred to the *History of U. S. Naval Operations in World War II*, Vol. 2, Chapter 4, he would have confirmed the fact of the attack, but certainly not the conclusions.

As a matter of fact, the French fleet continued standing out to sea and before the morning was over there was a rip-roaring surface battle, involving the *Massachusetts, Tuscaloosa, Wichita, Brooklyn, Augusta, Wilkes* and *Ludlow*.

Furthermore, to give credit where credit is due, that particular flight was led by Lt. Mac Wordell of VF-41 (later VF-4) rather than VF-14 as stated. Mac has a handsome Navy Cross to show for it.

W. W. NILES, LCDR.
(formerly VB-41, CVB-87)
3418 RESERVOIR RD.
WASHINGTON, D. C.

¶ Someone switched the digits on us, and VF-41 was the squadron working with VF-9. We certainly did credit Lt. Wordell for his part. The show was good enough for plenty of credit to both squadrons, and the French ships did feel their punch.

SIRS:

I am proud of to be, perhaps, the only subscriber and reader of NAVAL AVIATION NEWS in Spain. I enjoy much reading that superb magazine who is NANEWS, and I congratulate to you for your splendid work.

I wish to do you the following inquiries: Is it true or not that the large letter painted on the rudder of carrier-borne planes designates the air group and not the carrier from which the plane operates? The number painted on the planes' sides is always the abbreviated bureau number or not.

I wish ardently to know your answers to these questions and if there is any publication available for foreign sale concerning to the meaning of plane markings, system of application of them, and all referring to external appearance and paint of Navy planes.

Pardon this disturbance, I express to you the testimony of my highest consideration and sympathy.

LAZARO MINUE
FUENCARRAL 36
MADRID, SPAIN

¶ On combat aircraft, the number on the side in large block letters indicates the number of the squadron and the number assigned to the plane in the squadron. It also may have the bureau number in small numerals on the tail. On utility planes, the big numbers on the fuselage are the last three digits of the bureau number. Letters on the tail of combat planes indicate the carrier or air group. See "By The Letters," Dec. 1947, NANews, or ACL 156-46.

SIRS:

In your May 1949 issue I noticed an article referring to the Toastmasters Club at NAS SAN DIEGO as the first naval aviation Toastmasters Club. I am sorry we have not kept you better informed. The Marine Corps Air Station, El Toro (Santa Ana), California, claims the first all naval aviation Toastmasters Club.

This club had its first meeting in July, 1948, and received its charter on March 15, 1949. The Club is composed of naval aviators and aviation duty officers of the Navy and Marine Corps.

Col. Stanley E. Ridderhof, a charter member of Coronado Club #9, was instrumental in setting up the El Toro Club. Charter officers are Lt. Col. W. E. Sweetser, president; Maj. F. L. Platt, sergeant-at-arms; Maj. F. L. Maerz, treasurer; Capt. W. E. Bedford, vice president; and First Lt. R. F. Marr, secretary.

L. E. WOODS, MAJ. GEN.
MCAS EL TORO.

CONTENTS

• THE COVER

Working on the pigtail of a 2.25" SCAR rocket on the wing of an F6F is R. H. Boda, formerly with the Reserve CVEG-71 at Glenview and now at Pensacola.

• RECOGNITION QUIZ

TOP: Air Force F-90 by Lockheed, a jet interceptor powered by two turbojet engines. Span is 40 feet and weight 25,000 pounds, as much as an R4D. Wing sweep is 35°.

LOWER: Another Lockheed, this time the F-94, an all-weather radar fighter with two men. An afterburner boosts speed and climb. It is the Air Force's first jet night fighter.

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SQUADRON INSIGNIA

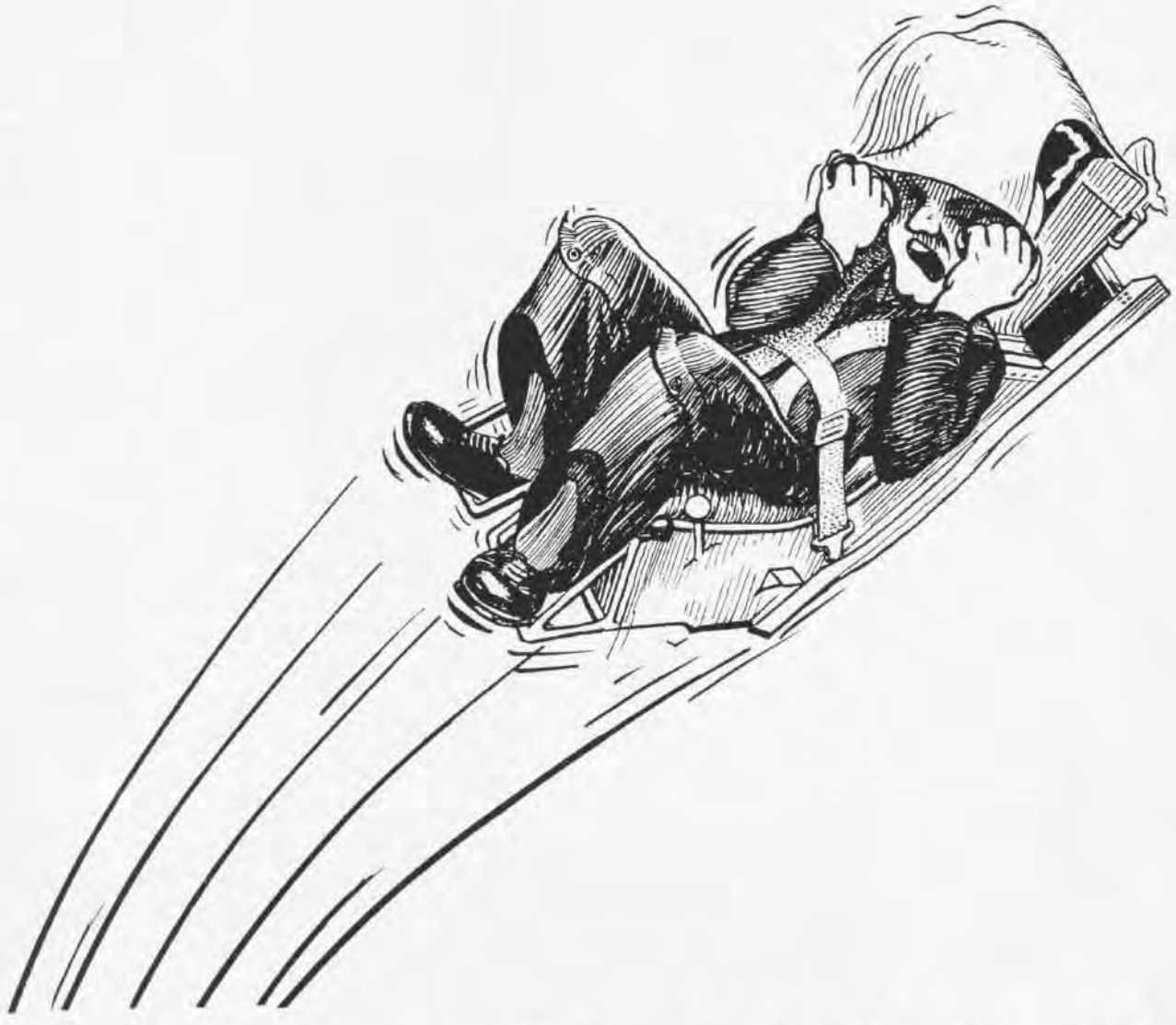
SOME imaginative squadron insignia feature this month's presentation. VU-3 at El Toro has an electronic hornet operating a drone control box. NAS Whidbey Island shows a GCA truck bringing in a fighter with an umbrella fending off the famed Puget Sound rain. Background is high Cascade peaks. VP-21 flies the heavyweights of naval aviation, so an elephant is a natural for its insigne. The searchlight indicates ASW work. FASRon-161's bulldog, equipped with monkey wrench, conveys the feeling of strength and know-how repair ability.

VU-3

NAS WHIDBEY ISLAND

VP-21

FASRon-161



HE'S OUT BUT HE'S SAFE

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